



# ***Self Assessment Report***

UNDERGRADUATE ENGINEERING PROGRAMS (TIER-II)  
(FIRST TIME ACCREDITATION)

Department of Mechanical Engineering  
Assam Engineering College  
Jalukbari, Guwahati-781013, ASSAM

**NBCC Place, 4th Floor East Tower, Bhisham Pitamah Marg,  
Pragati Vihar, New Delhi 110003  
Phone: +91(11)24360620-22, 24360654  
Fax: +91(11) 24360682  
E-mail: [membersecretary@nbaind.org](mailto:membersecretary@nbaind.org) Website:  
[www.nbaind.org](http://www.nbaind.org) (June, 2015)**

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## PART A: Institutional Information

**1. Name and Address of the Institution:** Assam Engineering College, Jalukbari, Guwahati, Assam 781013

**2. Name and Address of the Affiliating University:**

- a) Gauhati University, Jalukbari, Guwahati, Assam,
- b) Assam Science and Technology University, Guwahati, Assam

**3. Year of establishment of the Institution: 1955**

**4. Type of the Institution:**

- |                   |                                     |
|-------------------|-------------------------------------|
| University        | <input type="checkbox"/>            |
| Deemed University | <input type="checkbox"/>            |
| Government-Aided  | <input type="checkbox"/>            |
| Autonomous        | <input type="checkbox"/>            |
| Affiliated        | <input checked="" type="checkbox"/> |

**5. Ownership Status:**

- |                            |                                     |
|----------------------------|-------------------------------------|
| Central Government         | <input type="checkbox"/>            |
| State Government           | <input checked="" type="checkbox"/> |
| Government-Aided           | <input type="checkbox"/>            |
| Self-financing             | <input type="checkbox"/>            |
| Trust                      | <input type="checkbox"/>            |
| Society                    | <input type="checkbox"/>            |
| Section 25 Company         | <input type="checkbox"/>            |
| Any Other (Please specify) | <input type="checkbox"/>            |

**Provide Details:** Owned by Government of Assam

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

**Table A.6**

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

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

Table A.7

| S. N o.   | Program Name   | Name of the Department                        | Year of Start | In-tak e  | In-crease in in-take | Year of in-crease | AICTE Ap-proval | Accredita-tion Sta-tus*    |
|---|--|---|---------------|-----------|----------------------|-------------------|-----------------|----------------------------|
| 1   | B.E. in Civil Engineering                              | Civil Engineering                             | 1955          | 60        | 30                   | 2009              | 90              | Applying first time        |
| 2   | <b>B.E. in Mechanical Engineering</b>                  | <b>Mechanical Engineering</b>                 | <b>1957</b>   | <b>60</b> | -                    | -                 | -               | <b>Applying first time</b> |
| 3   | B.E. in Electrical Engineering                         | Electrical Engineering                        | 1957          | 60        | 30                   | 2009              | 90              | Applying first time        |
| 4   | B.E. in Chemical Engineering                           | Chemical Engineering                          | 1963          | 30        | 30                   | 2007              | 60              | Applying first time        |
| 5   | B.E. in Electronics and Tele-communication Engineering | Electronics and Telecommunication Engineering | 1984          | 30        | 30                   | 2007              | 60              | Applying first time        |
| 6   | B.E. in Instrumentation Engineering                    | Instrumentation Engineering                   | 1998          | 20        | -                    | -                 | -               | -                          |
| 7   | <b>B.E. in Industrial and Production Engineering</b>   | <b>Industrial and Production Engineering</b>  | <b>1998</b>   | <b>20</b> | -                    | -                 | -               | -                          |
| 8   | B.E. in Computer Science Engineering                   | Computer Science Engineering                  | 1998          | 20        | -                    | -                 | -               | -                          |
| <b>Masters in Engineering/Postgraduate programs</b> |  |   |               |           |                      |                   |                 |                            |
| 9   | M.E. in Soil Mechanics/Geotechnical Engineering        | Civil Engineering                             | 1988          | 18        | -                    | -                 | 18              | Eligible but not applied   |
| 10  | M.E. in Watershed Management and Flood Control         | Civil Engineering                             | 1977          | 18        | -                    | -                 | 18              | Eligible but not applied   |
| 11  | M.E. in Electrical Engineering                         | Electrical Engineering                        | 2004          | 18        | -                    | -                 | 18              | Eligible but not applied   |
| 12  | M.E. in Mechanical Engineering                         | Mechanical Engineering                        | 2005          | 18        | -                    | -                 | 18              | Eligible but not applied   |

| Other postgraduate programs |                                 |                                  |      |    |   |   |    |                          |
|-----------------------------|---------------------------------|----------------------------------|------|----|---|---|----|--------------------------|
| 13                          | Masters in Computer Application | Computer Applications Department | 1990 | 30 | - | - | 30 | Eligible but not applied |

**\*Write applicable one:**

- Applying first time
- Granted provisional accreditation for two /three years for the period (specify)
- Granted accreditation for 5 /6 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

**Note:** Add rows as needed.

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

**Table A.8**

| S. No. | Program   |
|--------|---|
| 1.     | B.E. in Civil Engineering                             |
| 2.     | <b>B.E. in Mechanical Engineering</b>                 |
| 3.     | B.E. in Electrical Engineering                        |
| 4.     | B.E. in Chemical Engineering                          |
| 5.     | B.E. in Electronics and Telecommunication Engineering |

**9. Total number of employees in the institution:**

**A. Regular Employees (Faculty and Staff):**

**Table A.9a**

| Items                                  |   | CAY<br>(2017-18) |     | CAYm1<br>(2016-17) |     | CAYm2<br>(2015-16) |     |
|--|---|------------------|-----|--------------------|-----|--------------------|-----|
|  |   | Min              | Max | Min                | Max | Min                | Max |
| Faculty in Engineering                 | M | 59               | 59  | 58                 | 58  | 58                 | 58  |
|  | F | 21               | 21  | 25                 | 25  | 25                 | 25  |
| Faculty in Maths, Science & Humanities | M | 9                | 9   | 11                 | 11  | 13                 | 13  |
|  | F | 13               | 13  | 12                 | 12  | 12                 | 12  |
| Non-teaching staff                     | M | 172              | 172 | 162                | 162 | 178                | 178 |
|  | F | 14               | 14  | 11                 | 11  | 13                 | 13  |

**Note: Minimum 75% should be Regular/Full Time faculty and the remaining shall be Contractual Faculty/Adjunct Faculty/Resource Source from industry as per AICTE norms and standards.**

**The contractual Faculty will be considered for assessment only if a faculty is drawing a salary as prescribed by the concerned State Government for the contractual faculty in the respective cadre and who have taught over consecutive 4 semesters.**

**CAY – Current Academic Year**

**CAYm1- Current Academic Year minus1= Current Assessment Year**

**CAYm2 - Current Academic Year minus2=Current Assessment Year minus 1**

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

**Table A.9b**

| Items                                  |          | CAY<br>(2017-18) |     | CAYm1<br>(2016-17) |     | CAYm2<br>(2015-16) |     |
|--|----------|------------------|-----|--------------------|-----|--------------------|-----|
|  |          | Min              | Max | Min                | Max | Min                | Max |
| Faculty in Engineering                 | <b>M</b> | 25               | 26  | 12                 | 12  | 12                 | 12  |
|  | <b>F</b> | 14               | 14  | 9                  | 9   | 9                  | 9   |
| Faculty in Maths, Science & Humanities | <b>M</b> | 4                | 4   | 1                  | 1   | 0                  | 0   |
|  | <b>F</b> | 1                | 1   | 1                  | 1   | 0                  | 0   |
| Non-teaching staff                     | <b>M</b> | 5                | 5   | 3                  | 3   | 3                  | 3   |
|  | <b>F</b> | 1                | 1   | 1                  | 1   | 1                  | 1   |

**10. Total number of Engineering Students:**

**Table A.10**

| Bachelors in Engineering/Undergraduate programs |                  |                    |                    |
|---|------------------|--------------------|--------------------|
| Item  | CAY<br>(2017-18) | CAYm1<br>(2016-17) | CAYm2<br>(2015-16) |
| Total no. of boys                               | 322              | 324                | 320                |
| Total no. of girls                              | 98               | 99                 | 104                |
| Total no. of students                           | 420              | 423                | 424                |
| Masters in Engineering/Postgraduate programs    |                  |                    |                    |
| Item  | CAY<br>(2017-18) | CAYm1<br>(2016-17) | CAYm2<br>(2015-16) |
| Total no. of boys                               | 53               | 58                 | 43                 |
| Total no. of girls                              | 16               | 15                 | 20                 |
| Total no. of students                           | 69               | 73                 | 63                 |
| Masters in Computer Application                 |                  |                    |                    |
| Item  | CAY<br>(2017-18) | CAYm1<br>(2016-17) | CAYm2<br>(2015-16) |

|                       |    |    |    |
|-----------------------|----|----|----|
| Total no. of boys     | 23 | 17 | 21 |
| Total no. of girls    | 6  | 10 | 8  |
| Total no. of students | 29 | 27 | 29 |

*(Instruction: The data may be categorized in tabular form separately for undergraduate, postgraduate engineering, other program, if applicable)*

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

#### **11. Vision of the Institution:**

To be an institution for promoting and supporting sustainable development.

#### **12. Mission of the Institution:**

- To prepare technical manpower with knowledge skills and values of sustainability.
- To take up relevant problems of society & industry as projects, research themes for study and to provide technological solutions.

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

##### **i. Head of the Institution**

Name: **Dr. Atul Bora**

Designation: Principal, Assam Engineering College

Mobile No: +91-98640-78634

Email id: [principal@aec.ac.in](mailto:principal@aec.ac.in)

##### **ii. NBA coordinator, if designated**

Name: **Dr. Atul Bora**

Designation: Principal, Assam Engineering College

Mobile No: +91-98640-78634

Email id: [principal@aec.ac.in](mailto:principal@aec.ac.in)

##### **iii. NBA coordinator for Department of Mechanical Engineering**

Name: **Dr. Anil Borah**

Designation: Associate Professor

Mobile No: 9435117198

Email id: [anilbassam@rediffmail.com](mailto:anilbassam@rediffmail.com)

## PART-B: DEPARTMENT OF MECHANICAL ENGINEERING

|                    |   |           |
|--------------------|---|-----------|
| <b>CRITERION 1</b> | <b>Vision, Mission and Program Educational Objectives</b> | <b>60</b> |
|--------------------|---|-----------|

### CRITERION 1: Vision, Mission and Program Educational Objectives (60)

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

##### **Institute's Vision:**

To be an institution for promoting and supporting sustainable development.

##### **Department's vision:**

To build professionally competent Mechanical Engineers capable of contributing towards development of the nation and betterment of the society.

##### **Institute's Mission:**

- To prepare technical manpower with knowledge skills and values of sustainability.
- To take up relevant problems of society & industry as projects, research themes for study and to provide technological solutions.

##### **Department's Mission:**

1. To generate academic atmosphere conducive for developing soft skills, teamwork, leadership & entrepreneurship upheld by professional ethics and committed to sustainable development of the nation.
2. To provide high quality education for undergraduate programme in Mechanical Engineering and for higher study by adopting strategic approach in curriculum design and teaching methodology.
3. To promote acquisition of new knowledge and skill by collaborating with institutes of excellence and industries.
4. To generate new knowledge by creative thinking and innovative research targeted at the needs of the society and also North East India.

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

##### **Program Educational Objectives (PEO)**

Program educational objectives describe the expected accomplishments of graduates during the first few years after graduation.

1. Graduate engineers will develop effective technical expertise in Mechanical Engineering upholding ethical & moral values in practice and public life.
2. Graduate engineers will apply their innovative thinking and problem solving capability in social and professional life, exhibiting leadership by communication and teamwork.
3. Graduate engineers will be proficient in continuing their higher studies, professional development courses and research.
4. Graduate engineers will be capable of mobilizing human and physical resources to their fullest extent in organizations for holistic development.

##### **Program Specific Outcomes (2–4) (Defined by the Department)**

1. Mechanical Engineers would be able to identify, analyze and solve Mechanical Engineering problems as well as problems of allied engineering streams for meaningful implementation.
2. Mechanical engineers would be able to apply the basic principles of engineering in various engineering problems by engaging themselves in research work.

3. Mechanical engineers would be able to cater to the fast changing needs of industry, society and the country.

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

#### **Process has been undertaken**

- Vision, Mission and PEOs are published in college website link: <http://www.aec.ac.in/mechanical-engineering>.
- Vision, Mission and PEOs are printed in the poster format and placed in the main foyer of Department, HOD's Chamber and prominently displayed on the departmental notice boards.
- Vision, Mission and PEOs are published in the college information brochure and syllabus book.
- Process is also undertaken for awareness among internal and external stakeholders. Mission and Vision are disseminated to the stakeholders of the programmes.

### **1.4 State the process for defining the vision and mission and PEOs of the department**

The department has formulated the Vision, Mission and PEO statements through a continuous consultative process involving the alumni, guardian and parents, faculty and employee of the department and Departmental Advisory Board (DAB) as shown in flow diagrams (Figure 1 and Figure 2).

The process involved in finalization of : Vision, mission and PEO statements are described below:-

**Step 1:** A draft of the department vision, mission and PEO statements are formulated by the Department aligning with institute vision & mission statements. Department Vision and Mission statements are circulated among stakeholders for suggestions/ feedback/opinion. For this purpose the external stakeholders include Alumni and Parents, & internal stakeholders include Faculty members, Supporting staff & Students.

**Step 2:** Vision and Mission of the institute are taken as reference. Vision & mission statements of the department were formulated considering the suggestions from the stakeholders.

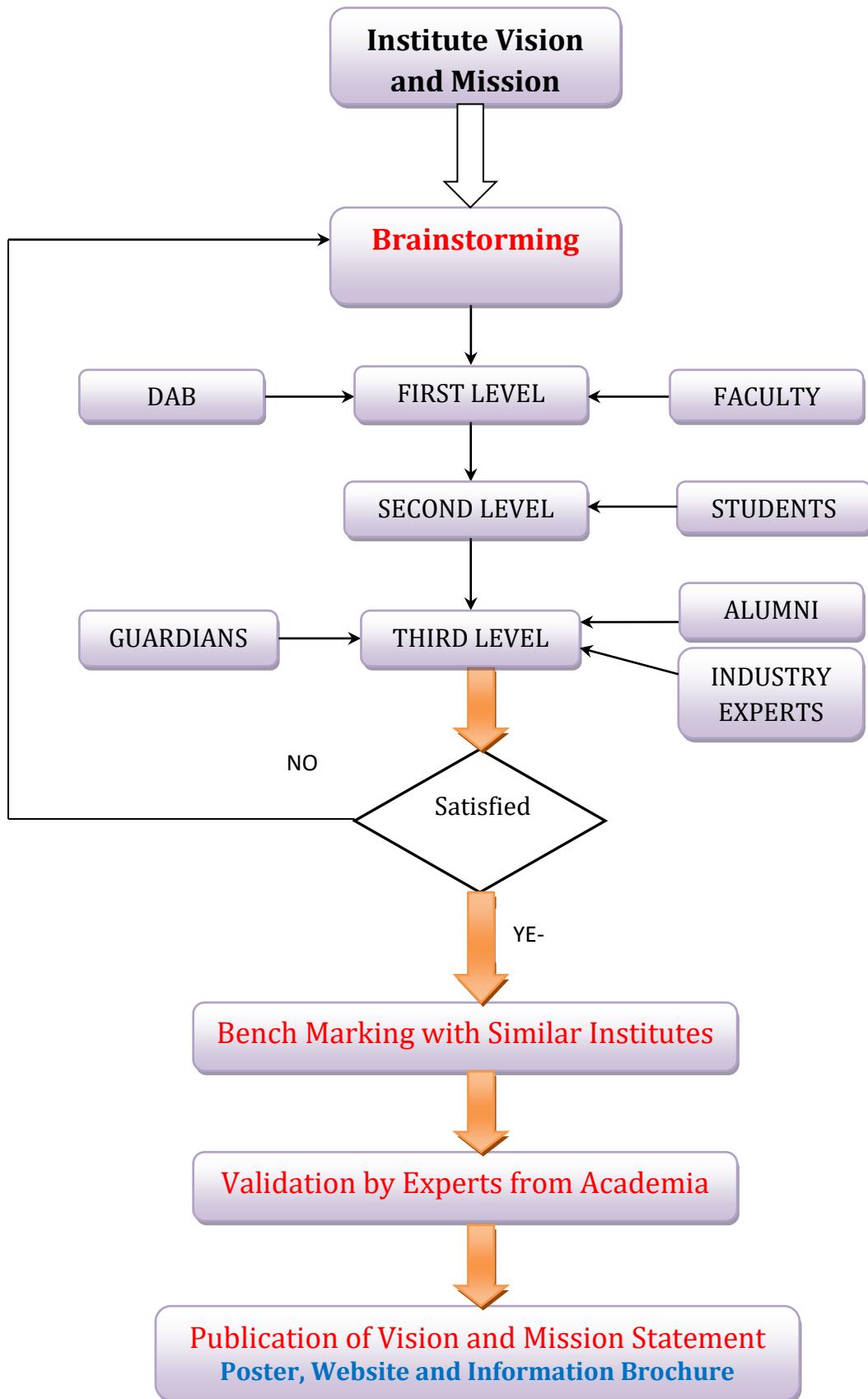
**Step 3:** Conduct a brainstorming session at the Department to discuss the changes suggested by the stakeholders and if required modify the Department Vision, Mission and PEO Statements.

**Step 4:** Vision, mission and PEO statements are compared with the vision & mission of similar institute.

**Step 5:** Vision, mission and PEO statements are validated by the experts from academia.

**Step 6:** Circulate and published the revised : Vision, mission and PEO statements among stakeholders and department premises.

In establishing the Vision, Mission and PEOs of the department, the indicated steps given above are illustrated in **Fig. 1** and **Fig. 2**. A sample feedback form is attached herewith in **Fig. 1(a)**.



**Fig.1 Flow chart to depict information flow and consensus on Vision, Mission statements**

## Department's vision (Original)

*To strive continuously in the pursuit of excellence in Mechanical Engineering by creating professionally competent students, acknowledged by stakeholders, thus contributing towards the development of the nation and betterment of the society.*

**Though not competent, only humble suggestion of the undersigned for the discussion in the house.**

- Yellow highlight to be replaced by green.
- Blue highlight to be dropped.

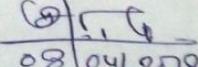
*To strive continuously in the pursuit of excellence in Mechanical Engineering **the field of Engineering** by **creating building** professionally competent students **Mechanical Engineers**, acknowledged by stakeholders, **thus contributing towards for** the development of the nation and **for the** betterment of the society.*

## Department's vision (Suggested)

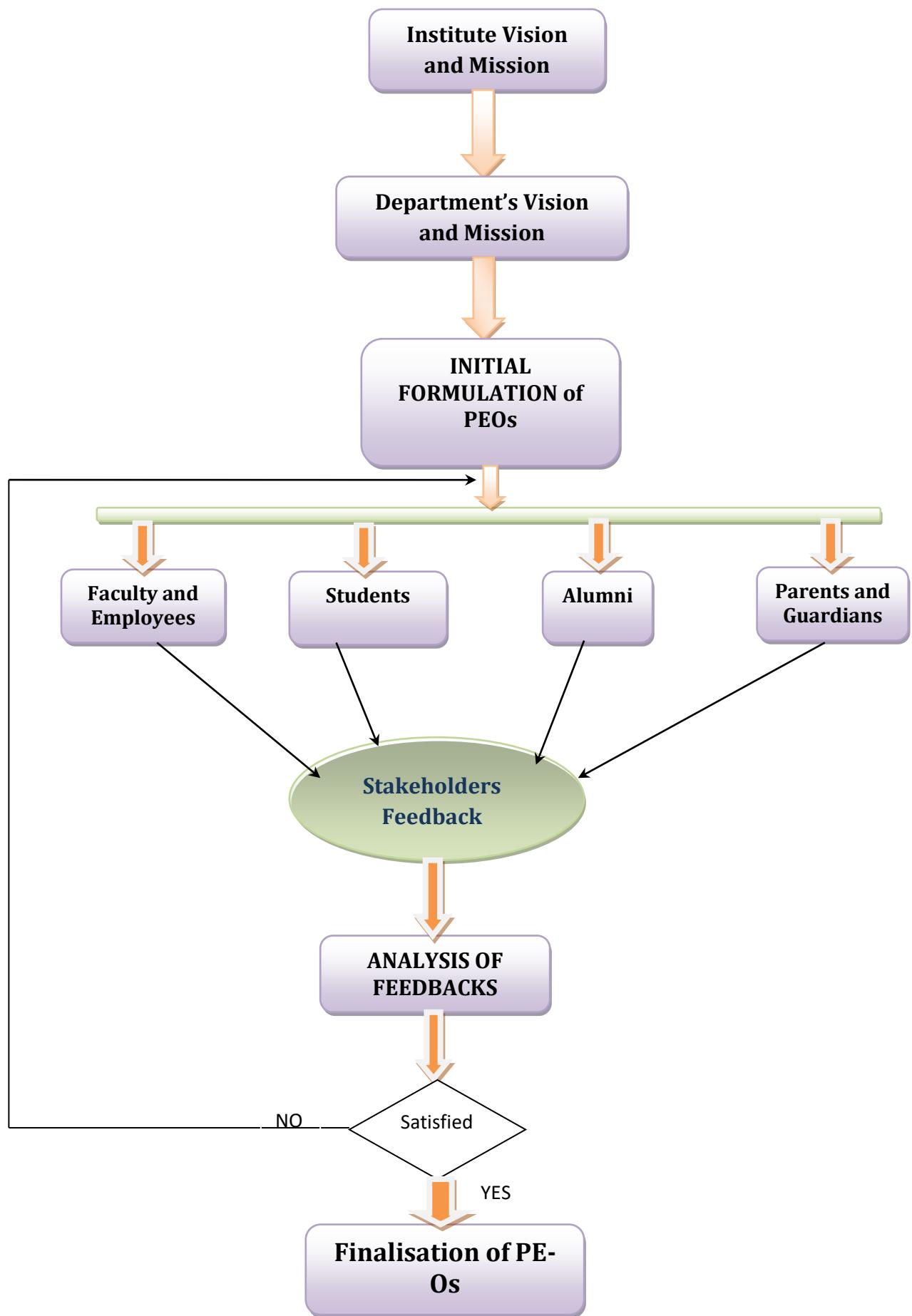
*To strive continuously in the pursuit of excellence in **the field of Engineering** by **building** competent **Mechanical Engineers** **for** the development of the nation and **for the** betterment of the society.*

### Argument:

- In the current scenario no branch of engineering can exist in isolation.
- Curriculum is designed not only to create KSA but also to develop inherent talent of the student over a period of time.
- Probably it may not be required to modify the adjective competent as Competent shall take care of both professional and technical aspect.
- Vision statement demonstrates clearly ultimate goal/outcome/aim for all the stakeholders. Probably it would be appropriate to use Mechanical Engineers for Student.
- “Acknowledged by stakeholders” may not be required in the Vision Statement as it demonstrates clearly ultimate Organisational/ Departmental goal/outcome/aim.

  
08/04/2019  
(Hiranya Kumar Das)  
Superintending Engineer  
Central Ground Water Board  
CHQ, Faridabad.

**Fig. 1(a) A sample feedback received from an alumnus**



**Fig 2: Flow diagram for establishing PEOs**

## 1.5 Establish consistency of PEOs with Mission of the Department

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

**Table B.1.5**

| <b>PEO statements</b>   | <b>Mission</b> |           |           |           |
|---|----------------|-----------|-----------|-----------|
|   | <b>M1</b>      | <b>M2</b> | <b>M3</b> | <b>M4</b> |
| 1. Graduate engineers will develop effective technical expertise in Mechanical Engineering upholding ethical & moral values in practice and public life.                        | 2              | 3         | –         | 2         |
| 2. Graduate engineers will apply their innovative thinking and problem solving capability in social and professional life, exhibiting leadership by communication and teamwork. | 3              | –         | 1         | 3         |
| 3. Graduate engineers will be proficient in continuing their higher studies, professional development courses and research.   | –              | 1         | 3         | –         |
| 4. Graduates engineers will be capable of mobilizing human and physical resources to their fullest extent in organizations for holistic development.                            | 3              | 2         | –         | 2         |

**Table B.1.5 (a): Justification and rationale of the PEO and Mission mapping**

| <b>PEOs</b>   | <b>Justification</b>  |
|---|---|
| 1. Graduate engineers will develop effective technical expertise in Mechanical Engineering upholding ethical & moral values in practice and public life                         | <b>Mission-1</b> is moderately connected with PEO1 as it assists in upholding professional ethics.<br><b>Mission-2</b> is highly consistent with PEO1, as strategic approach in delivering education having relevance to the need of the hour is expected to help in the development of technical expertise of students.<br><b>Mission-4</b> is moderately related with PEO1 as acquiring technical expertise will support in generating new knowledge in mechanical engineering.   |
| 2. Graduate engineers will apply their innovative thinking and problem solving capability in social and professional life, exhibiting leadership by communication and teamwork. | <b>Mission-1</b> also highly supports PEO2 as objective is to develop leadership quality among the students for successful team work and effective communication.<br><b>Mission-3</b> is lowly supportive to PEO2 as promoting research and training through collaboration with institutes of excellence and industries will help bringing in new ideas as by an exchange of institutional culture.<br><b>Mission-4</b> is strongly consistent with PEO2 as the objective is to develop innovative thinking for solving problems among the students to elicit generation of creative ideas. |
| 3. Graduate engineers will be proficient in continuing their higher studies, professional development courses and research  | <b>Mission-2</b> slightly supportive to PEO3 as providing high quality education will facilitate the selection of career options by graduates for pursuing higher studies and professional training.<br><b>Mission-3</b> is strongly supportive to PEO3 as an encouragement for students to pursue higher studies and advanced professional courses needed for career advance-  |

|   |  |
|---|--|
| <p>4. Graduates engineers will be capable of mobilizing human and physical resources to their fullest extent in organizations for holistic development.</p> | <p>ment.</p> <p><b>Mission-1</b> strongly supports PEO4 as an academic environment conducive for all round development of the graduates for professional jobs &amp; entrepreneurial ventures are expected to make them professionally successful and self dependent.</p> <p><b>Mission-2 and 4</b> moderately support PEO4 as the course curriculum is meant for generation &amp; utilization of ideas by the graduates for effective exploitation of available resources for holistic development in their future course of action.</p> |
|---|--|

### **Bench marking with similar institutes**

#### **Mechanical Engineering Department, Jorhat Engineering College (Government College) Assam**

##### **VISION**

To emerge as a centre of excellence in mechanical engineering and maintain it through continuous effective teaching-learning process and need-based research.

##### **MISSION statements**

M1: To adopt effective teaching-learning processes to build students capacity and enhancing their skills.

M2: Nurture the students to adapt to the changing academic needs and industrial aspirations.

M3: To develop professionals to meet industrial and societal challenges.

M4: To motivate students for entrepreneurial ventures for nation-building.

#### **Mechanical Engineering Department, College of Engineering, Pune**

##### **Vision**

To be a leader amongst engineering institutions in India, offering value based world class education, and constantly pursuing excellence.

##### **MISSION statements**

1. To offer state-of-the-art undergraduate, postgraduate and doctoral programmes.

2. To develop skilled and employable undergraduates to accept the global and societal challenges, while imparting quality education at undergraduate level

#### **Mechanical Engineering Department, Government Engineering College, Hassan**

##### **VISION**

To achieve excellent standards of quality education by keeping pace with rapidly changing technologies and to create technical manpower of global standards in mechanical engineering with capabilities of accepting new challenges.

##### **MISSION statements**

1. To create competent professionals who are trained in the design, analysis and implementation of Mechanical Engineering and contribute towards the advancement of engineering, science and technology.

2. To impart quality and value based education to raise satisfaction in Mechanical Engineering.

3. To provide all possible support to promote research & development activities in the field of Mechanical Engineering and allied areas.

## PROGRAM CURRICULUM AND TEACHING – LEARNING PROCESSES (120)

## 2.1 Program Curriculum (20)

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

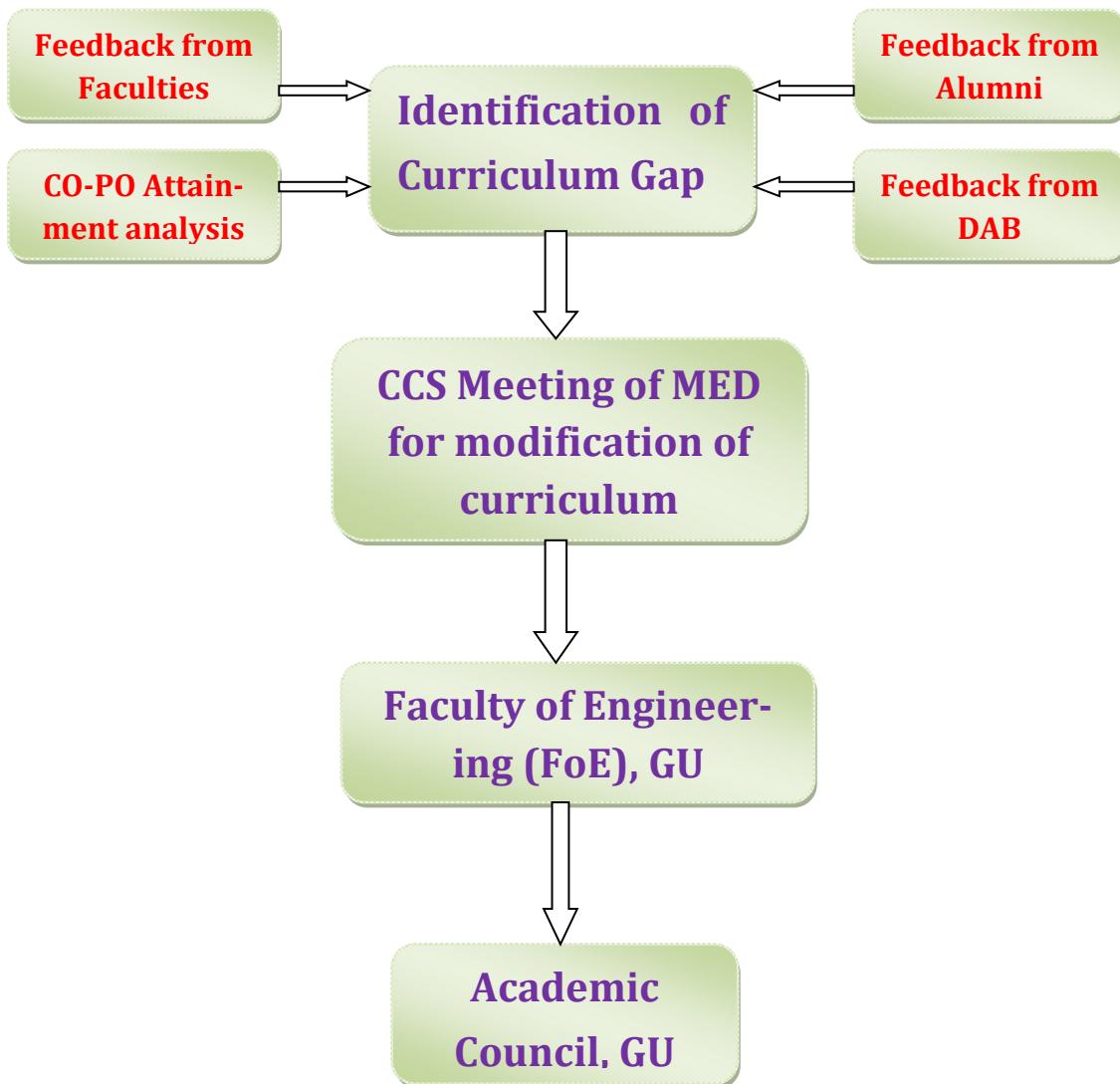


Fig 3: Flow diagram for identification of Curriculum Gap

**Abbreviations used:** DAB-*Departmental Advisory Board*, GU-*Gauhati University*, CCS-*Committee for Courses and Syllabus*

## GAP ANALYSIS

Assam Engineering College is affiliated to Gauhati University (GU), Assam. The course curriculum of Mechanical Engineering Departmental has been provided by the university. Institute does not provide direct feedback to GU. Instead, faculties raise the issues at CCS and also at DAB. But both proposals are finalized at CCS. This is sent as “modified syllabus” to Faculty of Engineering (FoE) at GU. FoE sends it to Academic council (Dean is the member).

**Table B.2.1.1: Addition of new topics in various courses after revision**

| Sl No | Course Name                                  | Gap Analysis  | Proposed action      | Date and no of students present | Relevance to POs, PSOs               |
|-------|--|---|----------------------|---------------------------------|--------------------------------------|
| 1     | ME 821: Manufacturing Methods                | Casting Design – Gating system: pouring basin, sprue, runner, choke, gate and/or ingate, riser and its location. Use of Padding and Chills. Types of gates. Aspiration effect. Functional design of casting – minimum wall thickness, ribs etc. | Revision of syllabus | Syllabus revised                | PO1, PO2, PO3, PSO1, PSO3            |
| 2     | ME 323: Engineering Graphics-III             | Computer aided drafting, Introduction to AutoCAD –solid modeling, Computer graphics.  | Revision of syllabus | Syllabus revised                | PO1, PO2, PO3, PO5, PSO1, PSO2, PSO3 |
| 3     | ME 426: Fluid Mechanics-I                    | Open channel flow: Introduction, Classification of open channel flows, specific energy, momentum equation and specific force, Steady, gradually varied flow, Rapidly varied flow, Best Hydraulic cross sections.                                | Revision of syllabus | Syllabus revised                | PO1, PO2, PSO1, PSO2, PSO3           |
| 4     | ME 624: Engineering Inspection and Metrology | Coordinate measuring machine (CMM): Types of CMM, Role of CMM, and applications of CMM.   | Revision of syllabus | Syllabus revised                | PO1                                  |

**Table B.2.1.1(a): Addition of New Courses after revision of Syllabus in 2015**

| Sl No | Course Name  | Target POs, PSOs             |
|-------|--|------------------------------|
| 1.    | ME 527: General Proficiency & Extra Curricular Activities (ECA-I)  | PO10, PO12, PSO1, PSO2, PSO3 |
| 2.    | ME 627: General Proficiency & Extra Curricular Activities (ECA-II) | PO10, PO12, PSO1, PSO2, PSO3 |
| 3.    | ME 724: Elective-I: Introduction to Aerodynam-                     |                              |

|    |   |                                  |
|----|---|----------------------------------|
|    | ics/Rotordynamics<br>ME 725: Elective-II (open): Mechatronics |                                  |
| 4. | ME 824: Elective-I: Automotive Mechanics                      | PO(1, 2, 3, 7, 12), PSO(1, 2, 3) |

Following are the processes used to identify extent of compliance of university curriculum for attaining the POs and PSOs.

1. Formulation of Course Outcomes (CO) for each course
2. Mapping of each Course Outcome with POs and PSOs. Weaknesses in mapping with non-technical POs were identified. Step has been undertaken for satisfactory attainment of those POs.
3. The GAP analysis is carried out on the basis of the CO and PO attainment of individual courses.
4. The Gap is discussed in the Departmental Advisory Board (DAB) and Faculty meeting and the content beyond the syllabus is prepared accordingly to bridge the GAP.
5. These contents are delivered to the students through Remedial classes/self learning materials/ seminars and expert talks.

**Direct Assessment Methods:**

- Internal Assessment- Class Test, Home assignment, etc.
- Final Year Projects
- Laboratory
- Grand viva
- End Semester University Examinations

**Indirect Assessment Methods:**

- Industrial Training
- Exit surveys
- Course feedback

**Table B2.1.1(b): Program Level Course - PO Matrix of all Courses**

| Course Name                               | Course Code | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10    | PO 11 | PO 12 |
|---|-------------|------|------|------|------|------|------|------|------|------|----------|-------|-------|
| Physics-I                                 | PH101       | 2.5  | 2    | 1.5  | —    | —    | —    | —    | —    | —    | —        | —     | —     |
| Chemistry-I                               | CY102       | 2.6  | 2.2  | 1    | 1    | 1.2  | 1    | 1    | -    | 1    | 1        | -     | 1     |
| Mathematics-I                             | MA103       | 3    | 3    | 1.2  | 1    | —    | —    | —    | —    | 1    | —        | —     | 2     |
| Elements of Civil Engineering             | CE104       | 2.6  | 2.2  | 1    | 2    | 1.5  | —    | —    | —    | —    | —        | —     | —     |
| Eng Communication and Tech report Writing | HU105       | —    | 1    | —    | 1    | —    | 1    | 1    | 1.4  | 3    | 2.2<br>5 | —     | 3     |
| Engineering                               | CE106       | 3    | 3    | 2.4  | 2.5  | 2.1  | 2.5  | 1    | —    | —    | —        | —     | —     |

|                                 |         |          |          |          |     |     |     |          |     |     |          |     |          |
|---------------------------------|---------|----------|----------|----------|-----|-----|-----|----------|-----|-----|----------|-----|----------|
| Graphics-I                      |         |          |          | 2        | 7   | 4   | 7   |          |     |     |          |     |          |
| Introduction to Computing       | CS107   | 3        | 2.6      | 2.8      | 3.2 | 2.4 | 2.4 | 1.6      | 1   | 2   | 3.2      | 1.6 | 2        |
| Workshop-I                      | ME108   | 1.8      | 1.4      | —        | —   | —   | —   | —        | 1.2 | 1.8 | —        | —   | —        |
| Physics-I Lab                   | PH101 L | 2        | -        | -        | -   | -   | -   | -        | -   | 1   | -        | -   | -        |
| Chemistry-I Lab                 | CY102L  | 2.6      | 2.2      | 1        | 1   | 1.2 | 1   | 1        | -   | 1   | 1        | -   | 1        |
| Physics-II                      | PH201   | 1.7<br>5 | 1.3<br>3 | 1.2<br>5 | -   | 1   | -   | -        | -   | -   |          |     |          |
| Chemistry-II                    | CY202   | 2.6<br>6 | 1.8<br>3 | 1.33     | 1.5 | 1.5 | 2.2 | 1.8<br>3 | -   | 2   | 2.6<br>6 | -   | 2.1<br>6 |
| Mathematics-II                  | MA203   | 3        | 3        | 2        | -   | -   | -   | -        | -   | -   | -        | -   | 2        |
| Engineering Mechanics-I         | ME204   | 3        | 2        | 2        | 2.5 | 1.8 | -   | -        | -   | -   | -        | -   | 1        |
| Strength of Materials           | CE205   | 3        | 2        | 2        | 2.5 | 1.8 | -   | -        | -   | -   | -        | -   | 1        |
| Basic Electrical Engineering -I | EE206   | 3        | 3        | 3        | 2   | 1.6 | 1   | 3        | 2   | 1   | -        | -   | 3        |
| Engineering Graphics-II         | ME207   | 3        | 3        | 1        | -   | 2   | 3   | -        | -   | -   | -        | -   | 1        |
| Workshop-II                     | ME208   | 1.6      | 2        | -        | -   | -   | -   | -        | 1   | 1.6 | -        | -   | -        |
| Physics-II Lab                  | PH201 L | 2        | -        | -        | -   | -   | -   | -        | -   | 1   | -        | -   | -        |
| Chemistry-II Lab                | CY202 L | 2.2      | 2        | 1.5      | 1.6 | 1.5 | 1   | 1.7      | -   | 1   | 1.2<br>5 | 1   | 1        |
| Engineering Mechanics-I Lab     | ME204 L | 3        | 1.5      | 1.3      | 1.8 | 1.3 | -   | -        | -   | -   | -        | -   | 1        |

|                             |         |     |      |      |      |     |      |     |     |      |     |   |   |      |
|-----------------------------|---------|-----|------|------|------|-----|------|-----|-----|------|-----|---|---|------|
| Strength of Materials Lab   | CE205 L | 3   | 1.5  | 1.3  | 1.8  | 1.3 | -    | -   | -   | -    | -   | - | - | 1    |
| Basic Electrical Engg-I Lab | EE206 L | 3   | 3    | -    | 1    | -   | -    | -   | -   | 3    | 2   | - | - | 3    |
| Mathematics – III           | MA 301  | 3   | 3    | -    | -    | -   | -    | -   | -   | -    | -   | - | - | 2    |
| Electro Technology – I      | EE 303  | 3   | 3    | -    | -    | -   | -    | -   | -   | -    | -   | - | - | 1.8  |
| Basic Thermodynamics        | ME 305  | 3   | 2.8  | 1    | 1    | 1   |      | 1   |     |      |     |   |   |      |
| Theory of Machine           | ME 322  | 3   | 2    | 2.6  | 1.4  | 1.4 | -    | -   | -   | -    | -   | - | - | 1    |
| Engineering Graphics – III  | ME 323  | 3   | 2.8  | 2    | 1    | -   | -    | -   | -   | 1    | -   | - | - | 1    |
| Workshop Theory – I         | ME 324  | 3   | 2.8  | 1.25 | -    | -   | -    | -   | -   | -    | -   | - | - | 1.2  |
| General Proficiency         | ME 325  | -   | -    | -    | -    | -   | -    | -   | -   | -    | 2.7 | - | - | 2.4  |
| Electro Technology – I      | EE 303L | 3   | 1.66 | -    | 1.33 | -   | -    | -   | -   | -    | 2   | - | - | 1.66 |
| Theory of Machines          | ME 322L | 2   | 1.8  | 2.3  | 1.8  | 1.3 | -    | -   | -   | -    | -   | - | - | 1    |
| Engineering Graphics – III  | ME 323L | 3   | 2.5  | 2    |      | 3   |      |     |     |      |     |   |   | 1    |
| Workshop Theory – I         | ME 324L | 3   | 2    | 1    | -    | -   | -    | -   | -   | -    | -   | - | - | 1    |
| Mathematics – IV            | MA 401  | 2.8 | 2.8  | -    | -    | -   | -    | -   | -   | -    | -   | - | - | 2    |
| Sociology and Accountancy   | HU 402  | -   | 1    | -    | -    | -   | 1.33 | 1   | 1.6 | 1.16 | 1   | 1 | - | 3    |
| Communication Skill         | HU 403  | -   | 1.8  | -    | 1.5  | -   | 2.2  | 1.2 | 1.8 | 2    | 3   | - | - | 3    |

|                                     |         |     |      |     |      |      |     |      |     |     |      |     |      |
|-------------------------------------|---------|-----|------|-----|------|------|-----|------|-----|-----|------|-----|------|
| Electro Technology – II             | EE 404  | 3   | 2.5  | -   | 1    | -    | -   | -    | -   | -   | 2    | -   | 1.75 |
| Mechanics of Material               | ME 425  | 3   | 2    | 2   | -    | -    | -   | -    | -   | 1   | 1    | -   | 1    |
| Fluid Mechanics - I                 | ME 426  | 3   | 3    | 1.2 | 1    | 1    | -   | -    | -   | 1   | -    | -   | 1    |
| Material Science                    | ME 427  | 3   | 3    | 3   | -    | -    | -   | -    | -   | -   | -    | -   | 1    |
| General Proficiency                 | ME 428  | -   | -    | -   | -    | -    | -   | -    | -   | -   | 3    | -   | 2.4  |
| Electro Technology – II             | EE 404L | 3   | 1.75 | -   | 1.5  | -    | -   | -    | -   | -   | 2    | -   | 1.5  |
| Mechanics of Materials LAB          | ME 425L | 3   | 2    | -   | -    | -    | -   | -    | -   | 2   | 2    | -   | 1    |
| Fluid Mechanics                     | ME 426L | 3   | 3    | 1.4 | 1.2  | -    | 1   | -    | -   | 2   | 2    | 1   | 1    |
| Economics & Principle of Management | HU 501  | -   | 1    | -   | -    | -    | 1.5 | 1    | 1.5 | 2   | 1    | 1   | 2.67 |
| Mechanism & Dynamics of Machines    | ME 522  | 3   | 3    | 2.6 | 1.6  | 1.8  | -   | -    | -   | 2   | -    | -   | 1    |
| Applied Thermodynamics – I          | ME 523  | 2.8 | 2.4  | -   | 2    | -    | -   | 1    | -   | 1   | -    | -   | 1.75 |
| Heat Transfer – I                   | ME 524  | 3   | 2    | 2   | 2    | 1    | 1.4 | 1.2  | -   | 1.4 | 1.4  | 1   | 1.4  |
| Instrumentation                     | ME 525  | 3   | 3    | 2.2 | 2    | 2.33 | 1.5 | 1.5  | 2   | 1   | 1    | 2   | 1.2  |
| Machine Design - I                  | ME 526  | 2.6 | 2.8  | 3   | 2.2  | 2    | -   | 1.75 | 1.5 | -   | 1    | 1.5 | 1    |
| General Proficiency                 | ME 527  | -   | -    | -   | -    | -    | -   | -    | -   | -   | 2.67 | 1   | 2.2  |
| Mechanism & Dynamics of Machines    | ME 522L | 1   | 1    | 1   | 1    | 1    | 1   | 1    | 1   | 1   | 1    | 1   | 1    |
| Applied Thermodynamics – I          | ME 523L | 3   | 2.5  | 1   | 1.25 | -    | -   | 1    | -   | 2   | 1    | -   | 1    |
| Instrumenta-                        | ME      | 3   | 3    | 2.6 | 2.2  | 2.2  | 1.8 | 1    | 1   | 2.5 | 1    | 2   | 1    |

|                                      |         |     |     |      |      |     |     |     |   |     |     |   |     |
|--------------------------------------|---------|-----|-----|------|------|-----|-----|-----|---|-----|-----|---|-----|
| tion LAB                             | 525L    |     |     |      |      |     |     |     |   |     |     |   |     |
| Heat Transfer – I LAB                | ME 524L | 3   | 3   | 2.33 | 3    | 1   | 2   | 1   | 1 | 3   | 3   | 2 | 1   |
| Machine Design - II                  | ME 621  | 3   | 3   | 2.8  | 3    | 2   | 3   | 2.2 | 3 | -   | 3   | - | 3   |
| Operation Research                   | ME 622  | 3   | 3   | 2.2  | 2    | -   | -   | -   | - | -   | -   | - | 2   |
| Fluid Mechanics – II                 | ME 623  | 3   | 3   | 2.8  | 2.4  | -   | 1.4 | -   | - | 1   | 1   | - | 1.6 |
| Engineering Inspection and Metrology | ME 624  | 3   | 3   | 2    | 1.75 | 2   | -   | -   | - | -   | -   | - | 1.2 |
| Workshop Theory – II                 | ME 625  | 3   | 2.4 | 2.6  | 2.4  | 2.6 | -   | 1   | - | 1   | -   | - | 1.8 |
| Numerical Methods and Computation    | ME 626  | 3   | 3   | 2.6  | 1.6  | 1.8 | -   | -   | - | 2   | -   | - | -   |
| General Proficiency                  | ME 627  | -   | -   | -    | -    | -   | -   | -   | - | 2.7 | -   | - | 2.4 |
| Machine Design – II LAB              | ME 621L | 2   | 3   | 3    | 2    | 3   | -   | 1   |   |     | 1   | 1 | 2   |
| Fluid Mechanics – II                 | ME 623L | 3   | 3   | 2.5  | 2.5  | -   | 2   | -   | - | 2   | 2   | - | 1.5 |
| Engineering Inspection and Metrology | ME 624L | 3   | 2.4 | 1.6  | -    | -   | -   | -   | - | -   | -   | - | 2   |
| Workshop Theory – II                 | ME 625L | 3   | 2   | 2.5  | 2.8  | 2.2 | 1.5 | 1   | - | 2.8 | -   | - | 2   |
| Mechanical Vibration                 | ME 721  | 3   | 2   | 1.8  |      | 3   |     |     |   | 1   | 1   |   | 1   |
| Applied Thermodynamics – II          | ME 722  | 2.6 | 2.4 | 1.7  | 1.6  | -   | -   | 2   | - | -   | 1   | - | 1.6 |
| Hydraulic Machines                   | ME 723  | 3   | 3   | 2.2  | 1.8  | -   | 1.2 | 1   | - | 1.4 | 1.3 | 1 | 1.2 |
| Heat Transfer – II                   | ME 724  | 3   | 3   | 1.6  | 1    | 2   | 2   |     | 2 | 3   | 2   |   | 3   |
| Elective – I                         | ME 725  | 3   | 2.6 | 2.2  | 1.6  | -   | 1   | -   | - | -   | -   | - | 1   |
| Refrigeration                        |         | 3   | 3   | 2.6  | 1    | -   | -   | -   | - | -   | -   | - | -   |

| Machine Tools  |            |          |          |          |          |          |          |          |          |          |          |          |          |   |
|--|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|
| Elective – II<br>(Open)<br>Computational<br>Fluid Dynam-<br>ics and Heat<br>Transfer | ME 726     | 3        | 2.8      | 2.8      | 2.4      | 1.8      | -        | -        | -        | 1        | -        | -        | -        | 1 |
| Non Conven-<br>tional Energy<br>Systems  |            |          |          |          |          |          |          |          |          |          |          |          |          |   |
| Practical<br>Training  | ME<br>727L | 2        | 2.3      | 2        | -        | -        | 1        | -        | 2        | 3        | 3        | -        | 1.2      |   |
| Project – I  | ME<br>728L | 1.5      | 2.5      | 2        | 1        | 2        | 2        | 2.5      | -        | 3        | -        | 2.5      | 2        |   |
| Manufacturing<br>Method  | ME 821     | 3        | 3        | 3        | —        | —        | —        | —        | —        | —        | —        | —        | —        | 1 |
| Industrial<br>Engg& Man-<br>agement  | ME<br>822  | 1        | 2        | 2        | 2        | 3        | 2        | 1.5      | 2        | 2        | 1        | 2.5      | 1        |   |
| Internal Com-<br>bustion Engine  | ME<br>823  | 2.2      | 2        | 2        | 2.4      | 2        | 1        | 1.7<br>5 | -        | 2.2<br>5 | 2.5      | -        | 1.2<br>5 |   |
| Elective – III<br>Air Condition-<br>ing  | ME<br>824  | 3        | 3        | 2        | 2        | -        | 1.6<br>7 | 1        | 1.3<br>3 | -        | -        | 1        | 1        |   |
| Compressor<br>& Gas Turbine  |            | 3        | 2.6      | 2.6      | 2.2      | -        | 1.8      | 1        | -        | 1        | 1        | -        | 1.4      |   |
| Elective – IV<br>(Open)<br>Power<br>Plant Technol-<br>ogy                            | ME<br>825  | 3        | 2.6      | 2.6      | 2.4      | -        | 1.4      | 1.4      | -        | 1        | 1.2      | -        | 2        |   |
| Robotics<br>& Applications   |            | 3        | 2        | 1.6      | -        | 2        | -        | -        | -        | 1        | 1        | -        | 1        |   |
| Project – II   | ME<br>826  | -        | 3        | -        | -        | -        | 2        | 2        | 2        | 3        | -        | 2        | 2        |   |
| Viva-Voce  | ME 827     | -        | 2        | -        | -        | -        | -        | -        | -        | -        | 1        | -        | 2        |   |
| Grand Average  |            | 2.7<br>5 | 2.4<br>1 | 1.9<br>7 | 1.8<br>0 | 1.8<br>3 | 1.57     | 1.3<br>7 | 1.6<br>0 | 1.6<br>9 | 1.7<br>4 | 1.4<br>5 | 1.5<br>9 |   |

**Table B2.1.1(c): Identification of gaps in curriculum**

| Sl. No | PO   | Gaps Identified   |
|--------|------|---|
| 1.     | PO4  | Courses such as ME 621, ME 622, ME 623, ME 624, ME 625, ME 722, ME 723, ME 724 have scopes for conduct investigations of complex problems.  |
| 2.     | PO5  | Courses such as ME 427, ME 526, ME 621L, ME 624 and ME 726(CFD) and have scope for teaching Modern Tools usage in their syllabi.  |
| 3.     | PO6  | Courses such as HU 402 and HU 501 have scope for teaching societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice |
| 4.     | PO7  | Not many courses have specific topics related to environment and sustainability. ME 726 has scope to include contents related to environment and sustainability.                                    |
| 5.     | PO8  | Not many courses have specific topics related to engineering ethics. HU 402 has scope for teaching engineering ethics.  |
| 6.     | PO9  | HU 402L, ME 527, ME 627, ME 727 and ME 826 have scope for inculcating leadership and team work in various environments.   |
| 7.     | PO10 | HU 402L, ME 527, ME 627, ME 727 and ME 826 have scope for improving communication skill among the students.   |
| 8.     | PO11 | ME 622 and ME 822 have scope to include topics on project management skills.  |

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

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

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

The following are the methods adopted for attaining the Program Outcomes are:

- Tutorial Class
- Remedial Class
- Self study and presentation
- Assignments
- Expert talk
- Hands on training/workshop

**Table B.2.1.2a: Content beyond syllabus for CAYm1**

| S.No. | Gap               | Action taken                                   | Date-Month-Year | Resource Person with designation                | No. of students present | Relevance to POs, PSOs |
|-------|-------------------|--|-----------------|---|-------------------------|------------------------|
| 1     | Modern Tool Usage | A Hands-on-Training on MATLAB was organised on | April 3–6, 2018 | Mr. Soumya Ranjan Nanda, Research Scholar, IITG | 51                      | PO5                    |

|   |                                |   |   |   |                      |      |
|---|--------------------------------|---|---|---|----------------------|------|
|   |                                |   |   | Mechanical engineering Department   |                      |      |
| 2 | Modern Tool Usage              | Training of AutoCAD, Solid Works, ANSYS   | Weekly 3 days from 3 <sup>rd</sup> semester onwards | Mr. R. Rahman, Proprietor, Guwahati CAD Centre, Guwahati                                    | 77                   | PO5  |
| 2 | Engineering Ethics             | Expert Talk on engineering ethics   | 11/05/18  | Dr. U.S. Dixit  | 76                   | Po8  |
| 3 | Environment and sustainability | One day Seminar on Environment, Air Pollution and Noise,                          | 23/02/2018  | Dr. B.K. Dubey, Civil Engg, IITKGP<br>Dr. K. Kalita, Dr. S.K. Kakoty<br>Dr. S.D. Kore, IITG | 82                   | PO7  |
| 4 | Communication                  | Training by Triumphant Institute of Management Education (T.I.M.E) is undertaken. | Sept/2017-Nov/2017+ Feb/2018-May/2018               | Faculties from T.I.M.E, Adabari   | For third year batch | PO10 |

**Table B.2.1.2b: Content beyond syllabus for CAYm2**

| S.No. | Gap                            | Action taken   | Date- Month- Year    | Resource Person with designation  | No. of students present | Relevance to POs, PSOs |
|-------|--------------------------------|--|----------------------|---|-------------------------|------------------------|
| 1     | Environment and sustainability | Two-day national conference on Non-conventional Energy | 17–18 November, 2017 | Dr. P. Kalita, Dr.U.K. Saha, Dr. V.S. Moholkar, Dr.P. Goswami, Dr.K. Mohanty of IITG, Dr.N. Chakrabarty, JU, Dr.R. Kakoty, TU, Mr. R. Sarma [GM], NEEPCO, Mr. M.K. Choudhury, | 3                       | PO7                    |

|   |                   |   |   |  |    |     |
|---|-------------------|---|---|--|----|-----|
|   |                   |   |   | AREDA  |    |     |
| 2 | Modern Tool Usage | Training of AutoCAD, Solid Works, ANSYS | Weekly 3 days from 3 <sup>rd</sup> semester onwards | Mr. R. Rahman, Proprietor, Guwahati CAD Centre, Guwahati | 91 | PO5 |

**Table B.2.1.2c: Content beyond syllabus for CAYm3**

| Sl No | Gap                            | Action Taken  | Date/ Month/ Year | Resource person/ Designation  | No of Students | Relevance to POs, PSOs |
|-------|--------------------------------|---|-------------------|---|----------------|------------------------|
| 1     | Project Management and Finance | Special Lecture was arranged for 8th semester students for the subject IEM on (i) Infrastructure management, (ii) Rural technology & management | 10/05/2016        | Dr. S.K. Kakoty, Professor, M.E. Department & Dean, Infrastructure and Project, IIT, Guwahati |                | PO11, PSO2             |

## **2.2 Teaching – Learning Processes (100)**

### **2.2.1 Describe Processes followed to improve quality of Teaching & Learning Academic Calendar**

Academic calendar is published well before the session and classes are organized by faculties at scheduled time. Also departmental class allotments and time tables for all semesters are displayed for easy access for the students for the whole semester.

### **Improvement in the Instructional Methods**

Course Plan along with Course Outcomes and evaluation methods are handed over to the students at the beginning of the class. Classes are held in smart class rooms and faculties use the facility of LCD projectors to disseminate the idea after indicating the learning objectives for the period. Some concepts are explained with the help of black board teaching method, display of models, video presentations etc. Laboratories are conducted to deliver the basic ideas as per time tables. Students also carry out experiments for their project work. Soft and hard copies of class notes on topics taught are provided to students at beginning of the session. Moreover, field visits to local industries are arranged to supplement the course curriculum.

Fulfilment of each course objective (CO) is evaluated after each class test/quiz. If fulfilment of any CO is found to unsatisfactory, special classes are arranged by the concerned teacher for satisfactory attainment of that particular CO.

### **Introduction of Student Feedback System**

Standard feedback forms are distributed among the students to get feedback about the teaching process of each class by the concerned teacher. Teachers take corrective measures based on the feedback received from the students to improve teaching. Feedback system of students is such that they can easily & freely assess and rate the faculty completing a course of study.

### **Initiatives and implementation details of Encouraging Bright Students**

- Assam Engineering College has the culture of encouraging bright students by providing them necessary guidance and moral support.
- Government of Assam awards Overseas Internship fellowship to one student from 6<sup>th</sup> semester of each branch under summer Overseas Internship Program from 2017 onwards.
- All Branch topper and Branch toppers are awarded every year on 25 January on the occasion of Foundation Day of the institute. The fund for awards was generated from donations received from alumni and well wishers.
- Students are encouraged to attend conferences, workshops and paper publication
- Students are encouraged to appear competitive examinations like GATE, GRE, IES etc.
- Encouraged to take up innovative projects and apply for funding to different agencies.

**Table B.2.2.1a: List of students getting Overseas Internship fellowship**

| Year | Names of the students                 |
|------|---------------------------------------|
| 2017 | Mr. Rishiraj Majumdar, Roll No 14/101 |
| 2018 | Mr. Pragyan Goswami Roll No. 15/100   |

**Table B.2.2.1b: List of awardees AEC Merit Award Fund (Mechanical Branch)**

| Year    | Semester                 | Names of the students   | Name of the award                                   |
|---------|--------------------------|-------------------------|---|
| 2014-15 | 2 <sup>nd</sup> Semester | Mr. Vishal Goswami      | Hem Kanta Bora Memorial Award for all branch topper |
|         | 3 <sup>rd</sup> Semester | Ms. Prerna Phukan       | Anil Anand Award                                    |
|         | 4 <sup>th</sup> Semester | Ms. Prerna Phukan       | Branch Topper Award                                 |
|         | 5 <sup>th</sup> Semester | Mr. Dhrubajyoti Das     | Branch Topper Award                                 |
|         | 6 <sup>th</sup> Semester | Mr Prem Nath Panjiyar   | Branch Topper Award                                 |
|         | 7 <sup>th</sup> Semester | Mr Madhurjya Pr Kashyap | Anil Anand Award                                    |
|         | 8 <sup>th</sup> Semester | Mr Madhurjya Pr Kashyap | Prof. A K Padmapati award for best ME graduate      |
| 2015-16 | 3 <sup>rd</sup> Semester | Akashdeep Sharma        | Anil Anand Award                                    |
|         |                          | Vishal Goswami          |   |
|         | 4 <sup>th</sup> Semester | Mr. Vishal Goswami      | Branch Topper Award                                 |
|         | 5 <sup>th</sup> Semester | Ms. Prerna Phukan       | Branch Topper Award                                 |
|         | 6 <sup>th</sup> Semester | Ms. Prerna Phukan       | Branch Topper Award                                 |
|         | 7 <sup>th</sup> Semester | Mr. Prithviraj Nath     | Anil Anand Award                                    |
|         | 8 <sup>th</sup> Semester | Mr. Biswajit Sarma      | Prof. A K Padmapati award for best ME graduate      |
| 2016-17 | 3 <sup>rd</sup> Semester | Mr. Jyoti Sagar Medhi   | Anil Anand Award                                    |
|         |                          | Ms. Uddipta Deka        |   |
|         | 4 <sup>th</sup> Semester | Mr. Jyoti Sagar Medhi   | Branch Topper Award                                 |
|         | 5 <sup>th</sup> Semester | Ms Sumi Das             | Branch Topper Award                                 |
|         | 6 <sup>th</sup> Semester | Mr. Vishal Goswami      | Branch Topper Award                                 |
|         | 7 <sup>th</sup> Semester | Ms. Prerna Phukan       | Anil Anand Award                                    |
|         | 8 <sup>th</sup> Semester | Ms. Prerna Phukan       | Prof. A K Padmapati award for best ME graduate      |
|         |                          | Ms. Prerna Phukan       |   |

|         |                          |                         |   |
|---------|--------------------------|-------------------------|---|
|         |                          |                         | gineering graduate                                    |
|         |                          | Ms. Prerna Phukan       | N Sarma Award for Best Lady Graduate                  |
| 2017-18 | 3 <sup>rd</sup> Semester | Mr. Pragyan Goswami     | Anil Anand Award                                      |
|         | 4 <sup>th</sup> Semester | Mr. Pragyan Goswami     | Branch Topper Award                                   |
|         | 5 <sup>th</sup> Semester | Ms. Uddipta Deka        | Branch Topper Award                                   |
|         | 6 <sup>th</sup> Semester | Mr. Arunav Kar          | Branch Topper Award                                   |
|         | 7 <sup>th</sup> Semester | Mr. Vishal Goswami      | Anil Anand Award                                      |
|         | 8 <sup>th</sup> Semester | Mr. Vishal Goswami      | Prof. A K Padmapati award for best ME graduate        |
|         |                          | Mr. Vishal Goswami      | Debabrata Goswami Award for best engineering graduate |
|         |                          | Ms. Porineeta Borpujari | N Sarma Award for Best Lady Graduate                  |

### **Initiatives and implementation details of Assisting Weak Students**

- The department adopts student mentoring system for monitoring, guiding and assisting weak students. The mentor faculty take appropriate actions consulting with the respective faculties for improvement.
- Additional attention is given to the weak students through remedial classes and study materials.

### **Initiatives for Faculty Developments**

Faculties participate in short-term courses and Faculty Development Programmes (FDPs) after getting approval from the HOD or Principal of the college arranged by IITs and other institutes to update with the recent developments. Faculties also undergo higher academic training such as Master's degree and PhD within and outside the state. Government of Assam often allow faculty members to join higher posts at other institutions.

### **Initiatives for Improving Communication Skill**

For developing communication skill, group discussions, presentation on specific subject areas of theory papers, technical & general topics in assessment of in the subject of General proficiency, Project work seminar presentations etc. are regularly carried out

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

#### **Process to ensure quality (5)**

##### **A. Process for Internal Assessment (IA) Question Paper setting, Evaluation & effective process implementation**

- i. The department conducts three internal assessment tests per semester as per the calendar of events.
- ii. The concerned faculty prepares the question paper, the scheme of evaluation indicating the distribution of marks and also CO which is addressed.
- iii. The attainment level is fixed as under: Scoring:  $65\% \geq \text{Level 3}$ ,  $40\% \geq \text{level 2} < 65\%$ ,  $35\% \geq \text{Level 1} < 40\%$

##### **B. Process to ensure questions from outcomes perspective**

- i. Questions that are set to be mapped to course outcomes at highest possible level in Blooms Taxonomy
- ii. End semester university question papers are set as per the guidelines set by the university. Generally, questions cover the whole syllabus.
- iii. Class test/quiz (Internal Assessments) questions are set with an aim to satisfy various course outcomes of a particular course. Attainment of each COs by the students is evaluated and corrective measures are adopted in the case of unsatisfactory attainment.

#### C. Evidence of CO coverage in IA

The documentation is maintained where the CO mapping to individual questions is mentioned in the question paper itself. A sample class test question paper is given below:

| Course Name: [ME-425]: WORKSHOP THEORY – I |       |  |           |
|--|-------|--|-----------|
| CO   | LV    | CLASS TEST 1: DATE 21.02.2018, TIME: 1hour   | Mark      |
|  |       | 1. Mention 3 operations that may be performed on lathe. Draw schematic for each and describe in few words why these operations are needed.   | 12        |
| CO1  |       | 2. Calculate change gears for cutting 1.2mm pitch in a center lathe having lead screw pitch 8TPI. The change gears available are 14T to 60T in steps of 2 and a special gear 127T. | 8         |
| CO1, CO2                                   | L1 L3 | 3. What is the function of thread dial indicator in lathe? Apply it on a lathe by taking an example of a lathe having lead screw of 6mm pitch and job pitch 1.2mm.                 | 2+3<br>=5 |
| CO3  | L3    | 4. Calculate machining time for turning a job of diameter 20mm to 15mm given longitudinal feed 0.02mm rev <sup>-1</sup> , speed 800RPM and DOC 1mm.                                | 5         |
|  |       | 5. How would you center a job in the chuck of lathe for subsequent machining?  | 5         |

| Course Name: [ME-425]: WORKSHOP THEORY – I |    |   |      |
|--|----|---|------|
| CO   | LV | Class Test II (05/04/2018) 8AM (1hour)  | Mark |
| CO5  | L3 | What will be the surface area of a cubical casting if size of the pattern is 50 mm × 50 mm × 50 mm and machining allowance is 1 mm on each surface? Neglect shrinkage of the metal.                                     | 5    |
|  |    | What are permeability and flowability of moulding sand? How casting is affected by low permeability.  | 4+3  |
|  |    | What are the shrinkages of metal in sand casting? Explain it showing temperature – time relation.   | 2+4  |
| CO5  | L3 | While cooling, a cubical casting of side 30 mm undergoes 2%, 4% and 6% volume shrinkage during the liquid state, phase transition and solid state respectively. What is the volume of metal compensated from the riser? | 5    |
|  |    | What is internal centerless grinding? Explain with diagram.   | 6    |
|  |    | What is the importance of dressing of a grinding wheel.   | 3    |
| CO2  | L2 | A Grinding wheel is specified as “C 30 K 5 B 17”. a) What is the abrasive type? b) What is the bond used? C) What is the size of grain?   | 3    |

Fig 4: A sample class test question paper

#### D. Quality of assignment & its relevance to COs

- i. Assignment questions are given to the students to promote the problem solving capability and shall submit the assignment within a stipulated time.
- ii. Assignments ensure in-depth understanding of the topics covered as they are required to refer to various sources to complete the assignment.

Rubric for assignment was formulated to assess the assignments as shown in Table B.2.2.2

Table B.2.2.2: Rubrics for Assignments/HW

| Conditions                                      | Mark |
|---|------|
| Timely submission on or before deadline         | 10%  |
| Subject knowledge                               | 30%  |
| Aesthetics of presentation in classified format | 20%  |
| Effectiveness/uniqueness in answer to the point | 30%  |
| Summary of answers                              | 10%  |

### **2.2.3. Quality of student projects (25)**

#### **Identification of projects and allocation methodology**

In the beginning of the semester all the faculties display their topics/fields of interest for project in the notice board. Each student group (limited to maximum 5) choose their topic/field for their project according to their interest.

The student projects are completed in two parts, each part is to be submitted in respective semesters. Depending upon requirement, the work may have continuity in both the semesters of 7th and 8th semester.

#### **Types and relevance of the projects and their contribution towards attainment of POs**

The project works include shared idea between student groups and faculty concerned. The works include types of fabrication works, theoretical analysis, testing and validation.

Projects are assigned to improve the theoretical and computational skills as well as hands-on experience in making models and prototypes, and to search for alternatives to achieve economy, efficiency and effectiveness.

Projects are allotted keeping in mind to the environment, safety and cost issues involved. Idea behind these projects to impart knowledge on the uses of modern equipment and techniques, develop problem analysis capability and design and developments of system and solution, develop team work mentality etc.

#### **Process for monitoring and evaluation**

In the beginning of the semester, each student group make a work plan to carry out their project. Respective guide meet the group of student under his supervision weekly to monitor the progress of their project as per work plan and to discuss the problems faced by the students. Students have to present three progress seminars about their work before the faculty members before the final submission. A panel of faculty members monitors the progress of their work and suggest remedial measures for improvement. 25% of the total marks are allotted to the presentations. The evaluations of projects are carried out according to the rubric developed.

#### **Process to assess individual and team performance**

Continuous progress and evaluation of the project is done as per the rubric developed for project. Individual student and team performances in a project are finally evaluated in a viva voce examination conducted by an expert panel consisting of an external examiner and internal examiners. Experts' comments are noted down for future improvement.

#### **Quality of completed projects/working prototype**

Quality of a project is evaluated on the basis of its contribution towards the society, environment and safety issues, cost, any award or prize received, paper published in journals or in national/international conferences. Final project demo for the working prototype and the report are evaluated by an expert panel consisting of an external examiner and internal examiners.

## Evaluation Scheme for Best Project Selection

The evaluation of best project in both 7th semester and 8th semester of B.E. courses is done using a rubric. The rubric was formed taking in to account of different criteria of academics, based on which marking was done. The first three best projects were selected by the department based on these marks.

**Table B.2.2.3a: Best 3 projects**

| <b>Best 3 projects (2011-15 Batch): B.E.7<sup>th</sup> semester</b> |                        |          |  |                  |              |       |
|---|------------------------|----------|--|------------------|--------------|-------|
| Sl. No.   | Name of students       | Roll No. | Topic/ Title of the project  | Guide            | Relevance to |       |
|   |                        |          |  |                  | POs          | PSOs  |
| 1   | Parag Jyoti Saikia     | 11/98    | Thermal Analysis and Waste Heat Recovery of a Parabolic Solar Power Concentrator           | Dr. S.K. Deb     | 1,6,7,11     | 1,2,3 |
|   | Jyotisman Bhattacharya | 11/122   |  |                  |              |       |
|   | Swaraj Das             | 11/190   |  |                  |              |       |
|   | Prithviraj Nath        | 11/295   |  |                  |              |       |
| 2   | Swapan Dhar            | 11/144   | Study and Modification of Cyclone Separator  | Dr. P. Baishya   | 1,6,7,11     | 1,2,3 |
|   | Purnendu Das           | 12/511   |  |                  |              |       |
|   | Manoj Deka             | 11/128   |  |                  |              |       |
|   | H.Thangminlun Simte    | 11/427   |  |                  |              |       |
| 3   | Pallab Baishya         | 09/145   | Design and Development of Multiple Lug Nuts Removal Tool for Lighter Motor Vehicles (LMVs) | Dr. P.K. Mahanta | 1,6,11       | 1,2,3 |
|   | Tuhin Chakraborty      | 11/106   |  |                  |              |       |
|   | Gautam Singha          | 11/145   |  |                  |              |       |
|   | Biplob Kumar           | 11/150   |  |                  |              |       |
|   | Sumon Bhowmik          | 12/513   |  |                  |              |       |

**Best 3 projects (2011-15 batch): B.E.8<sup>th</sup> semester**

| Sl. No. | Name of students        | Roll No | Topic/ Title of the project  | Guide            | Relevance to |       |
|---------|-------------------------|---------|--|------------------|--------------|-------|
|         |                         |         |  |                  | POs          | PSOs  |
| 1       | Ranjan Pratim Bora      | 12/541  | Design and Fabrication of a Mechanism for Oval Turning in a Conventional Lathe | Dr. A. Borah     | 1,2,3,5      | 1,2,3 |
|         | Janardan Das            | 12/542  |  |                  |              |       |
| 2       | Powerse Katiary         | 11/434  | Design and Fabrication of an Electric Wheel Chair                              | Dr. K. Kalita    | 1,6,11       | 1,2,3 |
|         | Ankur Chandra Boro      | 11/134  |  |                  |              |       |
|         | Moarenla Imchen         | 11/436  |  |                  |              |       |
|         | Tsilezonuo Suzana Belho | 11/437  |  |                  |              |       |
| 3       | Apurba Das              | 11/129  | Design and Fabrication of an Atmospheric Water Generator                       | Dr. D.K. Mahanta | 1,6,7        | 1,2,3 |
|         | Mrinal Jyoti Bora       | 10/133  |  |                  |              |       |
|         | Ankur Sarma             | 11/114  |  |                  |              |       |
|         | Rahul Kalita            | 11/101  |  |                  |              |       |

**Best 3 projects (2012-16 Batch): B.E.7<sup>th</sup> semester**

| Sl. No. | Name of students | Roll No | Topic/ Title of the project          | Guide         | Relevance to |       |
|---------|------------------|---------|--------------------------------------|---------------|--------------|-------|
|         |                  |         |                                      |               | POs          | PSOs  |
| 1       | Bijoy Saha       | 12/149  | Design and Fabrication of Mechanised | Dr. K. Kalita | 1,6,11       | 1,2,3 |
|         | Hemanga Prasad   | 12/437  |                                      |               |              |       |

|   |                    |        |   |                |          |       |
|---|--------------------|--------|---|----------------|----------|-------|
|   | Chetia             |        | 'Dheki'   |                |          |       |
|   | Pritam Das         | 12/128 |   |                |          |       |
|   | Arindam Hazarika   | 12/96  |   |                |          |       |
| 2 | Rahul Ghosh        | 12/143 | Design of a Semi-automatic Waste Collection Vehicle | Dr. P. Baishya | 1,6,7,11 | 1,2,3 |
|   | Arindam Paul       | 12/122 |   |                |          |       |
|   | Arijeet Debnath    | 12/139 |   |                |          |       |
|   | Amit Ranjan Laskar | 12/140 |   |                |          |       |
| 3 | Bijit Deka         | 12/117 | Compressed Air Bicycle                              | Dr. S. Paul    | 1,6,7,11 | 1,2,3 |
|   | Prince Kumar Jain  | 12/023 |   |                |          |       |
|   | Akash Tayal        | 12/123 |   |                |          |       |
|   | Arupjyoti Das      | 12/146 |   |                |          |       |

**Best 3 projects (2012-16 Batch): B.E.8<sup>th</sup> semester**

| Sl. No. | Name of students        | Roll No | Topic/ Title of the project   | Guide          | Relevance to |       |
|---------|-------------------------|---------|---|----------------|--------------|-------|
|         |                         |         |   |                | POs          | PSOs  |
| 1       | Hudipta Sonowal         | 12/136  | Design and Construction of Low smoke Chulha   | Dr. A. Borah   | 1,6,7,11     | 1,2,3 |
|         | Barun Barman            | 12/135  |   |                |              |       |
|         | Saddam Hussain Talukder | 12/115  |   |                |              |       |
|         | Angkan Bania            | 12/130  |   |                |              |       |
| 2       | Rahul Ghosh             | 12/143  | Experimental Investigation of pressure Distribution for an Impinging Jet Problem with Application to Thunderstorm Downburst | Dr. K. K. Das  | 1,2,5,6,7,11 | 1,2,3 |
|         | Arindam Paul            | 12/122  |   |                |              |       |
|         | Arijeet Debnath         | 12/139  |   |                |              |       |
|         | Amit Ranjan Laskar      | 12/140  |   |                |              |       |
| 3       | Kshounish Brahma        | 12/137  | Multiple Regression Modelling for Predicting Surface Roughness in Turning   | Dr. R.K. Dutta | 1,2,5        | 1,2,3 |
|         | Akashdip Das            | 12/308  |   |                |              |       |
|         | Deboprotim Kashyap      | 12/335  |   |                |              |       |
|         | Wainungla Walling       | 12/432  |   |                |              |       |

**Best 3 projects (2013-17 Batch): B.E.7<sup>th</sup> semester**

| Sl. No. | Name of students         | Roll No | Topic/ Title of the project   | Guide              | Relevance to |       |
|---------|--------------------------|---------|---|--------------------|--------------|-------|
|         |                          |         |   |                    | POs          | PSOs  |
| 1       | Mabaraque Ali            | 13/095  | Design and Fabrication of a new cooking utensil for making Bhoka-Pitha  | Dr. K. Kalita      | 1,6,7,11     | 1,2,3 |
|         | Nipam Nath               | 13/511  |   |                    |              |       |
|         | Rishiraj Lekai Chetia    | 13/143  |   |                    |              |       |
| 2       | Abhinash Medhi           | 13/99   | An Application of Statistical Process Control in Manufacturing Industry | Mr. P.K. Choudhury | 1,2,5,7      | 1,2,3 |
|         | Bibhuti Bikash Kagyung   | 13/138  |   |                    |              |       |
|         | Madhurjya Pratim Baishya | 13/336  |   |                    |              |       |
| 3       | Sanjeev Pandit           | 13/114  | Designing, Construction and Experimentation of an Incubator             | Dr. D.K. Mahanta   | 1,3,6,7,11   | 1,2,3 |
|         | Abhijit Paul             | 13/116  |   |                    |              |       |
|         | Akash Pratim Das         | 13/118  |   |                    |              |       |

**Best 3 projects (2013-17 Batch): B.E.8<sup>th</sup> semester**

| Sl. No. | Name of students      | Roll No | Topic/ Title of the project  | Guide         | Relevance to |       |
|---------|-----------------------|---------|--|---------------|--------------|-------|
|         |                       |         |  |               | POs          | PSOs  |
| 1       | Shubham Dey           | 13/385  | Experimental Studies on LPG Consumption using varying Porous Media | Dr. A. Borah  | 1,6,7,11     | 1,2,3 |
|         | Gourav Banik          | 13/408  |  |               |              |       |
|         | Zubenthung N. Shitio  | 13/431  |  |               |              |       |
| 2       | Sanjeev Roy           | 13/113  | Kitchen Waste as a source of energy-A study in Health Sector       | Dr. P. Kakoti | 1,6,7,11     | 1,2,3 |
|         | Ankit Agarwalla       | 13/104  |  |               |              |       |
|         | Karishma Mittal       | 13/109  |  |               |              |       |
| 3       | Siddhartha Raj-khowa  | 13/144  | Design and Fabrication of a Portable Folding Bicycle               | Mr. M. Bhuyan | 1,6,11       | 1,2,3 |
|         | Sailen Das            | 13/511  |  |               |              |       |
|         | Aishwarjya Raj Chetia | 14/514  |  |               |              |       |

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

Table B.2.2.3b: Details of Technical Papers Presented/Published

| Sl. No | Year | Title of the Paper   | Authors/ Co-authors   | Name of the conference/Seminar/Journal/Proceeding   |
|--------|------|--|---|---|
| 1      | 2015 | An Experimental Study on Burr Formation in Drilling  | <i>B.Sarma, A.Dhar, B.Saikia, K.Borah</i><br>Dept. Of Mechanical Engg.<br>A.E.C.  | MEGRES' 15<br>IIT, Mumbai   |
| 2      | 2016 | A Comparative Study on CNC Milling of Aluminium Using Flood Coolant and Air Cooled Machining | <i>Anil Borah, Arnab Saikia, Amit Dhar, Niraj Kashyap, Mrinal Kumar Barman</i>  | ITMAE-2016<br>Feb 11-12,2016, Hyderabad<br>MVSR Engg. College   |
| 3      | 2016 | An Experimental Study on Burr Formation in Turning   | <i>Nibir Saha, Debajit Talukdar, Kamal Upadhyaya, Chayad Barbhuiya, Manjuri Hazarika</i><br>Dept. Of Mechanical Engg.<br>A.E.C. | Journal: IJIRSET, Vol.5, Issue 3, March 2016 (pp3215-pp3222)  |
| 4      | 2016 | An Experimental Study on Burr Formation in Milling   | <i>B.Sarma, K.Borah, B.Saikia, A.Dhar, M.Hazarika</i><br>Dept. Of Mechanical Engg.<br>A.E.C.                                    | All India Seminar on Recent Trends in Mechanical Engineering (pp22-pp26)<br>The Institution of Engineers (India)<br>Assam State Centre,<br>21-22 october,2016 |
| 5      | 2017 | Solar Energy Utilization in Raj Bhawan and Bijulee Bhawan, Guwahati: A                       | <i>Anubhav Goswami, Anamitra Phukan, Akkhiraj Borah, Manjuri Hazarika</i><br>Dept. Of Mechanical Engg.<br>A.E.C.                | NECONRE-2017<br>ADB-Journal of Engineering Technology<br>6-7 October, 2017  |

|   |      | Case Study   |  |
|---|------|--|--|
| 6 | 2017 | A Review of Rural Electrification in Assam using Solar Energy through Decentralized Distributed Generation<br><br><i>Anubhav Goswami, Manjuri Hazarika</i><br>Dept. Of Mechanical Engg.<br>A.E.C.  | NCEHTC-2017<br>Dept. of Chemical and Mechanical Engg., AEC<br>17-18 Nov., 2017   |
| 7 | 2018 | Prediction of Surface Roughness in Milling using Regression analysis<br><br><i>Anubhav Goswami, Anamitra Phukan, Abhishek Goswami, Dr. Manjuri Hazarika</i><br>Dept. Of Mechanical Engg.<br>A.E.C.   | RESEARCH CONCLAVE' 18<br>March 8-11, 2018<br>IITG  |
| 8 | 2018 | State of Art on Minimum Quantity Lubrication in Grinding Process<br><br><i>M. Bhuyan, Dept. Of Mechanical Engg.</i><br>A.E.C.<br><i>A. Sarmah, NIT, Silchar, Mechanical Engg. Dept.</i><br><i>K.K. Gajrani, A. Pandey, T.G. Thulkar, M.R. Sankar,</i><br>IITG, Mech. Engg. Dept. | ICMPC 2018<br>16-18 March, 2018<br>Published in journal Materials Today Proceeding [Proceedings 00(2018) 0000-0000], Elsevier. |

#### 2.2.4. Initiatives related to industry interaction (15)

- Industry supported laboratories (5)

#### Industry involvement in the program design and partial delivery of any regular courses for students (5)

- Experts from industries are called for partial delivery in some of the regular courses.
- Students are permitted to take training at various industries.
- Industrial visits are arranged for second and third year students to keep them updated with recent trends/improvements.
- All students have to undertake summer/winter vacation training in industries/laboratories/institute of repute which is mandatory.

**Table B.2.2.4a: A few initiatives for partial delivery in some of the regular courses by experts from industries**

| Course Name                      | Topic   | Name of the Expert   | Date & No. students present                       |
|----------------------------------|---|--|---|
| ME821: Manufacturing Methods     | Black tube manufacturing  | Sri Girish Kumar, Manager, Nezone Tube, Ph.No.- 9435309556               | 28.02.2018<br>8 <sup>th</sup> Semester<br>67      |
| ME 523: Applied Thermodynamics-I | Practical field knowledge, fault and maintenance & safety related issues of Steam power plant | Mr. Ashok Kr Sarma, Additional Chief, Boiler Department, Govt. of Assam. | 28/09/2016<br>All students of 5 <sup>th</sup> Sem |

## For Academia-Industry collaboration

- 1) MSME-AEC meet was organised on 12/08/2016.
- 2) Alumni-Student Meet was organised on April 8, 2018

## Impact analysis of industry-institute interaction and actions taken thereof (5)

(Give details of the industry involvement in the program such as industry-attached laboratories, partial delivery of appropriate courses by industry experts etc. Mention the initiatives, implementation details and impact analysis)

- i. Curriculum gap if any is identified and measures taken to bridge the gap
- ii. Faculty members are enabled in certain industry specific technology
- iii. A few of the students who underwent internship got placed in related industry

**Table B.2.2.4b: Action Taken for industry-institute interaction**

| Sl. No | Event                                   | Name of the Organization                        | Date/ Period    | No. of students | Status    |
|--------|---|---|-----------------|-----------------|-----------|
| 1      | Expert talk on Black tube manufacturing | Sri Girish Kumar, Nezone Tube                   | 28.02.2018      | 67              | Completed |
| 2      | Hands-on-training on MATLAB             | Mr. Soumya Ranjan Nanda, Research Scholar, IITG | 3–6 April, 2018 | 51              | Completed |

**Table B.2.2.4c: Industrial Visits**

| Sl. No | Name of the Organization   | Date of visit | No. of students& faculty participated |
|--------|----------------------------|---------------|---------------------------------------|
| 1      | TRTC, Amingaon, Guwahati   | 17.10.2017    | 52+3                                  |
| 2      | CIPET, Changsari, Guwahati | 9.02.2018     | 64+3                                  |

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

The industry internship/training of minimum four weeks duration is a compulsory work for the students after the completion of 6th semester examinations. The students are allowed the type of industry or institute for internship according to their choice. The department also guides and helps the students by interacting with the industrial experts, provide the students recommendation letters and other necessary supports. The department forwards the applications of the students to industries where the students desire to take the training. Normally, the industries respond quickly to the request and the students undergo training for a period of one month. Some students are offered training outside state and also sometimes abroad when such opportunities are available.

## Industrial /internship /summer training of more than two weeks and post training Assessment

After the completion of training, the students have to submit a report and present themselves before a panel of internal examiners to assess their learning outcome. The reports consist of the practical knowledge the students gained through the internship. The report is scrutinised by a panel of faculty members. The students have to give a presentation before a panel of faculty members. The students are evaluated based on their presentations followed by viva-voce examinations.

During summer and winter vacations second and third year students undergo practical training during summer and winter vacations in industries/labs of repute. This mandatory for all students. Some of the industries/laboratories/institutes are mentioned below

- 1) IOCL, Noonmati, Guwahati
- 2) NRL, Numaligarh, ASSAM
- 3) ONGC, Nazira
- 4) Oil India Limited Duliajan
- 5) ASTC workshop
- 6) NF Railway workshop
- 7) Nezone Tubes
- 8) IIT Guwahati
- 9) Institute of Advanced Studies in Science and Technology(IASST), Guwahati etc

### **Impact analysis of industrial training**

Some of the positive impacts observed among the students, after completion of the industrial training are listed below:

- Improvement on technical report writing, presentation and communication skills.
- Development of innovative and creative ideas among the students.
- Improvement in the confidence level of the students.
- Exposure to an industry/laboratory enhances their technical knowledge and skill.

| CRITERION 3 | Course Outcomes and Program Outcomes | 120 |
|-------------|--------------------------------------|-----|
|-------------|--------------------------------------|-----|

### 3. Course Outcomes and Program Outcomes (120)

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

In addition to the 12 Program Outcomes (POs), the department has formulated three Program Specific Outcomes (PSOs) as listed below:

##### Program Specific Outcomes (2–4) (Defined by the Department)

1. Mechanical Engineers would be able to identify, analyze and solve Mechanical Engineering problems as well as problems of allied engineering streams for meaningful implementation.
2. Mechanical engineers would be able to apply the basic principles of engineering in various engineering problems by engaging themselves in research work.
3. Mechanical engineers would be able to cater to the fast changing needs of industry, society and the country.

##### 3.1.1. Course Outcomes (COs)

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

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

**Table B.3.1.1a: Course Name—[ME 204] Engineering Mechanics I; Year of study: 2013-2014**

|          |   |
|----------|---|
| ME 204.1 | <i>Apply</i> the basic principles of rigid body mechanics for formulating and solving engineering problems. |
| ME 204.2 | <i>Analyze</i> problems of CG and MI for stability of rigid bodies  |
| ME 204.3 | <i>Identify</i> problems of static equilibrium for using principle of virtual work                          |
| ME 204.4 | <i>Analyze</i> the problems of kinematics and kinetics for engineering application.                         |
| ME 204.5 | <i>Develop</i> the analytical models for simple mechanical vibration problems                               |

**Table B.3.1.1b: Course Name: [ME-324]: WORKSHOP THEORY – I, Year of study 2014-2015**

|          |  |
|----------|--|
| ME 425.1 | To analyze motion transmission in machine-fixture-tool-work (MFTW) system for variation in cutting parameters. |
| ME 425.2 | To identify and apply machines and tools for metal removal to produce various metal parts.                     |
| ME 425.3 | To analyze and evaluate speed, feed, depth of cut for MFTW system and their effect on machining time.          |
| ME 425.4 | To apply, analyze and evaluate production economy by semi automatic system.                                    |
| ME 425.5 | To apply techniques of sand molding and casting for production of metal parts.                                 |

**Table B.3.1.1c: Course Name: [ME425] MECHANICS OF MATERIALS; Year of study: 2014-2015**

|         |  |
|---------|--|
| ME324.1 | Explain stress-strain relationship for homogeneous and isotropic material under axial, torsional, flexural and combined loads. |
| ME324.2 | Compute principal stresses and strains and maximum shear stress using analytical and graphical methods.                        |
| ME324.3 | Analyze radial, hoop and longitudinal stresses for thick cylinders under external and internal loading.                        |

|         |   |
|---------|---|
| ME324.4 | Derive stresses in curved beam and rotating discs.  |
| ME324.5 | Estimate the deflection of helical spring under axial load and use energy method to estimate the deflection and rotation of beams under flexural loading. |

**Table B.3.1.1d: Course Name: [ME523] APPLIED THERMODYNAMICS—I; Year of study 2015-2016**

|          |   |
|----------|---|
| ME 523.1 | Apply the thermodynamic properties of steam for suitable applications in a steam power plant.   |
| ME 523.2 | Analyse the thermodynamic processes involved in the components of a power plant, namely, boiler, nozzle, turbine blade and condenser for efficient conversion of heat to useful work.   |
| ME 523.3 | Evaluate the effects of irreversibility occurring during the processes that tend to reduce the performance of a power plant and select suitable methods to reduce the effects by applying concepts of the second law of thermodynamics. |
| ME 523.4 | Compare the components of a power plant in terms of their advantages and disadvantages for selection in industrial applications.  |
| ME 523.5 | Explain the constraints on thermodynamics properties due to the metallurgical considerations of the materials used in building the components.  |

**Table B.3.1.1e: Course Name: [ME 621] MACHINE DESIGN II; Year of Study: 2015-2016**

|          |   |
|----------|---|
| ME 621.1 | Identify the modes of fatigue failure in materials in cases of axial, torsional, flexural and combined loading conditions with stress concentration criteria.   |
| ME 621.2 | Distinguish between cases of static and dynamic loading conditions to test the theories of failure in design of simple mechanical elements like plates, bars, beams and shafts.                                   |
| ME 621.3 | Design gears, springs, cams and gaskets by selecting and analyzing engineering materials and considering design criterions of failure under static and dynamic loading conditions using design data hand book(s). |
| ME 621.4 | Utilize the principles of tribology to design sliding contact bearing and select antifriction-bearings under static and dynamic loading conditions using design data hand book(s).                                |
| ME 621.5 | Design and analyze brakes and clutches under the consideration of power transmission using design data hand book(s).  |

**Table B.3.1.1f: Course Name: [ME 721] Vibration of Mechanical Systems; Year of Study: 2016-2017**

|          |  |
|----------|--|
| ME 721.1 | Construct free body diagram and formulate the equation of motion for free vibration of mechanical system under damped and undamped conditions.           |
| ME 721.2 | Develop mathematical models of physical systems under forced vibration using Newton's laws of motion and principles of conservation of energy and solve. |
| ME 721.3 | Analyze results of seismic instruments to estimate vibration parameters.   |
| ME 721.4 | Evaluate vibration parameters and noise for multi degrees of freedom system and estimate the critical speed of a shaft for whirling motion.              |
| ME 721.5 | Develop mathematical model using MATLAB for mechanical vibrating system.   |

**Table B.3.1.1g: Course Name: [ME 821] Manufacturing Methods; Year of study: 2016-2017**

|          |  |
|----------|--|
| ME 821.1 | The students will be able to <i>analyze</i> and apply various mechanical working processes suitable to various engineering products. |
| ME 821.2 | Students will be able to <i>apply</i> various special casting methods for manufacturing of engineering products.                     |
| ME 821.3 | Students will be able to <i>analyse</i> various casting defects and recommend necessary remedial measures.                           |
| ME 821.4 | Students will be able to <i>apply</i> powder metallurgy techniques for manufacturing engineering components including metal powders. |
| ME 821.5 | Students will be able to <i>apply</i> and <i>design</i> various press working operations to produce components from sheet metal.     |

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

**Table B.3.1.2a: Course Name— [ME 204] Engineering Mechanics I**

| COs     | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | P O 10 | P O 11 | P O 12 | PSO 1 | PSO 2 | PSO 3 |
|---------|------|------|------|------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| 204.1   | 3    | 2    | 2    | 2    | 3    | -    | -    | -    | -    | -      | -      | 1      | 2     | 2     | 1     |
| 204.2   | 3    | 2    | 2    | 1    | 3    | -    | -    | -    | -    | -      | -      | 1      | 2     | 2     | 2     |
| 204.3   | 3    | 2    | 2    | 3    | 1    | -    | -    | -    | -    | -      | -      | 1      | 2     | 2     | 2     |
| 204.4   | 3    | 2    | 2    | 3    | 1    | -    | -    | -    | -    | -      | -      | 1      | 2     | 2     | 2     |
| 204.5   | 3    | 2    | 2    | 2    | 1    | -    | -    | -    | -    | -      | -      | 1      | 2     | 2     | 2     |
| Sum     | 15   | 10   | 10   | 11   | 9    | -    | -    | -    | -    | -      | -      | 5      | 10    | 10    | 9     |
| Average | 3    | 2    | 2    | 2.5  | 1.8  | -    | -    | -    | -    | -      | -      | 1      | 2     | 2     | 1.8   |

**Table B.3.1.2b: Course Name: [ME324]: WORKSHOP THEORY – I**

| CO         | PO1 | PO2 | PO3  | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |     |
|------------|-----|-----|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|-----|
| ME 425.1   | 3   | 3   | 1    | -   | -   | -   | -   | -   | -   | -    | -    | 1    | 3    | 3    | 3    |     |
| ME: 425 .2 | 3   | 3   | 1    | -   | -   | -   | -   | -   | -   | -    | -    | 1    | 3    | 1    | 3    |     |
| ME: 425 .3 | 3   | 3   | 2    | -   | -   | -   | -   | -   | -   | -    | -    | 1    | 3    | 2    | 3    |     |
| ME: 425 .4 | 3   | 3   | 1    | -   | -   | -   | -   | -   | -   | -    | -    | 2    | 2    | -    | 3    |     |
| ME: 425 .5 | 3   | 2   | -    | -   | -   | -   | -   | -   | -   | -    | -    | 1    | 2    | -    | 2    |     |
| SUM        | 15  | 14  | 5    | -   | -   | -   | -   | -   | -   | -    | -    | -    | 6    | 13   | 6    | 14  |
| Av         | 3   | 2.8 | 1.25 | -   | -   | -   | -   | -   | -   | -    | -    | -    | 1.2  | 2.6  | 2    | 2.8 |

**Table B.3.1.2c: Course Name: [ME-425] MECHANICS OF MATERIALS**

| Course  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| ME324.1 | 3   | 2   |     |     |     |     |     |     | 1   | 1    |      | 1    | 2    | 2    | 2    |
| ME324.2 | 3   | 2   | 2   |     |     |     |     |     | 1   | 1    |      | 1    | 2    | 2    | 2    |
| ME324.3 | 3   | 2   | 2   |     |     |     |     |     | 1   | 1    |      | 1    | 2    | 2    | 2    |
| ME324.4 | 3   | 2   | 2   |     |     |     |     |     | 1   | 1    |      | 1    | 2    | 2    | 2    |
| ME324.5 | 3   | 2   | 2   |     |     |     |     |     | 1   | 1    |      | 1    | 2    | 2    | 2    |
| Average | 3   | 2   | 2   |     |     |     |     |     | 1   | 1    |      | 1    | 2    | 2    | 2    |

**Table B.3.1.2d: Course Name: [ME523] APPLIED THERMODYNAMICS—I**

|                            | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |     |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|-----|
| <b>523.1</b>               | 3   | 3   | -   | 1   | -   | -   | -   | -   | -   | -    | -    | 3    | 1    | 3    | 3    |     |
| <b>523.2</b>               | 3   | 3   | -   | 1   | -   | -   | -   | -   | 1   | -    | -    | 2    | 1    | 3    | 3    |     |
| <b>523.3</b>               | 2   | 3   | -   | 3   | -   | -   | 1   | -   | -   | -    | -    | -    | 1    | 3    | 3    |     |
| <b>523.4</b>               | 3   | 2   | -   | 3   | -   | -   | -   | -   | -   | -    | -    | 1    | 1    | 1    | 2    |     |
| <b>523.5</b>               | 3   | 1   | -   | -   | -   | -   | -   | -   | -   | -    | -    | 1    | 1    | 2    | 3    |     |
| <b>Total</b>               | 14  | 12  | -   | 8   | -   | -   | 1   | -   | 1   | -    | -    | 7    | 5    | 12   | 14   |     |
| <b>Aver-</b><br><b>age</b> | 2.  | 8   | 2.4 | -   | 2   | -   | -   | 1   | -   | 1    | -    | -    | 1.75 | 1    | 2.4  | 2.8 |

**Table B.3.1.2e: Course Name: [ME 621] MACHINE DESIGN II**

| CO     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| 526.1  | 3   | 3   | 1   | 2   | -   | -   | -   | -   | -   | -    | -    | 1    | 3    | 2    | 2    |
| 526.2  | 3   | 2   | 1   | 2   | -   | -   | -   | -   | -   | -    | -    | -    | 2    | 2    | 2    |
| 526.3  | 2   | 3   | 3   | 2   | 1   | -   | -   | -   | -   | 1    | -    | -    | 2    | 3    | 2    |
| 526.4  | 3   | 3   | 3   | 2   | 2   | -   | -   | -   | 1   | 1    | -    | 1    | 2    | 2    | 2    |
| 526.5  | 3   | 3   | 3   | 3   | 2   | -   | -   | -   | 1   | 1    | --   | 1    | 2    | 3    | 3    |
| To-tal | 14  | 14  | 11  | 11  | 5   | -   | -   | -   | 2   | 3    | -    | 2    | 11   | 12   | 11   |
| Ave.   | 2.8 | 2.8 | 2.2 | 2.2 | 1.6 | -   | -   | -   | 1   | 1    | -    | 1.5  | 2.2  | 2.4  | 2.2  |

**Table B.3.1.2f: Course Name: [ME 721] Vibration of Mechanical Systems**

| Course    | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO1 0 | PO1 1 | PO1 2 | PSO 1 | PSO 2 | PSO 3 |
|-----------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| ME721 .1  | 3    | 2    | 2    | -    | -    | -    | -    | -    | 1    | 1     | -     | 1     | 2     | 2     | 2     |
| ME721 .2  | 3    | 2    | 2    | -    | -    | -    | -    | -    | 1    | 1     | -     | 1     | 2     | 2     | 2     |
| ME721 .3  | 3    | 2    | 1    | -    | -    | -    | -    | -    | 1    | 1     | -     | 1     | 2     | 2     | 2     |
| ME721 .4  | 3    | 2    | 2    | -    | -    | -    | -    | -    | 1    | 1     | -     | 1     | 2     | 2     | 2     |
| ME721 .5  | 3    | 2    | 2    | -    | 3    | -    | -    | -    | 1    | 1     | -     | 1     | 2     | 2     | 2     |
| Aver- age | 3    | 2    | 1.8  | -    | 3    | -    | -    | -    | 1    | 1     | -     | 1     | 2     | 2     | 2     |

**Table B.3.1.2g: Course Name: [ME 821] Manufacturing Methods**

| Course   | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | P1 0 | PO1 1 | PO1 2 | PSO1 | PSO2 | PSO3 |
|----------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|------|
| ME 821.1 | 3    | 3    | —    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | 2    | — 2  |
| ME 821.2 | 3    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | —    | — 2  |
| ME 821.3 | 3    | 3    | —    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | 2    | — 2  |
| ME 821.4 | 3    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | —    | — 2  |
| ME 821.5 | 3    | 3    | 3    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | 2    | — 2  |
| Sum      | 15   | 9    | 3    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | 6    | — 10 |
| Average  | 3    | 3    | 3    | —    | —    | —    | —    | —    | —    | —    | —     | —     | 1    | 2    | — 2  |

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

**Table B.3.1.3a: CO-PO mapping of all courses**

| Course Name                               | Course Code | PO1 | PO 2 | PO3  | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|---|-------------|-----|------|------|------|------|------|------|------|------|-------|-------|-------|
| Physics-I                                 | PH101       | 2.5 | 2    | 1.5  | —    | —    | —    | —    | —    | —    | —     | —     | —     |
| Chemistry-I                               | CY102       | 2.6 | 2.2  | 1    | 1    | 1.2  | 1    | 1    | -    | 1    | 1     | -     | 1     |
| Mathematics-I                             | MA103       | 3   | 3    | 1.2  | 1    | —    | —    | —    | —    | 1    | —     | —     | 2     |
| Elements of Civil Engineering             | CE104       | 2.6 | 2.2  | 1    | 2    | 1.5  | —    | —    | —    | —    | —     | —     | —     |
| Eng Communication and Tech report Writing | HU105       | —   | 1    | —    | 1    | —    | 1    | 1    | 1.4  | 3    | 2.2   | —     | 3     |
| Engineering Graphics-I                    | CE106       | 3   | 3    | 2.4  | 2.5  | 2.1  | 2.5  | 1    | —    | —    | —     | —     | —     |
| Introduction to Computing                 | CS107       | 3   | 2.6  | 2.8  | 3.2  | 2.4  | 2.4  | 1.6  | 1    | 2    | 3.2   | 1.6   | 2     |
| Workshop-I                                | ME108       | 1.8 | 1.4  | —    | —    | —    | —    | —    | 1.2  | 1.8  | —     | —     | —     |
| Physics-I Lab                             | PH101L      | 2   | -    | -    | -    | -    | -    | -    | -    | 1    | -     | -     | -     |
| Chemistry-I Lab                           | CY102L      | 2.2 | 1.7  | -    |      |      |      | 1    |      |      |       |       |       |
| Physics-II                                | PH201       | 1.7 | 1.3  | 1.2  | -    | 1    | -    | -    | -    | -    |       |       |       |
| Chemistry-II                              | CY202       | 2.6 | 1.8  | 1.33 | 1.5  | 1.5  | 2.2  | 1.8  | -    | 2    | 2.6   | -     | 2.1   |
| Mathematics-II                            | MA203       | 3   | 3    | 2    | -    | -    | -    | -    | -    | -    | -     | -     | 2     |
| Engineering Mechanics-I                   | ME204       | 3   | 2    | 2    | 2.5  | 1.8  | -    | -    | -    | -    | -     | -     | 1     |
| Strength of Materials                     | CE205       | 3   | 2    | 2    | 2.5  | 1.8  | -    | -    | -    | -    | -     | -     | 1     |
| Basic Electrical Engineering -I           | EE206       | 3   | 3    | 3    | 2    | 1.6  | 1    | 3    | 2    | 1    | -     | -     | 3     |
| Engineering Graphics-II                   | ME207       | 3   | 3    | 1    | -    | 2    | 3    | -    | -    | -    | -     | -     | 1     |
| Workshop-II                               | ME208       | 1.6 | 2    | -    | -    | -    | -    | -    | 1    | 1.6  | -     | -     | -     |

|                                   |            |     |          |      |      |     |   |     |   |   |          |   |          |
|-----------------------------------|------------|-----|----------|------|------|-----|---|-----|---|---|----------|---|----------|
| Physics-II Lab                    | PH201<br>L | 2   | -        | -    | -    | -   | - | -   | - | 1 | -        | - | -        |
| Chemistry-II<br>Lab               | CY202<br>L | 2.2 | 2        | 1.5  | 1.6  | 1.5 | 1 | 1.7 | - | 1 | 1.25     | 1 | 1        |
| Engineering<br>Mechanics-I<br>Lab | ME204<br>L | 3   | 1.5      | 1.3  | 1.8  | 1.3 | - | -   | - | - | -        | - | 1        |
| Strength of Ma-<br>terials Lab    | CE205<br>L | 3   | 1.5      | 1.3  | 1.8  | 1.3 | - | -   | - | - | -        | - | 1        |
| Basic Electrical<br>Engg-I Lab    | EE206<br>L | 3   | 3        | -    | 1    | -   | - | -   | - | 3 | 2        | - | 3        |
| Mathematics –<br>III              | MA 301     | 3   | 3        | -    | -    | -   | - | -   | - | - | -        | - | 2        |
| Electro Tech-<br>nology – I       | EE 303     | 3   | 3        | -    | -    | -   | - | -   | - | - | -        | - | 1.8      |
| Basic Thermo-<br>dynamics         | ME 305     | 3   | 2.8      | 1    | 1    | 1   |   | 1   |   |   |          |   |          |
| Theory of Ma-<br>chine            | ME 322     | 3   | 2        | 2.6  | 1.4  | 1.4 | - | -   | - | - | -        | - | 1        |
| Engineering<br>Graphics – III     | ME 323     | 3   | .8       | 2-   | 1    | -   | - | -   | - | 1 | -        | - | 1        |
| Workshop<br>Theory – I            | ME 324     | 3   | 2.8      | 1.25 | -    | -   | - | -   | - | - | -        | - | 1.2      |
| General Profi-<br>ciency          | ME 325     | -   | -        | -    | -    | -   | - | -   | - | - | 2.7<br>5 | - | 2.4      |
| Electro Tech-<br>nology – I       | EE<br>303L | 3   | 1.6<br>6 | -    | 1.33 | -   | - | -   | - | - | 2        | - | 1.6<br>6 |
| Theory of Ma-<br>chines           | ME<br>322L | 2   | 1.8      | 2.3  | 1.8  | 1.3 | - | -   | - | - | -        | - | 1        |
| Engineering<br>Graphics – III     | ME<br>323L | 3   | 2.5      | 2    |      | 3   |   |     |   |   |          |   | 1        |
| Workshop<br>Theory – I            | ME<br>324L | 3   | 2        | 1    | -    | -   | - | -   | - | - | -        | - | 1        |

|                                     |         |     |     |     |     |      |     |      |     |      |      |     |      |   |   |
|-------------------------------------|---------|-----|-----|-----|-----|------|-----|------|-----|------|------|-----|------|---|---|
| Mathematics – IV                    | MA 401  | 2.8 | 2.8 | -   | -   | -    | -   | -    | -   | -    | -    | -   | -    | - | 2 |
| Sociology and Accountancy           | HU 402  | -   | 1   | -   | -   | -    | 1.3 | 1    | 1.6 | 1.16 | 1    | 1   | -    | 3 |   |
| Communication Skill                 | HU 403  | -   | 1.8 | -   | 1.5 | -    | 2.2 | 1.2  | 1.8 | 2    | 3    | -   | 3    |   |   |
| Electro Technology – II             | EE 404  | 3   | 2.5 | -   | 1   | -    | -   | -    | -   | -    | 2    | -   | 1.7  | 5 |   |
| Mechanics of Material               | ME 425  | 3   | 2   | 2   | -   | -    | -   | -    | -   | 1    | 1    | -   | 1    |   |   |
| Fluid Mechanics - I                 | ME 426  | 3   | 3   | 1.2 | 1   | 1    | -   | -    | -   | 1    | -    | -   | 1    |   |   |
| Material Science                    | ME 427  | 3   | 3   | 3   | -   | -    | -   | -    | -   | -    | -    | -   | 1    |   |   |
| General Proficiency                 | ME 428  | -   | -   | -   | -   | -    | -   | -    | -   | -    | 3    | -   | 2.4  |   |   |
| Electro Technology – II             | EE 404L | 3   | 1.7 | -   | 1.5 | -    | -   | -    | -   | -    | 2    | -   | 1.5  |   |   |
| Mechanics of Materials LAB          | ME 425L | 3   | 2   | -   | -   | -    | -   | -    | -   | 2    | 2    | -   | 1    |   |   |
| Fluid Mechanics                     | ME 426L | 3   | 3   | 1.4 | 1.2 | -    | 1   | -    | -   | 2    | 2    | 1   | 1    |   |   |
| Economics & Principle of Management | HU 501  | -   | 1   | -   | -   | -    | 1.5 | 1    | 1.5 | 2    | 1    | 1   | 2.67 |   |   |
| Mechanism & Dynamics of Machines    | ME 522  | 3   | 3   | 2.6 | 1.6 | 1.8  | -   | -    | -   | 2    | -    | -   | 1    |   |   |
| Applied Thermodynamics – I          | ME 523  | 2.8 | 2.4 | -   | 2   | -    | -   | 1    | -   | 1    | -    | -   | 1.75 |   |   |
| Heat Transfer – I                   | ME 524  | 3   | 2   | 2   | 2   | 1    | 1.4 | 1.2  | -   | 1.4  | 1.4  | 1   | 1.4  |   |   |
| Instrumentation                     | ME 525  | 3   | 3   | 2.2 | 2   | 2.33 | 1.5 | 1.5  | 2   | 1    | 1    | 2   | 1.2  |   |   |
| Machine Design - I                  | ME 526  | 2.6 | 2.8 | 3   | 2.2 | 2    | -   | 1.75 | 1.5 | -    | 1    | 1.5 | 1    |   |   |
| General Proficiency                 | ME 527  | -   | -   | -   | -   | -    | -   | -    | -   | -    | 2.67 | 1   | 2.2  |   |   |
| Mechanism &                         | ME      | 1   | 1   | 1   | 1   | 1    | 1   | 1    | 1   | 1    | 1    | 1   | 1    | 1 |   |

|                                      |         |     |     |      |      |     |     |     |   |     |      |   |     |
|--------------------------------------|---------|-----|-----|------|------|-----|-----|-----|---|-----|------|---|-----|
| Dynamics of Machines                 | 522L    |     |     |      |      |     |     |     |   |     |      |   |     |
| Applied Thermodynamics – I           | ME 523L | 3   | 2.5 | 1    | 1.25 | -   | -   | 1   | - | 2   | 1    | - | 1   |
| Instrumentation LAB                  | ME 525L | 3   | 3   | 2.6  | 2.2  | 2.2 | 1.8 | 1   | 1 | 2.5 | 1    | 2 | 1   |
| Heat Transfer – I LAB                | ME 524L | 3   | 3   | 2.33 | 3    | 1   | 2   | 1   | 1 | 3   | 3    | 2 | 1   |
| Machine Design - II                  | ME 621  | 3   | 3   | 2.8  | 3    | 2   | 3   | 2.2 | 3 | -   | 3    | - | 3   |
| Operation Research                   | ME 622  | 3   | 3   | 2.2  | 2    | -   | -   | -   | - | -   | -    | - | 2   |
| Fluid Mechanics – II                 | ME 623  | 3   | 3   | 2.8  | 2.4  | -   | 1.4 | -   | - | 1   | 1    | - | 1.6 |
| Engineering Inspection and Metrology | ME 624  | 3   | 3   | 2    | 1.75 | 2   | -   | -   | - | -   | -    | - | 1.2 |
| Workshop Theory – II                 | ME 625  | 3   | 2.4 | 2.6  | 2.4  | 2.6 | -   | 1   | - | 1   | -    | - | 1.8 |
| Numerical Methods and Computation    | ME 626  | 3   | 3   | 2.6  | 1.6  | 1.8 | -   | -   | - | 2   | -    | - | -   |
| General Proficiency                  | ME 627  | -   | -   | -    | -    | -   | -   | -   | - | -   | 2.7  | - | 2.4 |
| Machine Design – II LAB              | ME 621L | 2   | 3   | 3    | 2    | 3   | -   | 1   |   |     | 1    | 1 | 2   |
| Fluid Mechanics – II                 | ME 623L | 3   | 3   | 2.5  | 2.5  | -   | 2   | -   | - | 2   | 2    | - | 1.5 |
| Engineering Inspection and Metrology | ME 624L | 3   | 2.4 | 1.6  | -    | -   | -   | -   | - | -   | -    | - | 2   |
| Workshop Theory – II                 | ME 625L | 3   | 2   | 2.5  | 2.8  | 2.2 | 1.5 | 1   | - | 2.8 | -    | - | 2   |
| Mechanical Vibration                 | ME 721  | 3   | 2   | 1.8  |      | 3   |     |     |   | 1   | 1    |   | 1   |
| Applied Thermodynamics – II          | ME 722  | 2.6 | 2.4 | 1.7  | 1.6  | -   | -   | 2   | - | -   | 1    | - | 1.6 |
| Hydraulic Ma-                        | ME 723  | 3   | 3   | 2.2  | 1.8  | -   | 1.2 | 1   | - | 1.4 | 1.33 | 1 | 1.2 |

|   |         |     |     |     |     |     |          |          |          |          |     |     |          |
|---|---------|-----|-----|-----|-----|-----|----------|----------|----------|----------|-----|-----|----------|
| chines  |         |     |     |     |     |     |          |          |          |          |     |     |          |
| Heat Transfer – II  | ME 724  | 3   | 3   | 1.6 | 1   | 2   | 2        |          | 2        | 3        | 2   |     | 3        |
| Elective – I<br>Refrigeration   | ME 725  | 3   | 2.6 | 2.2 | 1.6 | -   | 1        | -        | -        | -        | -   | -   | 1        |
| Machine Tools   |         | 3   | 3   | 2.6 | 1   | -   | -        | -        | -        | -        | -   | -   | -        |
| Elective – II<br>(Open)<br>Computational Fluid<br>Dynamics and<br>Heat Transfer | ME 726  | 3   | 2.8 | 2.8 | 2.4 | 1.8 | -        | -        | -        | 1        | -   | -   | 1        |
| Non Conven-<br>tional Energy<br>Systems   |         |     |     |     |     |     |          |          |          |          |     |     |          |
| Practical Train-<br>ing   | ME 727L | 2   | 2.3 | 2   | -   | -   | 1        | -        | 2        | 3        | 3   | -   | 1.2      |
| Project – I   | ME 728L | 1.5 | 2.5 | 2   | 1   | 2   | 2        | 2.5      | -        | 3        | -   | 2.5 | 2        |
| Manufacturing<br>Method   | ME 821  | 3   | 3   | 3   | —   | —   | —        | —        | —        | —        | —   | —   | 1        |
| Industrial<br>Engg& Man-<br>agement   | ME 822  | 1   | 2   | 2   | 2   | 3   | 2        | 1.5      | 2        | 2        | 1   | 2.5 | 1        |
| Internal Com-<br>bustion Engine   | ME 823  | 2.2 | 2   | 2   | 2.4 | 2   | 1        | 1.7<br>5 | -        | 2.2<br>5 | 2.5 | -   | 1.2<br>5 |
| Elective – III<br>Air Condition-<br>ing   | ME 824  | 3   | 3   | 2   | 2   | -   | 1.6<br>7 | 1        | 1.3<br>3 | -        | -   | 1   | 1        |
| Compressor<br>& Gas Turbine   |         | 3   | 2.6 | 2.6 | 2.2 | -   | 1.8      | 1        | -        | 1        | 1   | -   | 1.4      |
| Elective – IV<br>(Open)<br>Power<br>Plant Technol-<br>ogy                       | ME 825  | 3   | 2.6 | 2.6 | 2.4 | -   | 1.4      | 1.4      | -        | 1        | 1.2 | -   | 2        |
| Robotics<br>& Applications  |         | 3   | 2   | 1.6 | -   | 2   | -        | -        | -        | 1        | 1   | -   | 1        |

|               |        |          |          |      |          |          |          |          |          |          |          |          |          |
|---------------|--------|----------|----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Project – II  | ME 826 | -        | 3        | -    | -        | -        | 2        | 2        | 2        | 3        | -        | 2        | 2        |
| Viva-Voce     | ME 827 | -        | 2        | -    | -        | -        | -        | -        | -        | -        | 1        | -        | 2        |
| Grand Average |        | 2.7<br>5 | 2.4<br>1 | 1.97 | 1.8<br>0 | 1.8<br>3 | 1.5<br>7 | 1.3<br>7 | 1.6<br>0 | 1.6<br>9 | 1.7<br>4 | 1.4<br>5 | 1.5<br>9 |

**Table B.3.1.3b: CO-PSO mapping of all courses**

| Course Name                               | Courses Code | PSO1 | PSO2 | PSO3 |
|---|--------------|------|------|------|
| Physics-I                                 | PH101        | -    | -    | -    |
| Chemistry-I                               | CY102        | -    | -    | -    |
| Mathematics-I                             | MA103        | -    | -    | -    |
| Elements of Civil Engineering             | CE104        | —    | —    | —    |
| Eng Communication and Tech report Writing | HU105        | -    | —    | —    |
| Engineering Graphics-I                    | CE106        | —    | —    | —    |
| Introduction to Computing                 | CS107        | 2.8  | 2.8  | 2.8  |
| Workshop-I                                | ME108        | 1.8  | 1.2  | 3    |
| Physics-I Lab                             | PH101L       | -    | -    | —    |
| Chemistry-I Lab                           | CY102L       | -    | -    | -    |
| Physics-II                                | PH201        | -    | -    | -    |
| Chemistry-II                              | CY202        | -    | -    | -    |
| Mathematics-II                            | MA203        | -    | -    | -    |
| Engineering Mechanics-I                   | ME204        | 1.2  | 1    | -    |
| Strength of Materials                     | CE205        | 1.2  | 1    | -    |
| Basic Electrical Engineering -I           | EE206        | -    | -    | -    |
| Engineering Graphics-II                   | ME207        | -    | 1    | -    |
| Workshop-II                               | ME208        | 2    | 1.6  | 2.6  |
| Physics-II Lab                            | PH201L       | -    | -    | -    |
| Chemistry-II Lab                          | CY202L       | -    | -    | -    |
| Engineering Mechanics-I Lab               | ME204L       | 2    | 2    | 1.5  |
| Strength of Materials Lab                 | CE205L       | 1    | 1    | -    |
| Basic Electrical Engg-I Lab               | EE206L       | -    | -    | -    |
| Mathematics – III                         | MA 301       | -    | -    | -    |
| Electro Technology – I                    | EE 303       | 2    | 1    | 1.66 |
| Basic Thermodynamics                      | ME 305       | 1.8  | 1.4  | 1.33 |
| Theory of Machine                         | ME 322       | 2.8  | 3    | 1    |

|                                      |         |      |      |      |
|--------------------------------------|---------|------|------|------|
| Engineering Graphics – III           | ME 323  | 2    | 2    | 2    |
| Workshop Theory – I                  | ME 324  | 2.6  | 2    | 2.8  |
| General Proficiency                  | ME 325  | 1    | 1    | 1    |
| Electro Technology – I LAB           | EE 303L | 1    | 1    | 1    |
| Theory of Machines                   | ME 322L | 2    | 2    | 1    |
| Engineering Graphics – III LAB       | ME 323L | 2    | 1    | 1    |
| Workshop Theory – I LAB              | ME 324L | 2.8  | 2.33 | 2.8  |
| Mathematics – IV                     | MA 401  | -    | -    | -    |
| Sociology and Accountancy            | HU 402  | -    | -    | -    |
| Communication Skill                  | HU 403  | -    | -    | -    |
| Electro Technology – II              | EE 404  | 1.4  | 1    | 1.25 |
| Mechanics of Material                | ME 425  | 2    | 2    | 2    |
| Fluid Mechanics - I                  | ME 426  | 2    | 2    | 2    |
| Material Science                     | ME 427  | 1    | -    | 2.3  |
| General Proficiency                  | ME 428  | 1    | 1    | 1    |
| Electro Technology – II LAB          | EE 404L | 1.33 | -    | 1.5  |
| Mechanics of Materials LAB           | ME 425L | 2    | 2    | 2    |
| Fluid Mechanics                      | ME 426L | 2    | 2    | 2    |
| Economics & Principle of Management  | HU 501  | -    | -    | 0.5  |
| Mechanism & Dynamics of Machines     | ME 522  | 2    | 2    | 2    |
| Applied Thermodynamics – I           | ME 523  | 1    | 2.4  | 2.8  |
| Heat Transfer – I                    | ME 524  | 1.8  | 1.6  | 1.6  |
| Instrumentation                      | ME 525  | 1.8  | 1.8  | 2    |
| Machine Design - I                   | ME 526  | 2.2  | 2.4  | 2.2  |
| General Proficiency                  | ME 527  | 2.93 | 2.93 | 2.93 |
| Mechanism & Dynamics of Machines     | ME 522L | 2.4  | 2    | 2    |
| Applied Thermodynamics – I           | ME 523L | 2.0  | 1.25 | 2.0  |
| Instrumentation LAB                  | ME 525L | 2.8  | 2.6  | 2    |
| Heat Transfer – I LAB                | ME 524L | 3    | 2.3  | 1    |
| Machine Design – II                  | ME 621  | 2.2  | 2.4  | 2.2  |
| Operation Research                   | ME 622  | 2.6  | 1    | 2.2  |
| Fluid Mechanics – II                 | ME 623  | 2.8  | 2.6  | 1    |
| Engineering Inspection and Metrology | ME 624  | 2.75 | 2    | 2    |
| Workshop Theory – II                 | ME 625  | 2.0  | 2.6  | 3    |
| Numerical Methods and Computation    | ME 626  | 2    | 2    | 2    |

|  |         |      |      |      |
|--|---------|------|------|------|
| General Proficiency                            | ME 627  | 1    | 1    | 1    |
| Machine Design – II LAB                        | ME 621L | —    | —    | —    |
| Fluid Mechanics – II LAB                       | ME 623L | 2    | 2    | 2    |
| Engineering Inspection and Metrology LAB       | ME 624L | 2.33 | 1.67 | 3    |
| Workshop Theory – II LAB                       | ME 625L | 1.8  | 1.8  | 3    |
| Mechanical Vibration LAB                       | ME 721  | 2    | 2    | 2    |
| Applied Thermodynamics – II                    | ME 722  | 1.4  | 2.4  | 2.2  |
| Hydraulic Machines                             | ME 723  | 1.6  | 1.6  | 1.2  |
| Heat Transfer – II                             | ME 724  | 2    | 1.4  | 1.4  |
| Elective – I Refrigeration                     | ME 725  | 3    | 2.6  | 1    |
| Machine Tools                                  |         | 3    | 2    | 3    |
| Elective – II (Open)                           | ME 726  | 2    | 2    | 2    |
| Computational Fluid Dynamics and Heat Transfer |         |      |      |      |
| Non Conventional Energy Systems                |         |      |      |      |
| Practical Training                             | ME 727L | 2    | 2.5  | 1    |
| Project – I                                    | ME 728L | 2.5  | 3    | 1.25 |
| Manufacturing Methods                          | ME 821  | 2    | —    | 2    |
| Industrial Engg& Management                    | ME 822  | 1    | 1    | 2.67 |
| Internal Combustion Engine                     | ME 823  | 1    | 1.75 | 1.6  |
| Elective – III Air Conditioning                | ME 824  | 1.4  | 1.2  | 1    |
| Compressor & Gas Turbine                       |         | 2.6  | 2.4  | 1.4  |
| Elective – IV (Open)                           | ME 825  | 3    | 2.8  | 1.6  |
| Power Plant Technology                         |         | 2    | 2    | 2    |
| Robotics & Applications                        |         |      |      |      |
| Project – II                                   | ME 826  | 2.5  | 3    | 1    |
| Viva-Voce                                      | ME 827  | 1    | -    | 1    |
| <b>Grand Average</b>                           |         | 1.97 | 1.87 | 1.82 |

### **3.2. Attainment of Course Outcomes (50)**

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

##### **List of Assessment Processes:**

##### **Direct Assessment Tools:**

- Internal Assessment- Class Test, Home assignment, etc.
- Laboratory
- Grand viva
- Final Year Projects
- End Semester University Examinations

##### **Indirect Assessment Methods:**

- Industrial Training
- Alumni/Parents/Students Exit surveys

##### **Quality and relevance of processes and tools**

Average attainment for course outcomes (CO) for a particular course is calculated by considering the ESE theory mark and sessional mark (internal assessment) of a student. As per regulation of Gauhati University (GU), the sessional mark is divided into four components *viz.*, attendance (30%), class test (40%) impression (20%) and home assignment (10%). Class test component *i.e.*, 40% marks is considered for calculation of COs. It is to be noted that, as per GU regulation, best class test mark is to be used out of 2/3 class tests conducted for awarding sessional mark. Equal weightage (50%) is considered to derive the CO attainment.

Since, the evaluated class tests answer scripts and assignments copies were returned to the students during the period of 2011-17, the department is not in a position to compute the attainment on CO basis as question-wise (CO-wise) marks of the students are presently not available. Hence, it is decided in the departmental meeting to calculate average Course Outcomes as per the procedure outlined above.

At present, from the year 2017-18, the department has been following the method as explained in SAR for calculation of COs.

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

Program shall have set Course Outcome attainment levels for all courses

(The attainment levels shall be set considering average performance levels in the University Examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect to the Course Outcomes in addition to the performance in the University Examination)

##### **Target and Attainment Level**

The department has fixed the attainment level for both University examination marks [ESE theory and sessional (internal assessment)] marks as given below:

- i. **65% ≥ Level 3,**
- ii. **40% ≥ level 2 < 65%,**
- iii. **35% ≥ Level 1 < 40%**

**Target level for PO = 2.6**

**Target level for PSO = 2.7**

If the target is achieved (i.e., attainment level 3 is achieved) for a course, then the course outcomes are attained for that year and hence the level percentage is raised reasonably (approximately 5%). If the target is not achieved then an action plan is to be specified to take further action to attain the target in the following year.

**The final attainment is computed as given below**

$$\text{Course outcome Attainment} = 0.5 * \text{AL in universityexam} + 0.5 * \text{AL in Sessional}$$

where, AL= Attainment Level

### **3.3 Attainment of Program Outcomes (PO)and Program Specific Outcomes (PSO) (50)**

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

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

**The assessment tools for measuring the attainment of each PO and PSO include direct and indirect assessment methods.**

#### **Direct Assessment:**

Average course outcomes (CO) attainment for a particular course is calculated by considering the University end semester examination (ESE) theory mark and sessional mark (internal assessment) of a student. As per regulation of Gauhati University (GU), the sessional mark is divided into four components *viz.*, attendance (30%), class test (40%) impression (20%) and home assignment (10%). Class test component *i.e.*, 40% marks is considered for calculation of COs. It is to be noted that, as per GU regulation, best class test mark is to be used out of 2/3 class tests conducted for awarding sessional mark.

Since, the evaluated class tests answer scripts and assignments copies were returned to the students during the period of 2011-17, the department is not in a position to compute the attainment on CO basis as question-wise (CO-wise) marks of the students are presently not available. Hence, it is decided in the departmental meeting to calculate average Course Outcomes as per the procedure outlined above.

At present, from the year 2017-18, the department has been following the method as explained in SAR for calculation of COs.

The direct assessment of each course includes semester end examination, and internal assessments. Equal weightage (50%) is considered to derive the CO attainment.

For each PO and PSO, the attainment value of a course that contributes to that PO or PSO is computed as explained below: (Figure 4)

| (MENTION)  |   | Subject name      | Subject code  |           | Semester, Branch & Year   |           |  |           | Faculty= XYZ  |           |  |
|--|---|-------------------|---|-----------|---|-----------|--|-----------|---|-----------|--|
|  |   | Assessment method |   |           |   |           |  |           |   |           |  |
| <b>TABLE No.1</b> <span style="color: red;">Mark &gt;= 65%, Level = 3; 40% &lt;= Mark &lt; 65%, Level = 2; 35% &lt;= Mark &lt; 40%, Level = 1</span> |   |                   |   |           |   |           |  |           |   |           |  |
| Roll Number  | CO1 MARK  | CO1 LEVEL         | CO2 MARK  | CO2 LEVEL | CO3 MARK  | CO3 LEVEL | CO4 MARK   | CO4 LEVEL | CO5 MARK  | CO5 LEVEL |  |
| 1  |   |                   |   |           |   |           |  |           |   |           |  |
| 2  |   |                   |   |           |   |           |  |           |   |           |  |
| 3  |   |                   |   |           |   |           |  |           |   |           |  |
| 4  |   |                   |   |           |   |           |  |           |   |           |  |
| #  |   |                   |   |           |   |           |  |           |   |           |  |
| #  |   |                   |   |           |   |           |  |           |   |           |  |
| 59   |   |                   |   |           |   |           |  |           |   |           |  |
| Last roll #  | Avg CO1 attainment = (Average of CO1 levels) = X <sub>1</sub> (SAY) |                   | Avg CO2 attainment = (Average of CO2 levels) = X <sub>2</sub> (SAY) |           | Avg CO3 attainment = (Average of CO3 levels) = X <sub>3</sub> (SAY) |           | Avg CO4 attainment = (Average CO4 levels) = X <sub>4</sub> (SAY) |           | Avg CO5 attainment = (Average of CO5 levels) = X <sub>5</sub> (SAY) |           |  |

|                        |                                       |  |            |  |                             |                         |                                 |                           |                           |             |             |
|------------------------|---------------------------------------|--|------------|--|-----------------------------|-------------------------|---------------------------------|---------------------------|---------------------------|-------------|-------------|
| <b>TABLE No.2</b>      |                                       | <b>Example CO-PO mapping<br/>(SIMILAR CALCULATIONS ARE TO BE DONE FOR ALL COLUMNS)</b> |            |  |                             |                         |                                 |                           |                           |             |             |
| <b>PO1</b>             |                                       | <b>PO2</b>   | <b>PO3</b> |  |                             | <b>PO12</b>             |                                 |                           | <b>PSO1</b>               | <b>PSO2</b> | <b>PSO3</b> |
| <b>CO1</b>             | 3                                     |  |            |  |                             | 2                       |                                 |                           | 1                         | 3           |             |
| <b>CO2</b>             | 2                                     | 1  |            |  |                             | 1                       |                                 |                           | 2                         |             | 2           |
| <b>CO3</b>             |                                       | 3  |            |  |                             | 3                       |                                 |                           |                           |             |             |
| <b>CO4</b>             | 2                                     |  |            |  |                             | 3                       |                                 |                           | 3                         | 2           | 1           |
| <b>CO5</b>             | 1                                     | 2  |            |  |                             |                         |                                 |                           |                           |             |             |
| <b>TOTAL</b>           | 8                                     | 6  |            |  |                             | 9                       |                                 |                           | 6                         | 5           | 3           |
| <b>AVERAGE</b>         | 2                                     | 2  |            |  |                             | 2.25                    |                                 |                           | 2                         | 2.5         | 1.5         |
| <b>PO ATTAINMENT =</b> | $\frac{(3.X_1+2.X_2+2.X_4+1.X_5)}{8}$ | $\frac{(1.X_2+3.X_3+2.X_4)}{6}$  |            |  | $(2.X_1+1.X_2+3.X_3+3.X_4)$ | <b>PSO ATTAINMENT =</b> | $\frac{(1.X_1+2.X_2+3.X_4)}{6}$ | $\frac{(3.X_1+2.X_4)}{5}$ | $\frac{(2.X_2+1.X_4)}{3}$ |             |             |

**Fig 5: Method for calculating PO and PSO, the attainment**

### a. Indirect Assessment:

The following assessment tools are used to compute the indirect attainment based on requirement & relevance.

### **b. Indirect Assessment Methods:**

- Industrial Training (sample form attached)
  - Alumni/Parents/Students Exit surveys **sample attached**

| Industrial Training feedback Form (CONFIDENTIAL between student and department)   |   |              |             |           |                    |
|---|---|--------------|-------------|-----------|--------------------|
| Department of Mechanical Engineering, AEC, Jalukbari  |   |              |             |           |                    |
| Name of the Organization:   | NEWCASTLE UNIVERSITY  |              |             |           |                    |
| Address:  | 11 NO. 85A, BANESWAR TEMPLE CAMPUS, M.G. ROAD, PANBARI, GUYA, 731001. |              |             |           |                    |
| Please put the numeric value: 1 is the lowest level of agreement and 5 is the highest level of agreement.                       |   |              |             |           |                    |
| Instruction by trainer  | Strongly disagree (1)   | Disagree (2) | Neutral (3) | Agree (4) | Strongly agree (5) |
| 1 My instructors had thorough knowledge of the subject content  |   |              |             |           | ✓                  |
| 2 My instructors provided opportunities to ask questions  |   |              |             | ✓         |                    |
| 3 My instructors communicated the subject content effectively   |   |              |             | ✓         |                    |
| 4 My training had specific programs for training of engineering students  |   |              |             | ✓         |                    |
| Generic & Technical/Non-technical skills  | Strongly disagree (1)   | Disagree (2) | Neutral (3) | Agree (4) | Strongly agree (5) |
| 1 My training gave me positive feedback on the environment to be faced by future engineers                                      |   |              |             | ✓         |                    |
| 2 My training helped me develop my ability to use modern tools (software/hardware)  |   |              |             | ✓         |                    |
| 3 My training improved my engineering skill and managerial skill for problem analysis & problem-solving in unfamiliar situation |   |              | ✓           |           |                    |
| 4 My training helped me develop my ability to work as a team member   |   |              |             | ✓         |                    |
| 5 My training improved my skills in written and oral communication  |   |              |             | ✓         |                    |
| 6 My training improved my concept on need for environmental sustainability by engineers   |   |              |             | ✓         |                    |
| 7 My training gave opportunity to know financial aspects to be learnt by engineers  |   |              |             | ✓         |                    |
| 8 My training helped me to learn safety measures to be taken in industry  |   |              |             | ✓         |                    |
| 9 My training helped me to learn technical/behavioral standards being practiced   |   |              |             | ✓         |                    |
| 10 My training gave the knowledge on moral/ethical qualities needed for engineers   |   |              |             | ✓         |                    |
| 11 My training has helped me think about new opportunities in life  |   |              | ✓           |           | ✓                  |
| Overall satisfaction  | Strongly disagree (1)   | Disagree (2) | Neutral (3) | Agree (4) | Strongly agree (5) |
| Overall, I was satisfied and I shall recommend it for future trainees   |   |              |             | ✓         |                    |
| Total (Calculate) =   | 70  |              |             |           |                    |

EXIT SURVEY FORM

Dear Students,

You might be aware that the **Mechanical Engineering Department of Assam Engineering College, Juhakbari**, has initiated the process of **accreditation** by the **National Board of Accreditation (NBA)**. The accreditation process is a kind of recognition which indicates that a program fulfills desired standards.

For the process of accreditation, your response is also a mandatory requirement to measure the attainment of **Program Outcomes (POs)** and **Program Specific Outcomes (PSOs)** as listed in NBA application form as **Indicated Attainment** during the full four-year degree course. For your kind information, 12 numbers of Po (PO1 to PO12) and 3 numbers of PSOs (PSO1 to PSO3) are mentioned below.

You are requested to use the correlation levels 1, 2 or 3 listed below for attainment levels defined there. The help manual may also be consulted while filling up the following table of Po's and PSOs.

| Attainment level   | Correlation level |
|--------------------|-------------------|
| Slight (low)       | 1                 |
| Medium             | 2                 |
| Substantial (High) | 3                 |

PO—Attainment (Indirect Attainment)

| Correlation level | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| 3                 | 2   | 2   | 2   | 2   | 3   | 3   | 2   | 3   | 2   | 2    | 2    | 3    |

PSO – Attainment (Indirect Attainment)

| Correlation level | PSO1 | PSO2 | PSO3 |
|-------------------|------|------|------|
| 3                 | 2    | 2    | 3    |

Your Signature:



Name (in block letters): **NILKAMAL SAHA**

Present Designation: **Project Engineer (Mechanical), 10CL.**

Roll Number: **ME14/5121A**

Your Phone Number: **7002.371236**

Your email: **nilkamalsaha@gmail.com**

Present address Address: **Yamuna Hostel, Baruani Refinery Township,**

**Baruani, Dibrugarh, Assam, PIN - 851117**

[Kindly send this form to the Head, Mechanical Engineering Department, Assam Engineering College, Juhakbari, Gauhati-781012 on or before 20 March 2018.]

[For any queries, please feel free to contact over phone to Dr. Anil Borah, Associate Professor, Mechanical Engineering, AEC (Phone numbers 9435171998/678094571)]

Fig 6: Sample industrial training and exit survey forms

The data from the above surveys are classified into three performance levels as 1 for low, 2 for medium and 3 for high.

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

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

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

**Table B3.3.2a: PO Attainment of all courses Batch: 2013–17**

| Course Name                               | Course Code | PO1   | PO2   | PO 3  | PO 4  | PO 5  | PO 6  | PO 7  | PO 8  | PO 9  | PO 10 | PO 11 | PO 12 |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Physics-I                                 | PH101       | 2.45  | 2.45  | 2.45  | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Chemistry-I                               | CY102       | 2.72  | 2.72  | 2.72  | 2.72  | 2.72  | 2.72  | 2.72  |       | 2.72  | 2.72  |       | 2.72  |
| Mathematics-I                             | MA103       | 2.675 | 2.675 | 2.675 | -     | -     | -     | -     | -     | 2.675 | -     | -     | -     |
| Elements of Civil Engineering             | CE104       | 2.555 | 2.555 | 2.555 | 2.555 | 2.555 | -     | -     | -     | -     | -     | -     | -     |
| Eng Communication and Tech report Writing | HU105       | -     | 1.295 | -     | 1.295 | -     | 1.295 | -     | 1.295 | 1.295 | 1.295 | -     | 1.295 |
| Engineering Graphics-I                    | CE106       | 2.625 | 2.625 | 2.625 | 2.625 | 2.625 | 2.625 | 2.625 | -     | -     | -     | -     | -     |
| Introduction to Computing                 | CS107       | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 | 1.705 |
| Workshop-I                                | ME108       | 2.77  | 2.77  | -     | -     | -     | -     | -     | 2.77  | 2.77  | -     | -     | -     |
| Physics-I Lab                             | PH101 L     | 1.6   | -     | -     | -     | -     | -     | -     | -     | 0.8   | -     | -     | -     |
| Chemistry-I Lab                           | CY102 L     | 3     | 3     | -     | 3     | -     | -     | 3     | -     | 3     | 3     | -     | -     |
| Physics-II                                | PH201       | 2.46  | 2.46  | 2.46  | -     | 2.46  | -     | -     | -     | -     | -     | -     | -     |
| Chemistry-II                              | CY202       | 2.48  | 2.48  | 2.48  | 2.48  | 2.48  | 2.48  | 2.48  | -     | -     | 2.48  | 2.48  | 2.48  |
| Mathematics-II                            | MA203       | 2.445 | 2.445 | 2.445 | -     | -     | -     | -     | -     | -     | -     | -     | 2.445 |
| Engineering Mechanics-I                   | ME204       | 2.655 | 2.655 | 2.655 | 2.655 | 2.655 | -     | -     | -     | -     | -     | -     | 2.655 |
| Strength of Materials                     | CE205       | 2.655 | 2.655 | 2.655 | 2.655 | 2.655 | -     | -     | -     | -     | -     | -     | 2.655 |
| Basic Electrical Engineering –I           | EE206       | 2.425 | 2.425 | 2.425 | 2.425 | 2.425 | 2.425 | 2.425 | 2.425 | 2.425 | -     | -     | 2.425 |

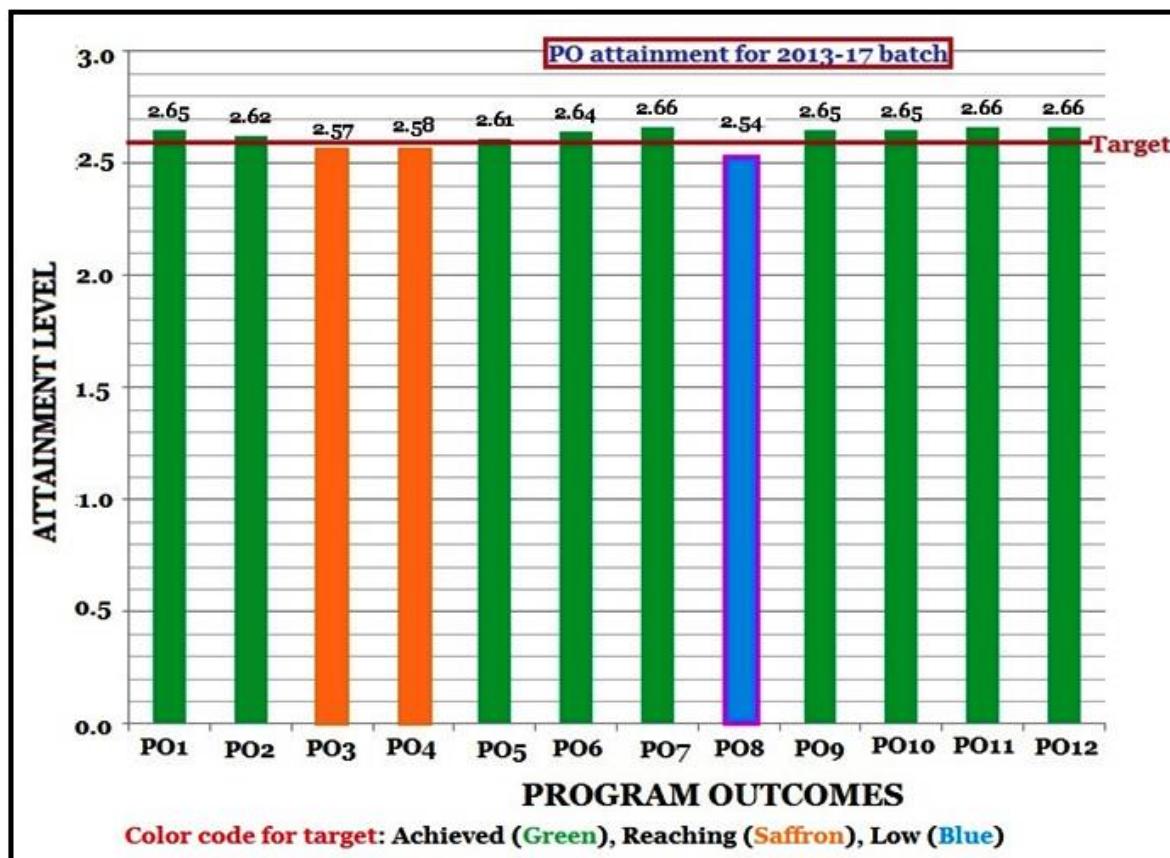
|                                 |            |           |           |           |           |           |           |          |      |          |          |          |          |           |
|---------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------|----------|----------|----------|----------|-----------|
| Engineering Graphics-II         | ME207      | 2.62<br>5 | 2.62<br>5 | 2.6<br>25 | -         | -         | 2.6<br>25 | -        | -    | -        | -        | -        | -        | 2.6<br>25 |
| Workshop-II                     | ME20<br>8  | 2.79      | 2.79      | -         | -         | -         | -         | -        | 2.79 | 2.79     | -        | -        | -        | -         |
| Physics-II<br>Lab               | PH201<br>L | 2.65      | -         | -         | -         | -         | -         | -        | -    | 2.6<br>5 | -        | -        | -        | -         |
| Chemistry-II<br>Lab             | CY202<br>L | 2.98      | 2.98      | 2.9<br>8  | 2.9<br>8  | 2.9<br>8  | 2.9<br>8  | 2.9<br>8 | -    | 2.9<br>8 | 2.9<br>8 | 2.9<br>8 | 2.9<br>8 | 2.9<br>8  |
| Engineering Mechanics-I<br>Lab  | ME20<br>4L | 2.98      | 2.98      | -         | 2.9<br>8  | 2.9<br>8  | -         | -        | -    | -        | -        | -        | -        | -         |
| Strength of<br>Materials<br>Lab | CE205<br>L | 2.98      | 2.98      | -         | 2.9<br>8  | 2.9<br>8  | -         | -        | -    | -        | -        | -        | -        | -         |
| Basic Electrical Engg-I<br>Lab  | EE206<br>L | 2.45      | 2.45      | -         | 2.4<br>5  | -         | -         | -        | -    | 2.4<br>5 | -        | -        | 2.4<br>5 | -         |
| Mathematics<br>- III            | MA<br>301  | 2.29      | 2.29      | -         | -         | -         | -         | -        | -    | -        | -        | -        | -        | -         |
| Electro<br>Technology –<br>I    | EE 303     | 2.67      | 2.67      | -         | -         | -         | -         | -        | -    | -        | -        | -        | -        | 2.67      |
| Basic Thermodynamics            | ME<br>305  | 2.74      | 2.74      | 2.7<br>4  | 2.7<br>4  | 2.7<br>4  | -         | 2.74     | -    | -        | -        | -        | -        | -         |
| Theory of<br>Machine            | ME<br>322  | 2.72<br>5 | 2.72<br>5 | 2.7<br>25 | 2.7<br>25 | 2.7<br>25 | -         | -        | -    | -        | -        | -        | -        | 2.72<br>5 |
| Engineering Graphics –<br>III   | ME<br>323  | 2.4       | 2.4       | 2.4       | 2.4       | -         | -         | -        | -    | 2.4      | -        | -        | -        | 2.4       |
| Workshop<br>Theory – I          | ME<br>324  | 2.71      | 2.71      | 2.71      | -         | -         | -         | -        | -    | -        | -        | -        | -        | 2.71      |
| General Proficiency             | ME<br>325  | -         | -         | -         | -         | -         | -         | -        | -    | -        | 2.7      | -        | -        | 2.7       |
| Electro<br>Technology –<br>I    | EE<br>303L | 2.84      | 2.84      | -         | 2.8<br>4  | -         | -         | -        | -    | -        | 2.8<br>4 | -        | -        | 2.8<br>4  |
| Theory of<br>Machines           | ME<br>322L | 3         | 3         | 3         | 3         | 3         | -         | -        | -    | -        | -        | -        | -        | 3         |

|                                     |         |       |       |           |           |           |           |           |           |           |           |           |           |
|-------------------------------------|---------|-------|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Engineering Graphics – III          | ME 323L | 3     | 3     | -         | 3         | -         | -         | -         | -         | -         | 3         | -         | 3         |
| Workshop Theory – I                 | ME 324L | 2.73  | 2.73  | 2.7<br>3  | -         | -         | -         | -         | -         | -         | -         | -         | 2.73      |
| Mathematics – IV                    | MA 401  | 2.26  | 2.26  | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| Sociology and Ac-<br>countancy      | HU 402  | -     | 2.57  | -         | -         | -         | 2.5<br>7  |
| Communication Skill                 | HU 403  | -     | 2.09  | -         | 2.0<br>9  | -         | 2.0<br>9  | 2.0<br>9  | 2.0<br>9  | 2.0<br>9  | 2.0<br>9  | -         | 2.0<br>9  |
| Electro Technology – II             | EE 404  | 2.51  | 2.51  | -         | 2.5<br>1  | -         | -         | -         | -         | -         | 2.5<br>1  | -         | 2.51      |
| Mechanics of Material               | ME 425  | 2.85  | 2.85  | 2.8<br>5  | -         | -         | -         | -         | -         | 2.8<br>5  | 2.8<br>5  | -         | 2.8<br>5  |
| Fluid Me-<br>chanics – I            | ME 426  | 2.51  | 2.51  | 2.5<br>1  | 2.5<br>1  | 2.5<br>1  | -         | -         | -         | 2.51      | -         | -         | 2.51      |
| Material Sci-<br>ence               | ME 427  | 2.03  | 2.03  | 2.0<br>3  | -         | -         | -         | -         | -         | -         | -         | -         | 2.0<br>3  |
| General Pro-<br>ficiency            | ME 428  | -     | -     | -         | -         | -         | -         | -         | -         | 2.7<br>8  | -         | -         | 2.7<br>8  |
| Electro Technology – II             | EE 404L | 2.72  | 2.72  | -         | 2.7<br>2  | -         | -         | -         | -         | -         | -         | -         | 2.7<br>2  |
| Mechanics of Materials              | ME 425L | 3     | 3     | -         | -         | -         | -         | -         | -         | 3         | 3         | -         | 3         |
| Fluid Me-<br>chanics                | ME 426L | 3     | 3     | 3         | 3         | -         | 3         | -         | -         | 3         | 3         | 3         | 3         |
| Economics & Principle of Management | HU 501  | -     | 2.423 | -         | -         | -         | 2.42<br>3 |
| Mechanism & Dynamics of Machines    | ME 522  | 2.667 | 2.667 | 2.66<br>7 | 2.66<br>7 | 2.66<br>7 | -         | -         | -         | 2.66<br>7 | -         | -         | 2.66<br>7 |
| Applied Thermody-<br>namics – I     | ME 523  | 2.51  | 2.51  | -         | 2.51      | -         | -         | 2.51      | -         | 2.51      | -         | -         | 2.51      |
| Heat Trans-<br>fer – I              | ME 524  | 2.827 | 2.827 | 2.82<br>7 | 2.82<br>7 | 2.82<br>7 | 2.82<br>7 | 2.82<br>7 | -         | 2.82<br>7 | 2.82<br>7 | 2.82<br>7 | 2.82<br>7 |
| Instrumenta-<br>tion                | ME 525  | 2.533 | 2.533 | 2.53<br>3 |
| Machine De-<br>sign – I             | ME 526  | 2.633 | 2.633 | 2.63<br>3 | 2.63<br>3 | 2.63<br>3 | -         | 2.63<br>3 | 2.63<br>3 | -         | 2.63<br>3 | 2.63<br>3 | 2.63<br>3 |
| General Pro-                        | ME      | -     | -     | -         | -         | -         | -         | -         | -         | -         | 2.9       | -         | 2.9       |

|                                      |         |       |       |       |       |      |      |      |      |       |      |      |       |
|--------------------------------------|---------|-------|-------|-------|-------|------|------|------|------|-------|------|------|-------|
| iciency                              | 527     |       |       |       |       |      |      |      |      |       | 3    |      | 3     |
| Mechanism & Dynamics of Machines     | ME 522L | 3     | 3     | 3     | 3     | 3    | 3    | 3    | 3    | 3     | 3    | 3    | 3     |
| Applied Thermodynamics – I           | ME 523L | 2.96  | 2.96  | 2.96  | 2.96  | -    | -    | 2.96 | -    | 2.96  | 2.96 | -    | 2.96  |
| Instrumentation                      | ME 525L | 2.59  | 2.59  | 2.59  | 2.59  | 2.59 | 2.59 | 2.59 | 2.59 | 2.59  | 2.59 | 2.59 | 2.59  |
| Heat Transfer – I                    | ME 524L | 3     | 3     | 3     | 3     | 3    | 3    | 3    | 3    | 3     | 3    | 3    | 3     |
| Machine Design – II                  | ME 621  | 2.79  | 2.79  | 2.79  | 2.79  | 2.79 | 2.79 | -    | -    | -     | 2.79 | -    | 2.79  |
| Operation Research                   | ME 622  | 2.57  | 2.57  | 2.57  | 2.57  | -    | -    | -    | -    | -     | -    | -    | 2.57  |
| Fluid Mechanics – II                 | ME 623  | 2.5   | 2.5   | 2.5   | 2.5   | -    | -    | -    | -    | -     | -    | -    | 2.5   |
| Engineering Inspection and Metrology | ME 624  | 2.9   | 2.9   | 2.9   | 2.9   | -    | -    | -    | -    | -     | -    | -    | 2.9   |
| Workshop Theory – II                 | ME 625  | 2.71  | 2.71  | 2.71  | 2.71  | -    | -    | -    | -    | -     | -    | -    | 2.71  |
| Numerical Methods and Computation    | ME 626  | 2.945 | 2.945 | 2.945 | 2.945 | -    | -    | -    | -    | 2.945 | -    | -    | 2.945 |
| General Proficiency                  | ME 627  | -     | -     | -     | -     | -    | -    | -    | -    | -     | 2.95 | -    | 2.95  |
| Machine Design – II                  | ME 621L | 3     | 3     | 3     | 3     | 3    | -    | 3    | -    | -     | 3    | 3    | 3     |
| Fluid Mechanics – II                 | ME 623L | 2.98  | 2.98  | 2.98  | 2.98  | -    | 2.98 | -    | -    | 2.98  | 2.98 | -    | 2.98  |
| Engineering Inspection and Metrology | ME 624L | 3     | 3     | 3     | -     | -    | -    | -    | -    | -     | -    | -    | 3     |
| Workshop Theory – II                 | ME 625L | 2.77  | 2.77  | 2.77  | 2.77  | 2.77 | 2.77 | 2.77 | -    | 2.77  | -    | -    | 2.77  |
| Mechanical                           | ME      | 2.94  | 2.94  | 2.9   | -     | 2.9  | -    | -    | -    | 2.9   | 2.9  | -    | 2.9   |

|   |         |       |       |       |       |      |       |       |       |      |      |       |       |
|---|---------|-------|-------|-------|-------|------|-------|-------|-------|------|------|-------|-------|
| Vibration   | 721     |       |       | 4     |       | 4    |       |       |       | 4    | 4    |       | 4     |
| Applied Thermodynamics – II   | ME 722  | 2.49  | 2.49  | 2.49  | 2.49  | -    | -     | 2.49  | -     | -    | 2.49 | -     | 2.49  |
| Hydraulic Machines  | ME 723  | 2.64  | 2.64  | 2.64  | 2.64  | -    | 2.64  | 2.64  | -     | 2.64 | 2.64 | 2.64  | 2.64  |
| Heat Transfer – II  | ME 724  | 2.79  | 2.79  | 2.79  | 2.79  | 2.79 | 2.79  | -     | 2.79  | 2.79 | 2.79 | -     | 2.79  |
| Elective – I<br>Refrigeration   | ME 725  | 2.76  | 2.76  | 2.76  | 2.76  | -    | 2.76  | -     | -     | -    | -    | -     | 2.76  |
| Machine Tools   |         |       |       |       |       |      |       |       |       |      |      |       |       |
| Elective – II<br>(Open)<br>Computational Fluid Dynamics and Heat Transfer | ME 726  | 2.9   | 2.9   | 2.9   | 2.9   | 2.9  | -     | -     | -     | 2.9  | -    | -     | 2.9   |
| Non Conventional Energy Systems   |         |       |       |       |       |      |       |       |       |      |      |       |       |
| Practical Training  | ME 727L | 2.68  | 2.68  | 2.68  | 2.68  | -    | -     | 2.68  | -     | 2.68 | 2.68 | 2.68  | -     |
| Project – I   | ME 728L | 3     | 3     | 3     | 3     | 3    | 3     | 3     | -     | 3    | -    | 3     | 3     |
| Manufacturing Method  | ME 821  | 2.32  | 2.32  | 2.32  | 2.32  | -    | -     | -     | -     | -    | -    | -     | 2.32  |
| Industrial Engg& Management   | ME 822  | 2.8   | 2.8   | 2.8   | 2.8   | 2.8  | 2.8   | 2.8   | 2.8   | 2.8  | 2.8  | 2.8   | 2.8   |
| Internal Combustion Engine  | ME 823  | 2.78  | 2.78  | 2.78  | 2.78  | 2.78 | 2.78  | 2.78  | -     | 2.78 | 2.78 | -     | 2.78  |
| Elective – III<br>Air Conditioning  | ME 824  | 2.745 | 2.745 | 2.745 | 2.745 | -    | 2.745 | 2.745 | 2.745 | -    | -    | 2.745 | 2.745 |
| Elective – IV<br>(Open)<br>Power Plant                                    | ME 825  | 3     | 3     | 3     | 3     | -    | 3     | 3     | -     | 3    | 3    | -     | 3     |

|   |        |      |      |      |      |      |      |      |      |      |      |      |      |
|---|--------|------|------|------|------|------|------|------|------|------|------|------|------|
| Technology  |        |      |      |      |      |      |      |      |      |      |      |      |      |
| Robotics & Applications                           |        | 2.8  | 2.8  | 2.8  | -    | 2.8  | -    | -    | -    | 2.8  | 2.8  | -    | 2.8  |
| Project – II                                      | ME 826 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | 2.97 | -    | 2.97 | -    | 2.97 | 2.97 | 2.97 |
| Viva-Voce   | ME 827 | 2.73 | 2.73 | 2.73 | -    | -    | -    | 2.73 | 2.73 | -    | 2.73 | -    | 2.73 |
| Indirect attainment (present final year students) |        | 2.09 | 2.07 | 1.83 | 1.83 | 1.94 | 2.37 | 2.22 | 2.48 | 2.24 | 2.33 | 2.33 | 2.43 |
| Indirect attainment (last passed out batch)       |        | 2.56 | 2.33 | 2    | 2.22 | 2.44 | 2.67 | 2.78 | 2.56 | 2.78 | 2.22 | 2.44 | 2.44 |
| Indirect attainment (Parents & alumni)            |        | 2.85 | 2.69 | 2.38 | 2.31 | 2    | 2.69 | 2.69 | 2.77 | 2.92 | 2.62 | 2.54 | 2.69 |
| Direct Avg Attn.                                  |        | 2.69 | 2.68 | 2.70 | 2.70 | 2.73 | 2.65 | 2.69 | 2.53 | 2.65 | 2.71 | 2.72 | 2.69 |
| Indirect Avg Attn.                                |        | 2.50 | 2.36 | 2.07 | 2.12 | 2.13 | 2.58 | 2.56 | 2.60 | 2.65 | 2.39 | 2.44 | 2.52 |
| Overall PO attainment                             |        | 2.65 | 2.62 | 2.57 | 2.58 | 2.61 | 2.64 | 2.66 | 2.54 | 2.65 | 2.65 | 2.66 | 2.66 |



**Fig 7: Histogram showing PO attainment for 2013-17 batch**

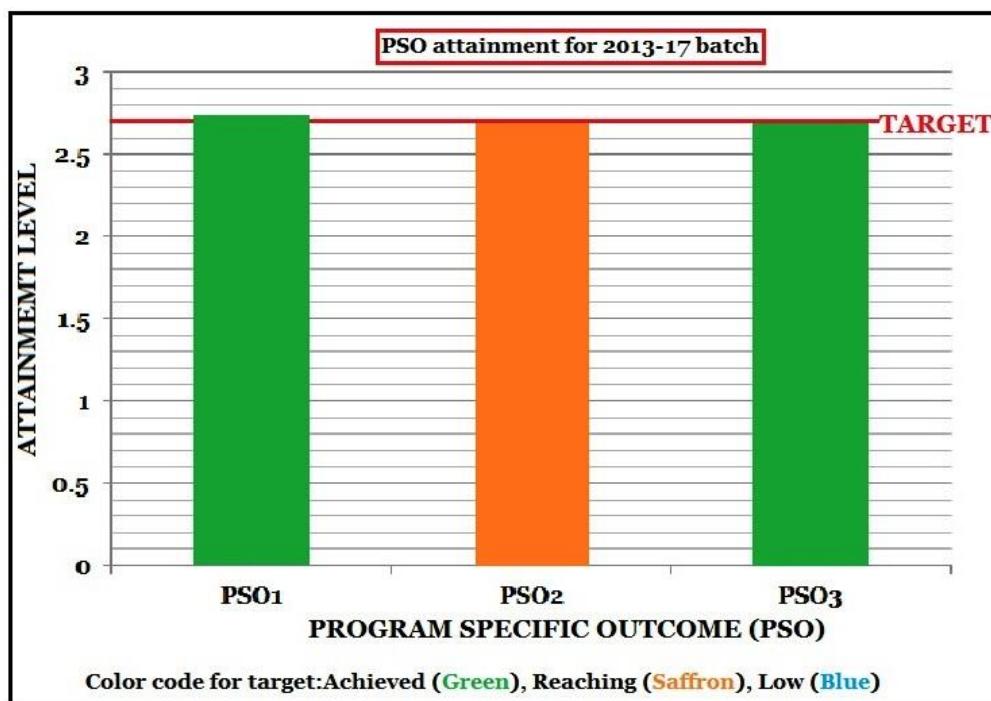
**Table B3.3.2b: PSO Attainment of all courses Batch: 2013–17**

| Course Name                               | Courses Code | PSO1  | PSO2  | PSO3  |
|---|--------------|-------|-------|-------|
| Physics-I                                 | PH101        | -     | -     | -     |
| Chemistry-I                               | CY102        | -     | -     | -     |
| Mathematics-I                             | MA103        | -     | -     | -     |
| Elements of Civil Engineering             | CE104        | -     | -     | -     |
| Eng Communication and Tech report Writing | HU105        | -     | -     | -     |
| Engineering Graphics-I                    | CE106        | -     | -     | -     |
| Introduction to Computing                 | CS107        | 1.705 | 1.705 | 1.705 |
| Workshop-I                                | ME108        | 2.77  | 2.77  | 2.77  |
| Physics-I Lab                             | PH101L       | -     | -     | -     |
| Chemistry-I Lab                           | CY102L       | -     | -     | -     |
| Physics-II                                | PH201        | -     | -     | -     |
| Chemistry-II                              | CY202        | -     | -     | -     |
| Mathematics-II                            | MA203        | -     | -     | -     |
| Engineering Mechanics-I                   | ME204        | 2.655 | 2.655 | 2.655 |
| Strength of Materials                     | CE205        | 2.655 | 2.655 | 2.655 |
| Basic Electrical Engineering –I           | EE206        | -     | -     | -     |
| Engineering Graphics-II                   | ME207        | 2.625 | 2.625 | 2.625 |

|                                     |         |       |       |       |
|-------------------------------------|---------|-------|-------|-------|
| Workshop-II                         | ME208   | 2.79  | 2.79  | 2.79  |
| Physics-II Lab                      | PH201L  | -     | -     | -     |
| Chemistry-II Lab                    | CY202L  | -     | -     | -     |
| Engineering Mechanics-I Lab         | ME204L  | 2.98  | 2.98  | 2.98  |
| Strength of Materials Lab           | CE205L  | 2.98  | 2.98  | 2.98  |
| Basic Electrical Engg-I Lab         | EE206L  | -     | -     | -     |
| Mathematics – III                   | MA 301  | -     | -     | -     |
| Electro Technology – I              | EE 303  | 2.67  | 2.67  | 2.67  |
| Basic Thermodynamics                | ME 305  | 2.74  | 2.74  | 2.74  |
| Theory of Machine                   | ME 322  | 2.725 | 2.725 | 2.725 |
| Engineering Graphics – III          | ME 323  | 2.4   | 2.4   | 2.4   |
| Workshop Theory – I                 | ME 324  | 2.71  | 2.71  | 2.71  |
| General Proficiency                 | ME 325  | 2.7   | 2.7   | 2.7   |
| Electro Technology – I LAB          | EE 303L | 2.84  | 2.84  | 2.84  |
| Theory of Machines                  | ME 322L | 3     | 3     | 3     |
| Engineering Graphics – III          | ME 323L | 3     | 3     | 3     |
| Workshop Theory – I LAB             | ME 324L | 2.73  | 2.73  | 2.73  |
| Mathematics – IV                    | MA 401  | -     | -     | -     |
| Sociology and Accountancy           | HU 402  | -     | -     | -     |
| Communication Skill                 | HU 403  | -     | -     | -     |
| Electro Technology – II             | EE 404  | 2.51  | 2.51  | 2.51  |
| Mechanics of Material               | ME 425  | 2.85  | 2.85  | 2.85  |
| Fluid Mechanics – I                 | ME 426  | 2.51  | 2.51  | 2.51  |
| Material Science                    | ME 427  | 2.03  | -     | 2.03  |
| General Proficiency                 | ME 428  | 2.78  | 2.78  | 2.78  |
| Electro Technology – II LAB         | EE 404L | 2.72  | 2.72  | 2.72  |
| Mechanics of Materials LAB          | ME 425L | 3     | 3     | 3     |
| Fluid Mechanics                     | ME 426L | 3     | 3     | 3     |
| Economics & Principle of Management | HU 501  | -     | -     | -     |
| Mechanism & Dynamics of Machines    | ME 522  | 2.667 | 2.667 | 2.667 |
| Applied Thermodynamics – I          | ME 523  | 2.51  | 2.51  | 2.51  |
| Heat Transfer – I                   | ME 524  | 2.827 | 2.827 | 2.827 |
| Instrumentation                     | ME 525  | 2.533 | 2.533 | 2.533 |
| Machine Design – I                  | ME 526  | 2.633 | 2.633 | 2.633 |
| General Proficiency                 | ME 527  | 2.93  | 2.03  | 2.93  |
| Mechanism & Dynamics of Machines    | ME 522L | 3     | 3     | 3     |
| Applied Thermodynamics – I          | ME 523L | 2.96  | 2.96  | 2.96  |
| Instrumentation LAB                 | ME 525L | 2.59  | 2.59  | 2.59  |

|  |         |       |       |       |
|--|---------|-------|-------|-------|
| Heat Transfer – I LAB  | ME 524L | 3     | 3     | 3     |
| Machine Design – II  | ME 621  | 2.79  | 2.79  | 2.79  |
| Operation Research   | ME 622  | 2.57  | 2.57  | 2.57  |
| Fluid Mechanics – II   | ME 623  | 2.5   | 2.5   | 2.5   |
| Engineering Inspection and Metrology                                   | ME 624  | 2.9   | 2.9   | 2.9   |
| Workshop Theory – II   | ME 625  | 2.71  | 2.71  | 2.71  |
| Numerical Methods and Computation                                      | ME 626  | 2.945 | 2.945 | 2.945 |
| General Proficiency  | ME 627  | 2.7   | 2.7   | 2.7   |
| Machine Design – II LAB  | ME 621L | -     | -     | -     |
| Fluid Mechanics – II LAB   | ME 623L | 2.98  | 2.98  | 2.98  |
| Engineering Inspection and Metrology LAB                               | ME 624L | 3     | 3     | 3     |
| Workshop Theory – II LAB   | ME 625L | 2.77  | 2.77  | 2.77  |
| Mechanical Vibration LAB   | ME 721  | 2.94  | 2.94  | 2.94  |
| Applied Thermodynamics – II  | ME 722  | 2.49  | 2.49  | 2.49  |
| Hydraulic Machines   | ME 723  | 2.64  | 2.64  | 2.64  |
| Heat Transfer – II   | ME 724  | -     | -     | -     |
| Elective – I Refrigeration   | ME 725  | 2.76  | 2.76  | 2.76  |
| Machine Tools  |         |       |       |       |
| Elective – II (Open)<br>Computational Fluid Dynamics and Heat Transfer | ME 726  | 2.9   | 2.9   | 2.9   |
| Non Conventional Energy Systems  |         |       |       |       |
| Practical Training   | ME 727L | 2.68  | 2.68  | 2.68  |
| Project – I  | ME 728L | 3     | 3     | 3     |
| Manufacturing Methods  | ME 821  | 2.32  | -     | 2.32  |
| Industrial Engg& Management  | ME 822  | 2.8   | 2.8   | 2.8   |
| Internal Combustion Engine   | ME 823  | 2.78  | 2.78  | 2.78  |
| Elective – III Air Conditioning  | ME 824  | 2.745 | 2.745 | 2.745 |
| Elective – IV (Open)<br>Power Plant Technology                         | ME 825  | 3     | 3     | 3     |
| Robotics & Applications  |         | 2.8   | 2.8   | 2.8   |
| Project – II   | ME 826  | 2.97  | 2.97  | 2.97  |
| Viva-Voce  | ME 827  | 2.73  | 2.73  | 2.73  |

|   |  |      |       |       |
|---|--|------|-------|-------|
| Indirect attainment (present final year students) |  | 2.35 | 2.31  | 2.37  |
| Indirect attainment (last passed out batch)       |  | 2.89 | 2.44  | 2.44  |
| Indirect attainment (Parents & alumni)            |  | 2.85 | 2.85  | 2.92  |
| Direct Avg Attn.                                  |  | 2.74 | 2.74  | 2.74  |
| Indirect Avg Attn.                                |  | 2.69 | 2.53  | 2.58  |
| Overall PSO attainment                            |  | 2.73 | 2.698 | 2.708 |



**Fig 8: Histograms showing PSO attainment for 2013-17 batch**

|                    |                              |            |
|--------------------|------------------------------|------------|
| <b>CRITERION 4</b> | <b>Students' Performance</b> | <b>150</b> |
|--------------------|------------------------------|------------|

#### 4. STUDENTS' PERFORMANCE (150)

**Table B.4a: Students' Performance**

| <b>ITEM<br/>(Information to be provided cumulatively with explicit<br/>headings, wherever applicable)</b>   | <b>CAY</b> | <b>CAYm1</b> | <b>CAYm2</b> |
|---|------------|--------------|--------------|
| Student intake of the program   | 60         | 60           | 60           |
| Total number of students admitted in first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1) | 60         | 60           | 60           |
| Number of students admitted in 2nd year in the same batch via lateral entry (N2)  | 6          | 6            | 6            |
| Separate division students, if applicable (N3) [other state quota]  | 6          | 6            | 6            |
| Total number of students admitted in the Program (N1 + N2 + N3)   | 72         | 72           | 72           |

**Table B.4b: Number of students graduated without backlogs**

| <b>Year of entry</b> | <b><math>N_1 + N_2 + N_3</math><br/>(As defined above)</b> | <b>Number of students who have successfully graduated without backlogs in any semester/year of study<br/>(Without Backlog means no compartment or failures in any semester/year of study)</b> |           |            |           |
|----------------------|--|---|-----------|------------|-----------|
|                      |  | <b>I</b>  | <b>II</b> | <b>III</b> | <b>IV</b> |
| CAY(2017-18)         |  |   |           |            |           |
| CAYm1(2016-17)       |  | 17  |           |            |           |
| CAYm2 (2015-16)      |  | 22  | 21        |            |           |
| CAYm3(LYG)2014-15    |  | 41  | 34        | 32         |           |
| CAYm4 (LYGm1) 2013   |  | 27  | 20        | 20         | 20        |
| CAYm5 (LYGm2) 2012   |  | 39  | 35        | 33         | 32        |
| CAYm5 (LYGm2) 2011   |  | 42  | 40        | 40         | 39        |

**Table B.4c: Number of students graduated with backlog**

| <b>Year of entry</b> | <b><math>N_1 + N_2 + N_3</math><br/>(As defined above)</b> | <b>Number of students who have successfully graduated<br/>(Students with backlog in stipulated period of study)</b> |    |    |    |     |  |
|----------------------|--|---|----|----|----|-----|--|
|                      |  | I   |    | II |    | III |  |
| CAY(2017-18)         |  |   |    |    |    |     |  |
| CAYm1(2016-17)       |  | 28  |    |    |    |     |  |
| CAYm2 (2015-16)      |  | 32  | 39 |    |    |     |  |
| CAYm3(LYG)2014-15    |  | 51  | 41 | 49 |    |     |  |
| CAYm4 (LYGm1) 2013   |  | 46  | 32 | 43 | 42 |     |  |
| CAYm5 (LYGm2) 2012   |  | 54  | 46 | 51 | 46 |     |  |
| CAYm5 (LYGm2) 2011   |  | 43  | 47 | 54 | 56 |     |  |

**4.1. Enrolment Ratio (20)**

$$\text{Enrolment Ratio} = N_1/N = 66/66 = 100\%$$

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

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

**Table B.4.2.1: Number of students graduated without backlogs**

| <b>Item</b>   | <b>Latest Year of Graduation, LYG<br/>(CAYm4)<br/>2013-17</b> | <b>Latest Year of Graduation minus 1,<br/>LYGm1<br/>(CAYm5)<br/>2012-16</b> | <b>Latest Year of Graduation minus 2,<br/>LYGm2<br/>(CAYm6)<br/>2011-15</b> |
|---|---|---|---|
| Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable | 72  | 72  | 72  |
| Number of students who have graduated without backlogs in the stipulated period   | 20  | 32  | 39  |
| Success Index (SI)  | 0.278   | 0.415   | 0.546   |
| Average SI  |   | 0.413   |   |

|                          |        |
|--------------------------|--------|
| Success Rate (25×Av. SI) | 10.325 |
|--------------------------|--------|

#### 4.2.2. Success rate with backlog in stipulated period of study (15)

**Table B.4.2.2: Number of students graduated with backlogs**

| Item  | Latest Year of Graduation, LYG (CAYm4)<br>2013-17 | Latest Year of Graduation minus 1, LYGm1 (CAYm5)<br>2012-16 | Latest Year of Graduation minus 2, LYGm2 (CAYm6)<br>2011-15 |
|---|---|---|---|
| Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable | 72  | 72  | 72  |
| Number of students who have graduated in the stipulated period  | 42  | 46  | 56  |
| Success Index (SI)  | 0.583   | 0.639   | 0.778   |
| Average SI  |   | 0.667   |   |
| Success Rate (15×Av. SI)  |   | 10.005  |   |

#### 4.3 Academic Performance in Third Year (15)

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

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

**Table B.4.3: Academic Performance in third year**

| Academic Performance   | CAYm1     | CAYm2     | CAYm3     |
|--|-----------|-----------|-----------|
| Mean of CGPA or Mean Percentage of all successful students (X) | 7.839     | 7.628     | 7.539     |
| Total no. of successful students (Y)                           | 43        | 51        | 54        |
| Total no. of students appeared in the examination (Z)          | 64        | 78        | 75        |
| API = x* (Y/Z)   | AP1=5.267 | AP2=4.988 | AP3=5.428 |
| Average API = (AP1 + AP2 + AP3)/3                              |           | 5.227     |           |
| Academic Performance = 1.5 * Average API                       |           | 7.84      |           |

#### 4.4 Academic Performance in Second Year (15)

**Table B.4.4: Academic Performance in second year**

| Academic Performance   | CAYm1     | CAYm2     | CAYm3     |
|--|-----------|-----------|-----------|
| Mean of CGPA or Mean Percentage of all successful students (X) | 6.952     | 6.631     | 6.148     |
| Total no. of successful students (Y)                           | 41        | 32        | 46        |
| Total no. of students appeared in the examination (Z)          | 68        | 64        | 78        |
| API = x* (Y/Z)   | AP1=4.192 | AP2=3.316 | AP3=3.626 |
| Average API = (AP1 + AP2 + AP3)/3                              |           | 3.71      |           |
| Academic Performance = 1.5 * Average API                       |           | 5.565     |           |

#### 4.5. Placement, Higher Studies and Entrepreneurship (40)

**Assessment Points = 40 × average placement**

**Table B.4.5: Placement, Higher Studies and Entrepreneurship**

| Item   | CAYm1 | CAYm2 | CAYm3 |
|--|-------|-------|-------|
| Total No. of Final Year Students (N)   | 64    | 78    | 75    |
| No. of students placed in companies or Government Sector (x)   | 39    | 32    | 19    |
| No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y) | 6     | 0     | 0     |
| No. of students turned entrepreneur in engineering/technology (z)  | 0     | 0     | 0     |
| x + y + z =  | 45    | 32    | 19    |
| Placement Index : (x + y + z )/N   | 0.7   | 0.4   | 0.25  |
| Average placement= (P1 + P2 + P3)/3  |       | 0.45  |       |
| <b>Assessment Points = 40 × average placement</b>  |       | 18    |       |

#### 4.6. Professional Activities (20)

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

**(The Department shall provide relevant details)**

##### **Professional Societies:**

- 1) Student Chapter of Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE)

##### **Engineering Events Organised**

- 1) One day International Workshop on Wind Engineering was organised on 23.02.2013.

- 2) Five days short term course on Introduction to Numerical, Computational and Experimental Mechanics from 9.12.2014 to 13.12.2014.
- 3) Special Lecture was arranged for 8th semester students for the subject IEM on (i) Infrastructure management, (ii) Rural technology & management on May 10, 2016. [Resource person—Dr. S.K.Kakoty, Professor, M.E. Department & Dean, Infrastructure and Project, IIT, Guwahati.]
- 4) An Expert lecture was arranged for final year students on Robotics and its different applications on September 28, 2016. [Resource person—Dr. Shyamanta M Hazarika, Professor & Head, Computer Science & Engg Department, Tezpur University]
- 5) MSME-AEC Meet (Academia-Industry collaboration) on 12.5.2016
- 6) Two-day national conference on Non-conventional Energy on 17–18 November, 2017
- 7) One day Seminar on Environment, Air Pollution and Noise, 23/02/2018
- 8) Expert talk by Dr. P Muthukumar, Professor, IIT Guwahati on Advances in Refrigeration and Air Conditioning was organised on February 9, 2018 for 8<sup>th</sup> semester students
- 9) Expert talk by Dr. P.S. Robi, Professor, IIT Guwahati on Advanced Materials with applications was organised on February 15, 2018 for 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup> and PG students.
- 10) One day Seminar on Creativity in Design and Innovation at the Grassroot Level was organised on February 17, 2018
- 11) Expert talk by Sri Girish Kumar, Nezone Tube on Black tube manufacturing for 8<sup>th</sup> semester students was organised on February 28, 2018 for 8<sup>th</sup> semester students.
- 12) A Hands-on-Training on MATLAB was organised on April 3–6, 2018 for 5<sup>th</sup> semester and PG students.
- 13) Expert talk by Dr U S Dixit, Professor, IIT Guwahati on Engineering Ethics was organised on May 11, 2018 for 4<sup>th</sup> semester students

Some of the photographs of the events organised are attached.



Fig 9: Prof P.S. Robi of IITG delivering lecture on “Advanced Materials” on 15/2/2018



Fig 10: Banner for Hands-on-Training on MATLAB



Fig 11: Dr. P Muthukumar of IITG delivering lecture on “Refrigeration and Air Conditioning” on 9/2/18



Fig 12: Some of the participants in Hands-on-Training on MATLAB on April 3-6, 2018



Fig 13: Some photographs of One day Seminar on Environment, Air Pollution and Noise on 23/02/2018



Fig 14: Sri Girish Kumar of Nezone Tubes delivering lecture on Black Tube manufacturing on 28/2/18

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

(The Department shall list the publications mentioned earlier along with the names of the Editors, publishers, etc.)

Table B.4.6.2: Publication of newsletter (Yantrik—Oyantrik)

| Year | Editor            | Publisher                         |
|------|-------------------|-----------------------------------|
| 2017 | Dr. D.K. Mahanta  | Mechanical Engineering department |
| 2018 | Dr. Plabon Kakoti | Mechanical Engineering department |

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

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

Table B.4.6.3: List of students participated in inter-institute events

| Name of student                 | Conference/Event   | Award                 |
|---------------------------------|--|-----------------------|
| Monami Bhuyan<br>Roll No 14/326 | Harvard project for Asian and International Relations 2017, Sydney, Australia              | Participated          |
|                                 | Paper Presentation Competition of ISTE First Regional Convention held at AEC on 22/04/2017 | 2 <sup>nd</sup> Prize |
|                                 | 37 <sup>th</sup> Manik Chandra Barooah Memorial National level                             | 2 <sup>nd</sup> Prize |

|                                   |  |  |
|-----------------------------------|--|--|
|                                   | Debate Competition, 2017 held at Cotton University Guwahati on 07/09/17  |  |
|                                   | 20 <sup>th</sup> Parag Kumar Das Annual Inter College Debate Competition held on 28/08/16  | 2 <sup>nd</sup> Prize                      |
|                                   | National Level 6 <sup>th</sup> RMDC Debate Competition held at AEC, 2016 on 12/02/16   | 1 <sup>st</sup> Prize                      |
| Anubhav Goswami<br>Roll No 15/011 | Winner at Maruti Colors of Youth Season 5, Partnered by MTV India at Kolkata in 2017   |  |
|                                   | Second position in Melo-de-ca competition organised by Royal Group of Institutions, 2017   | 2 <sup>nd</sup> position                   |
|                                   | Participated in staccato 2k16 organised under pyrokinesis'16 at AEC, 2016  | Top 15                                     |
| Rohit Moran Roll No<br>15/148     | 20 <sup>th</sup> ISTE Students' National Convention-2017 Organised by University of Science & Technology (USTM) and Regional Institute of Science & Technology, 28–29 October 2017 | 1 <sup>st</sup> Prize in Robotics Football |
|                                   | 20 <sup>th</sup> ISTE Students' National Convention-2017 Organised by University of Science & Technology (USTM) and Regional Institute of Science & Technology, 28–29 October 2017 | 1 <sup>st</sup> Prize in Bild-o-Mania      |
|                                   | UDBHAVANAM 2017, A National Level Technical Festival Organised by Assam Engineering College on 16 January 2017   | 2 <sup>nd</sup> Prize in Build~Xtra        |

**For the year 2017–2018 (Total 31 Faculties)**

**For the year 2017–2018 (Total 22 Faculties)**

**Table B.5a**

| Name of the Faculty member | Qualification           |                     |                                   | Association with the Institution | Designations | Date of Joining the Institution | Department | Specialization                 | Academic Research                                    |                               |   |
|----------------------------|-------------------------|---------------------|-----------------------------------|----------------------------------|--------------|---------------------------------|------------|--------------------------------|--|-------------------------------|---|
|                            | Degree (Highest degree) | University          | Year of Graduation                |                                  |              |                                 |            |                                | Research Paper Publications                          | Ph.D. Guidance                | Faculty Receiving Ph.D. during the assessment Years |
| Dr R K Dutta               | Ph D                    | IIT Kharagpur       | BE 1981 M Tech 1984 PhD 2001      | 1989                             | Professor    | 05.12. 1989                     | Mechanical | Manufacturing                  | 1 Int. Journal paper                                 | Guiding 1                     |   |
| Dr D K Mahaanta            | Ph D                    | Jadavpur University | Integrated MSc Engg 1981 PhD 2001 | 1982                             | Professor    | 21.08. 1982                     | Do         | Energy, Thermal Engg           |  | Guiding 3, 1 submitted Thesis |   |
| Dr S K Deb                 | Ph D                    | IIT Kharagpur       | BE 1983 M Tech 1987 PhD 2002      | 1983                             | Professor    | 03.06. 1983                     | Do         | Industrial Engg and management | 1 Int. Journal paper and 1 National Conference paper | Guiding 3, 1 Defence awaited  |   |

|                     |        |                   |                              |       |                     |             |    |                                   |   |           |  |  |
|---------------------|--------|-------------------|------------------------------|-------|---------------------|-------------|----|-----------------------------------|---|-----------|--|--|
| Prof A J Borthakur  | M Tech | IIT Kanpur        | BE 1983 M Tech 1988          | 19 83 | Associate Professor | 03.06. 1983 | Do | Fluid Mechanics                   |   |           |  |  |
| Dr Kalyan Kalita    | Ph D   | IIT Guwahati      | BE 1986 M Tech 1991 PhD 2002 | 19 88 | Professor           | 19.11.1988  | Do | Computational Fluid dynamics      | Guiding 3, co-guiding 3                     |           |  |  |
| Dr Plabon Kakkati   | Ph D   | Tezpur University | BE 1986 M Tech 1992 PhD 2006 | 20 16 | Associate Professor | 01.02. 2016 | Do | Quality Engg                      |   |           |  |  |
| Dr Niharendu Saha   | Ph D   | IIT Kharagpur     | BE 1986 M Tech 1992 PhD 2003 | 19 87 | Associate Professor | 08.01. 1987 | Do | tribology, Machine Design         | Guiding 5                                   |           |  |  |
| Dr Anil Borah       | Ph D   | IIT Guwahati      | BE 1988 M Tech 1993 PhD 2007 | 19 88 | Associate Professor | 25.11. 1988 | Do | Advanced Manufacturing            | Guiding 2                                   |           |  |  |
| Dr Manjuri Hazarika | Ph D   | IIT Guwahati      | BE 1990 M Tech 1996 PhD 2011 | 19 93 | Associate Professor | 01.11.1993  | Do | Computer Integrated Manufacturing | 1 Book Chapter, 1 National Conference paper | Guiding 1 |  |  |
| Dr Dilip Borah      | Ph D   | IIT Delhi         | BE 1989 M Tech 2000 PhD 2009 | 20 15 | Associate Professor | 08.01. 2015 | Do | Renewable energy, IC engine       | Guiding 4, co-guiding 3                     |           |  |  |

|                    |                           |                     |                                   |       |                     |             |    |                                   |  |           |  |  |
|--------------------|---------------------------|---------------------|-----------------------------------|-------|---------------------|-------------|----|-----------------------------------|--|-----------|--|--|
| Dr Kalyan Kr Das   | Ph D                      | IIT Khara gpur      | BE 1993 M Tech 1996 , 99 PhD 2012 | 19 96 | Associate Professor | 03.04. 1996 | Do | Applied Mechanics, Aerospace Engg | 1 Int. Journal and 8 national conference papers      | Guiding 6 |  |  |
| Mr B I Borb huya n | M Tec h (pu rsu ing Ph D) | IIT Khara gpur      | BE 1993 M Tech 200 2              | 19 97 | Associate Professor | 07.05. 1997 | Do | Thermal Engineering               |  |           |  |  |
| Mr Kamal Kr Brahma | ME (Thesi s sub mit ted ) | Guwahati University | BE 1996 M E 2010                  | 19 99 | Assistant Professor | 01.02. 1999 | Do | Renewable Energy                  |  |           |  |  |
| Mr P K Choudhury   | ME (pu rsu ing Ph D)      | Guwahati University | BE 1996 ME 2011                   | 20 07 | Assistant Professor | 03.10. 2007 | Do | Mech Engg                         |  |           |  |  |
| Ms Mousumi Gogoi   | ME                        | Guwahati University | BE 1999 ME 2013                   | 20 07 | Assistant Professor | 03.10. 2007 | Do | Manufacturing                     |  |           |  |  |
| Mr Basab J Phukan  | ME (pu rsu ing Ph D)      | Guwahati University | BE 200 3 M E 2012                 | 20 07 | Assistant Professor | 03.10. 2007 | Do | Thermal Engineering               | 1 Int. Journal paper and 1 National Conference paper |           |  |  |

|                     |                              |                            |                           |      |                                     |            |    |  |                              |  |  |  |  |
|---------------------|------------------------------|----------------------------|---------------------------|------|-------------------------------------|------------|----|--|------------------------------|--|--|--|--|
| Mr Jitul Baruah     | ME (pursuing PhD)            | Guwahati University        | BE 2003 M E 2013          | 2010 | Assistant Professor                 | 28.09.2010 | Do | Thermal Engineering                              |                              |  |  |  |  |
| Dr Pradip Baisya    | Ph D                         | Guwahati University        | BE 2002 M E 2006 PhD 2017 | 2007 | Assistant Professor                 | 03.10.2007 | Do | Solid Waste Management                           |                              |  |  |  |  |
| Mr Manash Hazarika  | M E (Ph D thesis submitted ) | RG PV Bhopal               | BE 1999 ME 2003           | 2007 | Assistant Professor                 | 03.10.2007 | Do | Advanced Production Systems                      |                              |  |  |  |  |
| Mr Madhurjya Baruah | BE (Pursuing ME )            | Guwahati University        | BE 2009                   | 2011 | Assistant Professor                 | 03.03.2011 | Do | Machine Design                                   |                              |  |  |  |  |
| Mr Manash Bhuyan    | ME (Pursuing PhD)            | Dibrugarh University       | BE 2010 ME 2014           | 2010 | Assistant Professor (Guest faculty) | 01.08.2010 | Do | Manufacturing & Material Science                 | 2 Int. Journal papers        |  |  |  |  |
| Mr Monoj Baruah     | ME (Pursuing PhD )           | Assam Down Town University | BE 2007 ME 2016           | 2012 | Assistant Professor (Guest faculty) | 01.08.2012 | Do | Energy system+ Manufacturing & Materials Science | 4 National Conference papers |  |  |  |  |

**For the year 2017–2018 (Total 09 TEQIP III Faculties)**

**Table B.5b**

| Name of the Faculty member   | Qualification           |                   |                     | Association with the Institution | Designations                 | Date of Joining the Institution | Department | Specialization                | Academic Research  |                |                                |
|------------------------------|-------------------------|-------------------|---------------------|----------------------------------|------------------------------|---------------------------------|------------|-------------------------------|--|----------------|--------------------------------|
|                              | Degree (Highest degree) | University        | Year of Graduation  |                                  |                              |                                 |            |                               | Research Paper Publications                              | Ph.D. Guidance | Faculty Receiving Ph.D. during |
| Mr. Subhransu Sekhar Mallick |                         |                   |                     | 2018                             | Assistant Professor (TE-QIP) | 05.01.2018                      | Do         | Fluid and Thermal Engineering | 2 Int Conference papers                                  |                |                                |
| Dr Mayuri Baruah             | PhD                     | IIT-Guwahati      | BE 2010 Ph.D 2016   | 2018                             | Assistant Professor (TE-QIP) | 05.01.2018                      | Do         | Manufacturing                 | 8 Int. Journal, 3 Int Conference paper, 1 Book Chapter   |                |                                |
| Mr Piyush Singh              | M.Tech                  | IIT (ISM) Dhanbad | BE 2009 M.Tech 2014 | 2018                             | Assistant Professor (TE-QIP) | 04.01.2018                      | Do         | Manufacturing                 | 2 Int. Journal, 4 Int. conference papers, 1 Book Chapter |                |                                |

|                     |                        |              |                           |      |                                      |            |    |                                 |  |  |  |  |
|---------------------|------------------------|--------------|---------------------------|------|--------------------------------------|------------|----|---------------------------------|--|--|--|--|
| Mr Jyothis A        | M Tech                 | IIT-Guwahati | BTech 2013 MTech 2016     | 2018 | Assistant Professor (TE-QIP)         | 05.01.2018 | Do | Fluid and Thermal Engineering   |  |  |  |  |
| Mr Mohammad Rafi    | M Tech                 | IIT-Guwahati | BTech 2013 MTech 2017     | 2018 | Assistant Professor (TE-QIP)         | 05.01.2018 | Do | Fluid and Thermal Engineering   |  |  |  |  |
| Mr Anirban Saha     | M Tech                 | IIT-Guwahati | BE 2014 MTech 2017        | 2017 | Assistant Professor (TE-QIP)         | 29.12.2017 | Do | Computer Assisted Manufacturing |  |  |  |  |
| Mr Juan Chowdhury   | M Tech                 | IIT-Guwahati | BE 2014 MTech 2017        | 2018 | Assistant Professor (TE-QIP)         | 03.01.2018 | Do | Computer Assisted Manufacturing | 1 national conference paper, 2 patents filed                   |  |  |  |
| Mr Devarshi Kashyap | M Tech. (Pursuing PhD) | NIT Trichy   | BTech (2010) MTech (2013) | 2018 | Assistant Professor (TE-QIP)<br>5454 | 05.01.2018 | Do | Manufacturing Technology        | 2 Book Chapter, 3 Int conference, 1 national conference papers |  |  |  |

|                  |     |               |  |      |                              |            |    |              |   |  |  |  |
|------------------|-----|---------------|--|------|------------------------------|------------|----|--------------|---|--|--|--|
| Dr Abhimanyu Kar | PhD | IIT Kharagpur | B.M.E (2007)<br>M.Tech (2009)<br>Ph.D (2018) | 2018 | Assistant Professor (TE-QIP) | 03.01.2018 | Do | Thermofluids | 1 Int. Journal paper, Patent : 1 (published ) |  |  |  |
|------------------|-----|---------------|--|------|------------------------------|------------|----|--------------|---|--|--|--|

**For the year 2016–2017 (Total 22 Faculties)**

**Table B.5c**

| Name of the Faculty member | Qualification                |               |                                     |                                  | As-socia-tion with the In-stitu-tion | Designa-tions | Dat-e of Join-ing the In-stitu-tion | De-part-men-t | Special-ization                            | Academic Re-search |  |  | Spo-nso-red Re-sear-ch (Fu-nde-d Re-sear-ch) | Con-sul-tan-cy and Prod-uct De-velop-ment |
|----------------------------|------------------------------|---------------|-------------------------------------|----------------------------------|--------------------------------------|---------------|-------------------------------------|---------------|--|--------------------|--|--|--|---|
|                            | De-gree (Hi ghe st de-gree ) | Uni-ver-sity  | Year of Gra-dua-tion                | Re-sear-ch Pa-per Pub-licati-ons |                                      |               |                                     |               |  | Ph. D. Gui-dan-ce  | Fac-ulty Re-ceivi ng Ph. D. dur-ing the as-sess-men-t Year s |  |  |   |
| Dr R K Dutta               | PhD                          | IIT Kharagpur | BE 1989<br>M.Tech 1984<br>Ph.D 2001 | 1989                             | Pro-fes-sor                          | 05.12.1989    | Mechanical                          | Manufacturing | 1 Int. Conference and 1 Int. Journal paper | Guiding 1          |  |  |  |   |

|                    |        |                     |                                    |      |                        |              |    |                                  |   |  |     |  |  |
|--------------------|--------|---------------------|------------------------------------|------|------------------------|--------------|----|----------------------------------|---|--|-----|--|--|
| Dr D K Maha nta    | PhD    | Jadavpur University | Inte-grated MSc Engg 1981 PhD 2001 | 1982 | Pro-fessor             | 21.0 8.19 82 | Do | Energy, Thermal Engg             | 4 National Conference papers                    | Aw ard ed 3, Gui din g 4                 | One |  |  |
| Dr S K Deb         | PhD    | IIT Kharagpur       | BE 1983 M Tech 1987 PhD 2002       | 1983 | Pro-fessor             | 03.0 6.19 83 | Do | Industrial Engg and man-age-ment | 4 National Conference papers                    | Gui din g 4                              |     |  |  |
| Prof A J Borthakur | M Tech | IIT-Kanpur          | BE 1983 M Tech 1988                | 1983 | As-soci-ate Pro-fessor | 03.0 6.19 83 | Do | Fluid Me-chanics                 |   |  |     |  |  |
| Dr Kalyan Kali ta  | PhD    | IIT-Gu-wahati       | BE 1986 M Tech 1991 PhD 2002       | 1988 | Pro-fessor             | 19.1 1.19 88 | Do | Computational Fluid dynam-ics    | 1 National Conference , 2 Int. Jour-nal pa-pers | Aw ard ed 1, Gui din g 3, co-gui din g 3 |     |  |  |
| Dr Plabon Kakti    | PhD    | Tezpur University   | BE 1986 M Tech 1992 PhD 2006       | 2016 | As-soci-ate Pro-fessor | 01.0 2.20 16 | Do | Quality Engg                     | 2 National Conference papers                    |  |     |  |  |

|                      |     |               |                              |      |                     |            |    |                                   |  |                         |  |  |
|----------------------|-----|---------------|------------------------------|------|---------------------|------------|----|-----------------------------------|--|-------------------------|--|--|
| Dr Niharendu Saha    | PhD | IIT Kharagpur | BE 1986 M Tech 1992 PhD 2003 | 1987 | Associate Professor | 08.01.1987 | Do | Tribology, Machine Design         |  | Guiding 5               |  |  |
| Dr Anil Borrah       | PhD | IIT-Guwhati   | BE 1988 M Tech 1993 PhD 2007 | 1988 | Associate Professor | 25.11.1988 | Do | Advanced Manufacturing            |  | Guiding 2               |  |  |
| Dr Manjur i Hazarika | PhD | IIT-Guwhati   | BE 1990 M Tech 1996 PhD 2011 | 1993 | Associate Professor | 01.11.1993 | Do | Computer Integrated Manufacturing | 1 Book, 2 National Conference papers         | Guiding 1               |  |  |
| Dr Dilip Borrah      | PhD | IIT Delhi     | BE 1989 M Tech 2000 PhD 2009 | 2015 | Associate Professor | 08.01.2015 | Do | Renewable energy, IC engine       | 1 National Conference, 1 Int. Journal papers | Guiding 4, co-guiding 3 |  |  |

|                     |                         |                       |                                  |      |                     |            |    |                                   |   |           |  |  |  |
|---------------------|-------------------------|-----------------------|----------------------------------|------|---------------------|------------|----|-----------------------------------|---|-----------|--|--|--|
| Dr Kalyan Kr Das    | PhD                     | IIT Kharagpur         | BE 1993 M Tech 1996, 99 PhD 2012 | 1996 | Associate Professor | 03.04.1996 | Do | Applied Mechanics, Aerospace Engg | 2 Int. Journal papers                     | Guiding 6 |  |  |  |
| Mr B I Borbhu yan   | M Tech (pur suing PhD ) | IIT Kharagpur         | BE 1993 M Tech 2002              | 1997 | Associate Professor | 07.05.1997 | Do | Thermal Engineering               |   |           |  |  |  |
| Mr Ka mal Kr Brahma | ME (Thesis submitted)   | Gu-wahati Uni-versity | BE 1996 M E 2010                 | 1999 | Assistant Professor | 01.02.1999 | Do | Renewable Energy                  | 2 Int. Journal papers                     |           |  |  |  |
| Mr P K Choudhury    | ME (pur suing PhD )     | Gu-wahati Uni-versity | BE 1996 ME 2011                  | 2007 | Assistant Professor | 03.10.2007 | Do | Mech Engg                         | 2 Int. Conference , 1 Int. Journal papers |           |  |  |  |
| Ms Mousumi Gogoi    | ME                      | Gu-wahati Uni-versity | BE 1999 ME 2013                  | 2007 | Assistant Professor | 03.10.2007 | Do | Manufacturing                     |   |           |  |  |  |
| Mr Basab J Phukan   | ME (pur suing PhD )     | Gu-wahati Uni-versity | BE 2003 M E 2012                 | 2007 | Assistant Professor | 03.10.2007 | Do | Thermal Engineering               | 2 National Conference papers              |           |  |  |  |

|                        |                               |                                |                              |       |  |              |    |   |   |  |  |  |  |
|------------------------|-------------------------------|--------------------------------|------------------------------|-------|--|--------------|----|---|---|--|--|--|--|
| Mr Jitu Barua h        | ME (pur suing PhD )           | Gu-wa-hati Uni-versity         | BE 200 3 M E 201 3           | 201 0 | As-sistant Pro-fes-sor                   | 28.0 9.20 10 | Do | Ther-mal En-gineer-ing                                | 1 Int. Jour-nal pa-per                        |  |  |  |  |
| Dr Pradip Bais ya      | PhD                           | Gu-wa-hati Uni-versity         | BE 200 2 M E 200 6 PhD 201 7 | 200 7 | As-sistant Pro-fes-sor                   | 03.1 0.2 007 | Do | Solid Waste Man-age-ment                              | 1 Na-tion-al Con-fer-ence pa-per              |  |  |  |  |
| Mr Manas h Haz ari-ka  | M E (Ph D the-sis sub-mitted) | RGP V Bho pal                  | BE 199 9 ME 200 3            | 200 7 | As-sistant Pro-fes-sor                   | 03.1 0.2 007 | Do | Ad-vanced Produc-tion Sys-tems                        | 3 Int. Con-fer-ence , 2 Int. Jour-nal pa-pers |  |  |  |  |
| Mr Ma dhu rjya Barua h | BE (Pu rsu-ing ME)            | Gu-wa-hati Uni-versity         | BE 200 9                     | 2011  | As-sistant Pro-fes-sor                   | 03.0 3.20 11 | Do | Ma-chine Design                                       |   |  |  |  |  |
| Mr Manas h Bhu yan     | ME (Pu rsu-ing PhD )          | Dibr ugur h Uni-versity        | BE 201 0 ME 201 4            | 201 0 | As-sistant Pro-fes-sor (Gue-st fac-ulty) | 01.0 8.20 10 | Do | IPE.+M anufac-turing & Materi-als Sci-ence            | 1 na-tion-al con-fer-ence pa-per              |  |  |  |  |
| Mr Monoj Barua h       | ME (Pu rsu-ing PhD )          | As-sam Dow-n Tow-n Uni-versity | BE 200 7 ME 201 6            | 201 2 | As-sistant Pro-fes-sor (Gue-st fac-ulty) | 01.0 8.20 12 | Do | Energy sys-tem+ Manu-factur-ing & Materi-als Sci-ence |   |  |  |  |  |

**For the year 2015–2016 (Total 25 Faculties)**

**Table B.5d**

| Name of the Faculty member | Qualification               |                        |  |                                   | As-socia-tion with the Insti-tu-tion | Designa-tions | Dat-e of Join-ing the Insti-tu-tion | Depart-men-t                      | Special-ization        | Academic Re-search |  |            | Spo-nso-red Re-sear-ch (Fu-nde-d Re-sear-ch) | Con-sul-tancy and Prod-uc-tive De-velo-pment |
|----------------------------|-----------------------------|------------------------|--|-----------------------------------|--------------------------------------|---------------|-------------------------------------|-----------------------------------|------------------------|--------------------|--|------------|--|--|
|                            | De-gree (Hi-ghest de-gree ) | Uni-ve-rsi-ty          | Yea-r of Gra-dua-tion                  | Re-sear-ch Pa-per Pub-li-ca-tions |                                      |               |                                     |                                   |                        | Ph. D. Gui-da-nce  | Fac-ulty Re-ceiv-ing Ph. D. dur-ing the as-sess-men-t Yea-rs |            |  |  |
| Dr R K Dutta               | Ph D                        | IIT Kharagpur          | BE 198 1 M Tech 198 4 PhD 200 1        | 198 9                             | Profe-s-sor                          | 05.1 2.19 89  | Mechanical                          | Manufacturing                     | Guidi ng 1             | Guidi ng 3         | One  | Guidi ng 4 |  |  |
| Dr D K Ma han ta           | Ph D                        | Jadavpur Uni-ve-rsi-ty | Inte-grat-ed MSc Eng g 198 1 PhD 200 1 | 198 2                             | Profe-s-sor                          | 21.0 8.19 82  |                                     |                                   |                        |                    |  |            |  |  |
| Dr S K Deb                 | Ph D                        | IIT Kharagpur          | BE 198 3 M Tech 198 7 PhD 200 2        | 198 3                             | Profe-s-sor                          | 03. 06.1 983  | Do                                  | Indus-trial Engg and man-age-ment | 1 Int. Jour-nal pa-per | Guidi ng 4         |  |            |  |  |

|                     |         |                        |                                    |       |                         |              |    |                                    |   |                             |  |  |
|---------------------|---------|------------------------|------------------------------------|-------|-------------------------|--------------|----|------------------------------------|---|-----------------------------|--|--|
| Prof A J Bor thakur | M Tec h | IIT- Kan pur           | BE 198 3 M Tec h 198 8             | 198 3 | Asso- ciate Profes- sor | 03. 06.1 983 | Do | Fluid Me- chanics                  |   |                             |  |  |
| Dr P K Ma han ta    | Ph D    | REC Rou rke- la        | BSc Eng g 198 3 ME 198 9 PhD 200 2 | 198 5 | Asso- ciatePr ofessor   | 27.0 3.19 85 | Do | Me- chanical Sys- tem Design       | 1 Int. Conf erence , 4 na- tional conf , 3 na- tional jour- nal | Gui din g 2                 |  |  |
| Dr Kal yan Kali ta  | Ph D    | IIT- Gu- wa- hati      | BE 198 6 M Tec h 199 1 PhD 200 2   | 198 8 | Asso- ciatePr ofessor   | 19.1 1.19 88 | Do | Com- puta- tional Fluid dynam- ics |   | Gui din g 3, co- gu din g 3 |  |  |
| Dr Pla bon Ka- kati | Ph D    | Tezp ur Uni- ver- sity | BE 198 6 M Tec h 199 2 PhD 200 6   | 201 6 | Asso- ciate Profes- sor | 01.0 2.2 016 | Do | Quality Engg                       | 2 Na- tional Conf erence pa- pers                               |                             |  |  |

|                    |      |               |                                 |       |                     |              |    |  |  |           |  |  |  |
|--------------------|------|---------------|---------------------------------|-------|---------------------|--------------|----|--|--|-----------|--|--|--|
| Dr Nihar endu Saha | Ph D | IIT Kharagpur | BE 198 6 M Tech 199 2 PhD 200 3 | 198 7 | Associate Professor | 08. 01.1 987 | Do | Tribology, Machine Design              | 1 Int conference papers                          | Guiding 5 |  |  |  |
| Dr Anil Borrah     | Ph D | IIT-Guwahati  | BE 198 8 M Tech 199 3 PhD 200 7 | 198 8 | Associate Professor | 25.1 1.19 88 | Do | Advanced Manufacturing                 | 1 Int. Conference , 2 National Conference papers | Guiding 2 |  |  |  |
| Dr Satyajit paul   | Ph D | IIT Roorkee   | BE 198 6 M Tech 199 6 PhD 200 8 | 198 9 | Associate Professor | 10.0 8.19 89 | Do | Advanced Manufacturing                 |  |           |  |  |  |
| Dr Rupan jali Nath | Ph D | IIT Delhi     | BE 198 9 M Tech 199 8 PhD 201 1 | 201 4 | Associate Professor | 14.0 5.20 14 | Do | Technology Initiated Change Management |  |           |  |  |  |

|  |   |                                       |   |          |                                  |                    |    |   |   |  |  |  |
|--|---|---------------------------------------|---|----------|----------------------------------|--------------------|----|---|---|--|--|--|
| Dr<br>Ma<br>njur<br>i<br>Haz<br>ari-<br>ka | Ph<br>D   | IIT-<br>Gu-<br>wahati                 | BE<br>199<br>0<br>M<br>Tec<br>h<br>199<br>6<br>PhD<br>201<br>1        | 199<br>3 | Asso-<br>ciate<br>Profes-<br>sor | 01.1<br>1.19<br>93 | Do | Com-<br>puter<br>Inte-<br>grated<br>Manu-<br>factur-<br>ing | 1<br>Na-<br>tional<br>Conf<br>er-<br>ence<br>, 1<br>Int.<br>Jour<br>nal<br>pa-<br>pers                    | Gu<br>i<br>din<br>g 1                              |  |  |
| Dr<br>Dil-<br>ip<br>Bo-<br>rah             | Ph<br>D   | IIT<br>Del-<br>hi                     | BE<br>198<br>9<br>M<br>Tec<br>h<br>200<br>0<br>PhD<br>200<br>9        | 201<br>5 | Asso-<br>ciate<br>Profes-<br>sor | 08.<br>01.2<br>015 | Do | Renew-<br>able<br>energy,<br>IC en-<br>gine                 |   | Gu<br>i<br>din<br>g 4,<br>co-<br>gui<br>din<br>g 3 |  |  |
| Dr<br>Kal<br>yan<br>Kr<br>Das              | Ph<br>D   | IIT<br>Kha-<br>rag-<br>pur            | BE<br>199<br>3<br>M<br>Tec<br>h<br>199<br>6,<br>99<br>PhD<br>201<br>2 | 199<br>6 | Asso-<br>ciate<br>Profes-<br>sor | 03.<br>04.1<br>996 | Do | Applied<br>Me-<br>chan-<br>ics,<br>Aero-<br>space<br>Engg   | 2<br>Int.<br>Jour<br>nal,<br>3<br>Int.<br>and<br>8<br>Na-<br>tional<br>Conf<br>er-<br>ence<br>pa-<br>pers | Gu<br>i<br>din<br>g 6                              |  |  |
| Mr<br>B I<br>Bor<br>bhu<br>yan             | M<br>Tec<br>h<br>(pu<br>rsu-<br>ing<br>Ph<br>D) | IIT<br>Kha-<br>rag-<br>pur            | BE<br>199<br>3<br>M<br>Tec<br>h<br>200<br>2                           | 199<br>7 | Asso-<br>ciate<br>Profes-<br>sor | 07.<br>05.1<br>997 | Do | Ther-<br>mal<br>Engi-<br>neering                            |   |  |  |  |
| Mr<br>Ka<br>mal<br>Kr<br>Bra<br>hm<br>a    | ME<br>(Th<br>esis<br>sub-<br>mit-<br>ted)       | Gu-<br>wahati<br>Uni-<br>ver-<br>sity | BE<br>199<br>6<br>M E<br>201<br>0                                     | 199<br>9 | Assis-<br>tant<br>Profes-<br>sor | 01.0<br>2.19<br>99 | Do | Renew-<br>able<br>Energy                                    |   |  |  |  |

|                    |                    |                     |                          |      |                     |            |    |                        |   |  |  |  |  |
|--------------------|--------------------|---------------------|--------------------------|------|---------------------|------------|----|------------------------|---|--|--|--|--|
| Mr P K Choudhury   | ME (pursuing Ph D) | Guwahati University | BE 1996 ME 2011          | 2007 | Assistant Professor | 03.10.2007 | Do | Mech Engg              | 1 National Conference, 1 Int. Journal papers            |  |  |  |  |
| Ms Mo usu mi Gogoi | ME                 | Guwahati University | BE 1999 ME 2013          | 2007 | Assistant Professor | 03.10.2007 | Do | Manufacturing          |   |  |  |  |  |
| Mr Basab J Phukan  | ME (pursuing Ph D) | Guwahati University | BE 2003 ME 2012          | 2007 | Assistant Professor | 03.10.2007 | Do | Thermal Engineering    |   |  |  |  |  |
| Mr Jitul Baruah    | ME (pursuing Ph D) | Guwahati University | BE 2003 ME 2013          | 2010 | Assistant Professor | 28.09.2010 | Do | Thermal Engineering    |   |  |  |  |  |
| Dr Pradip Baisya   | Ph D               | Guwahati University | BE 2002 ME 2006 PhD 2017 | 2007 | Assistant Professor | 03.10.2007 | Do | Solid Waste Management | 1 Int. Journal, 3 Int. and 4 National Conference papers |  |  |  |  |

|  |   |  |                                  |          |  |                        |    |  |  |  |  |  |
|--|---|--|----------------------------------|----------|--|------------------------|----|--|--|--|--|--|
| Mr<br>Ma<br>nas<br>h<br>Haz<br>ari-<br>ka  | M E<br>(Ph<br>D<br>the-<br>sis<br>sub<br>mit-<br>ted) | RGP<br>V<br>Bho<br>pal                                     | BE<br>199<br>9<br>ME<br>200<br>3 | 200<br>7 | Assis-<br>tant<br>Profe-<br>sor                            | 03.1<br>0.2<br>007     | Do | Ad-<br>vanced<br>Produc-<br>tion<br>Sys-<br>tems                                   | 1<br>Int.<br>Jour<br>nal<br>pa-<br>per |  |  |  |
| Mr<br>Ma<br>dhu<br>rjya<br>Ba-<br>rua<br>h | BE<br>(Pu<br>rsu-<br>ing<br>ME<br>)                   | Gu-<br>wa-<br>hati<br>Uni-<br>ver-<br>sity                 | BE<br>200<br>9                   | 201<br>1 | Assis-<br>tant<br>Profe-<br>sor                            | 03.<br>03.<br>201<br>1 | Do | Ma-<br>chine<br>Design   |  |  |  |  |
| Mr<br>Ma<br>nas<br>h<br>Bhu<br>yan         | ME<br>(Pu<br>rsu-<br>ing<br>Ph<br>D)                  | Dibr<br>ugar<br>h<br>Uni-<br>ver-<br>sity                  | BE<br>201<br>0<br>ME<br>201<br>4 | 201<br>0 | Assis-<br>tant<br>Profe-<br>sor<br>(Guest<br>facul-<br>ty) | 01.0<br>8.2<br>010     | Do | IPE.+M<br>anufac-<br>turing<br>&<br>Ma-<br>terials<br>Science                      |  |  |  |  |
| Mr<br>Mo<br>noj<br>Ba-<br>rua<br>h         | ME<br>(Pu<br>rsu-<br>ing<br>Ph<br>D)                  | As-<br>sam<br>Dow<br>n<br>Tow<br>n<br>Uni-<br>ver-<br>sity | BE<br>200<br>7<br>ME<br>201<br>6 | 201<br>2 | Assis-<br>tant<br>Profe-<br>sor<br>(Guest<br>facul-<br>ty) | 01.0<br>8.2<br>012     | Do | Energy<br>sys-<br>tem+<br>Manu-<br>factur-<br>ing &<br>Materi-<br>als Sci-<br>ence |  |  |  |  |

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

(To be calculated at Department Level)

No. of UG Programs in the Department (n): 2

No. of PG Programs in the Department (m): 1

No. of Students in UG (Mech) 2<sup>nd</sup> Year = u1.1

No. of Students in UG (Mech) 3<sup>rd</sup> Year = u1.2

No. of Students in UG 4<sup>th</sup> (Mech) Year = u1.3

No. of Students in UG (IPE) 2<sup>nd</sup> Year = u2.1

No. of Students in UG (IPE) 3<sup>rd</sup> Year = u2.2

No. of Students in UG 4<sup>th</sup> (IPE) 4<sup>th</sup> Year = u2.3

No. of Students in PG 1<sup>st</sup> Year = p1.1

No. of Students in PG 2<sup>nd</sup> Year = p1.2

No of Students = Sanctioned Intake + Actual admitted lateral entry students

S = Number of students in the Department = UG1+UG2+...+UGn+PG1+....+PGn

F = Total number of Faculty Members in the Department (Excluding first year faculty)

## Student Teacher Ratio (STR) = S/F

Table B.5.1

| Year  | CAY (2017–2018)                       | CAYm1(2016–2017)     | CAYm2(2015–2016)     |
|---|---------------------------------------|----------------------|----------------------|
| u1.1  | 72                                    | 76                   | 67                   |
| u1.2  | 76                                    | 67                   | 65                   |
| u1.3  | 67                                    | 65                   | 70                   |
| UG1   | u1.1+ u1.2+ u1.3=215                  | u1.1+ u1.2+ u1.3=208 | u1.1+ u1.2+ u1.3=202 |
| u2.1  | 22                                    | 22                   | 22                   |
| u2.2  | 22                                    | 22                   | 22                   |
| u2.3  | 22                                    | 22                   | 22                   |
| UG2   | u2.1+ u2.2+ u2.3=66                   | u2.1+ u2.2+ u2.3=66  | u2.1+ u2.2+ u2.3=66  |
| p1.1  | 18                                    | 18                   | 18                   |
| p1.2  | 18                                    | 18                   | 18                   |
| PG1   | p1.1+p1.2=36                          | p1.1+p1.2=36         | p1.1+p1.2=36         |
| Total No. of Students in the Department (S) | UG1+UG2+PG1=317                       | UG1+UG2+PG1=310      | UG1+UG2+PG1=304      |
| No. of Faculty in the Department (F)        | 31-3=28                               | 22-3=19              | 25-3=22              |
| Student Faculty Ratio (SFR)                 | 11.32                                 | 16.32                | 13.82                |
| Average SFR                                 | <b>SFR=(SFR1+SFR2+SFR3)/3 = 13.82</b> |                      |                      |

**Note:** 3 numbers of faculties are excluded as they teach theory and laboratory classes in 1<sup>st</sup> year. For 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> years, 7 faculties from mechanical engineering teach in other departments and 6 faculties from other departments come to teach in mechanical engineering. Therefore fractional loss is -0.25 which is neglected.

CAY=Current Assessment Year

CAYm1=Current Assessment Year minus 1

CAYm2=Current Assessment Year minus 2

## 5.2 Faculty Cadre Proportion (25)

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

F1: Number of Professors required =  $1/9 \times \text{Number of Faculty required to comply with 15:1 Student-Faculty ratio based on number of students (S) as per 5.1}$

F2: Number of Associate Professors required =  $2/9 \times \text{Number of Faculty required to comply with 15:1 Student-Faculty ratio based on number of students (S) as per 5.1}$

F3: Number of Assistant Professors required =  $6/9 \times \text{Number of Faculty required to comply with 15:1 Student-Faculty ratio based on number of students (S) as per 5.1}$

Here,

Number of Faculty required to comply with 15:1 Student-Faculty ratio based on number of students (N) as per 5.1 =  $F = \frac{317}{15} = 21.13 \approx 22$

Therefore,  $F1 = 1/9 \times 22 = 2.44 \approx 3$ ,  $F2 = 2/9 \times 22 = 4.89 \approx 5$ ,  $F3 = 6/9 \times 22 = 14.66 \approx 15$

**Table B.5.2**

| <b>Year</b>      | <b>Professors</b> |           | <b>Associate Professors</b> |           | <b>Assistant Professors</b> |           |
|------------------|-------------------|-----------|-----------------------------|-----------|-----------------------------|-----------|
|                  | Required F1       | Available | Required F2                 | Available | Required F3                 | Available |
| CAY (2017–2018)  | 3                 | 4         | 5                           | 8         | 15                          | 19        |
| CAYm1(2016–2017) | 3                 | 4         | 5                           | 8         | 15                          | 10        |
| CAYm2(2015–2016) | 3                 | 3         | 5                           | 12        | 15                          | 10        |
| Average Numbers  | RF1=3             | AF1=3.67  | RF2=5                       | AF2=9.33  | RF3=15                      | AF3=13    |

$$\begin{aligned}
 \text{Cadre Ratio Marks} &= \left[ \left( \frac{AF_1}{RF_1} \right) + \left( \frac{AF_2 \times 0.6}{RF_2} \right) + \left( \frac{AF_3 \times 0.4}{RF_3} \right) \right] \times 12.5 \\
 &= \left[ \left( \frac{3.67}{3} \right) + \left( \frac{9.33 \times 0.6}{5} \right) + \left( \frac{13 \times 0.4}{15} \right) \right] \times 12.5 \\
 &= \mathbf{33.63}
 \end{aligned}$$

### 5.3 Faculty Qualification (25)

$FQ = 2.5 \times [(10X + 4Y)/F]$ , where

$X$  is number of regular Faculty with PhD

$Y$  is number of regular Faculty with M Tech

$F$  is number of regular Faculty required to comply with 1:15 Faculty-Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1).

**Table B.5.3**

| <b>Year</b>        | <b>X</b> | <b>Y</b> | <b>F</b> | <b><math>FQ = 2.5 \times [(10X + 4Y)/F]</math></b> |              |
|--------------------|----------|----------|----------|--|--------------|
| CAY (2017–2018)    | 13       | 14       | 22       | 21.14  |              |
| CAYm1(2016–2017)   | 11       | 7        | 22       | 15.68  |              |
| CAYm2(2015–2016)   | 13       | 8        | 22       | 18.41  |              |
| Average Assessment |          |          |          |  | <b>18.41</b> |

### 5.4 Faculty Retention (25)

No. of regular faculty members retained in **CAY (2017–2018) = 20**

No. of regular faculty members retained in **CAYm1 (2016–2017) = 20**

No. of regular faculty members retained in **CAYm2 (2015–2016) = 23**

During 2017, 3 regular faculty members are transferred with promotion to Jorhat Engineering College and all others are retained during the period of three academic years keeping CAYm3 (2015) as base year.

**Table B.5.4**

| <b>Item</b>  | <b>Marks</b> |
|--|--------------|
| (% of faculty retained during the period of three academic years keeping CAYm3 as base year)           |              |
| >= 90% of required Faculty members retained during the period of assessment keeping CAYm2 as base year | 25           |

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

## **5.5 Innovation by the Faculty in Teaching and Learning (20)**

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

*Contributions to teaching and learning are activities that contribute to the improvement of student learning. These activities may include innovations not limited to, use of ICT, instruction delivery, instructional methods, assessment, evaluation and inclusive class rooms that lead to effective, efficient and engaging instruction. Any contributions to teaching and learning should satisfy the following criteria:*

- *The work must be made available on Institute website*
- *The work must be available for peer review and critique*
- *The work must be reproducible and developed further by other scholars*

*The department/institution may set up appropriate processes for making the contributions available to the public, getting them reviewed and for rewarding. These may typically include statement of clear goals, adequate preparation, use of appropriate methods, and significance of results, effective presentation and reflective critique.*

### **A. Availability of information on the institute website**

- i. All the innovations and best practices in teaching and learning that are developed and practiced by the faculty members are discussed and made available on the Institute website for the benefit of teaching fraternity and students.
- ii. Faculty members are also informed about innovations in teaching learning.

### **B. Availability for peer review and critique**

Innovations in teaching learning are documented and made accessible to all the faculty members for their comments, feedback/suggestions/critique, etc.

### **C. Reproducibility and further development**

It is expected to adopt the innovations in teaching learning and best practices by other faculty members and improve upon it.

### **D. Use of ICT and other appropriate methods**

In addition to traditional teaching learning methodologies, the faculty members adopt group discussions, relevant videos, seminars, mini projects, case studies, PPTs, real time examples, simulations, quizzes, depending on the course and the situation to create the best learning environment for the students.

## **E. Formulation of Rubrics for assessment**

Following rubrics were formulated for assessment and guidelines:

1. Rubric for B E Project [both for 7<sup>th</sup> and 8<sup>th</sup> Semester]
2. Rubric for Practical Training
3. Rubric for General Proficiency [Report & Presentation]
4. Rubric for General Proficiency [Group Discussion]
5. Rubric for Selection of Best B. E. Project
6. Rubric for Assignment assessment.
7. Rubric for Industrial visit assessment.

Rubrics developed have been included in the website and can be access through the link [www.aec.ac.in/assessment-method-mechanical-engineering-department](http://www.aec.ac.in/assessment-method-mechanical-engineering-department)

Sample rubrics are given hereunder.

### **1. Rubrics for B E Project (both for 7<sup>th</sup> and 8<sup>th</sup> Semester)**

#### **Rubrics for Phase I**

| <b>Project Phase I:<br/>Project work determination</b>                            | <b>Students have to defend/prove</b>                               |   |  |   |
|---|--|---|--|---|
|   | <b>Engineering Knowledge</b>                                       | <b>Novelty of idea</b>  | <b>Social/ Engineering impact</b>                            | <b>Communication skill</b>                                      |
| (1) Project proposal ( in short to reflect tentative title of project)            |  |   |  |   |
| (2) Problem statement(in details of text/ graphics/ flow chart: Maximum one page) |  |   |  |   |
| (3) Detail work plan (% allocation for Phase II and Phase III)                    |  |   |  |   |
| <b>Judgement Criteria for Panellists</b>  | <b>Excellent<br/>(90<math>\geq</math>mark<math>\leq</math>100)</b> | <b>Very Good<br/>(80<math>\geq</math>mark<math>\leq</math>90)</b> | <b>Good<br/>(70<math>\geq</math>mark<math>\leq</math>80)</b> | <b>Average<br/>(60<math>\geq</math>mark<math>\leq</math>70)</b> |
|   |  |   |  | <b>Fair<br/>(40<math>\geq</math>mark<math>\leq</math>60)</b>    |

#### **Rubrics for Phase II**

| <b>Criteria</b> | <b>Marks given by Panel</b>  |   |  |   |  |
|-----------------|--|---|--|---|--|
|                 | <b>Excellent<br/>(90<math>\geq</math>mark<math>\leq</math>100)</b> | <b>Very good<br/>(80<math>\geq</math>mark<math>\leq</math>90)</b> | <b>Good<br/>(70<math>\geq</math>mark<math>\leq</math>80)</b> | <b>Average<br/>(60<math>\geq</math>mark<math>\leq</math>70)</b> | <b>Fair<br/>(40<math>\geq</math>mark<math>\leq</math>60)</b> |
|                 |  |   |  |   |  |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
| <b>(1) Test work done against work promised</b>      |  |  |  |  |
| <b>(2) Communication skill of individual student</b> |  |  |  |  |
|  |  |  |  |  |

### **Rubrics for Phase III**

#### **Scale of assessment**

| <b>Excellent<br/>(90<math>\geq</math>mark<math>\leq</math>100)</b> | <b>Very good<br/>(80<math>\geq</math>mark<math>\leq</math>90)</b> | <b>Good<br/>(70<math>\geq</math>mark<math>\leq</math>80)</b> | <b>Average<br/>(60<math>\geq</math>mark<math>\leq</math>70)</b> | <b>Fair<br/>(40<math>\geq</math>mark<math>\leq</math>60)</b> |
|--|---|--|---|--|
|  |   |  |   |  |

| <b>Criteria</b>                   |                                |                                 |  |  |   |                |                      |              |                     |
|-----------------------------------|--------------------------------|---------------------------------|--|--|---|----------------|----------------------|--------------|---------------------|
| Work plan completed from promised | Appropriateness of final title | Quality of literature Collected | Theoretical deduction if any, If not available, theoretical engineering basis available? | Experimental plan/ Methodology used (Is it systematic & scientific?) | Summary of findings (Statements available?) | Societal value | Environmental impact | Future scope | Report completeness |

#### **To be collected from student**

| <b>Sample of Work plan ( students' promise to do work)</b> | <b>Phase</b>     |
|--|------------------|
| (1) Literature survey                                      | <b>Phase II</b>  |
| (2) Theoretical work                                       |                  |
| (3) Material collection                                    |                  |
| (4) Fabrication work                                       | <b>Phase III</b> |
| (5) Testing of model and data collection                   |                  |
| (6) Data analysis  |                  |
| (7) Presentation of results                                |                  |
| (8) Summary/ conclusions on findings                       |                  |

## For Supervisor

| Criteria   | Participation in team | Novelty in idea suggestion | Punctuality and Discipline |
|--|-----------------------|----------------------------|----------------------------|
| (1) Preparation of title/ objective/ problem statement     |                       |                            |                            |
| (2) Literature survey                                      |                       |                            |                            |
| (3) Theoretical analysis/ Practical work/ computation work |                       |                            |                            |
| (4) Data analysis/ Presentation                            |                       |                            |                            |
| (5) Report writing/ formatting                             |                       |                            |                            |

## 2. Rubric for Practical Training

| Practical Training Marking guidelines [Total Marks=50]                     |  |          |           |           |        |
|--|--|----------|-----------|-----------|--------|
| Criteria [total marks allotted]  | (0-25%)  | (25-50%) | (50-75%)  | (75-100%) | To-tal |
| <b>Report quality **</b><br>[writing format refer to<br>Annx.1(b)]<br>[15] | Average  | Good     | Very good | Excellent |        |
|  | Indicate one grade (from average to excellent) |          |           |           |        |
| <b>Domain knowledge tested in viva**</b><br>[15]                           | Average  | Good     | Very good | Excellent |        |
|  | Indicate one grade (from average to excellent) |          |           |           |        |
| <b>Knowledge of Technical &amp; Behavioural Standards</b><br>[10]          | Average  | Good     | Very good | Excellent |        |
|  | Indicate one grade (from average to excellent) |          |           |           |        |
| <b>Communication Skill**</b><br>[10]                                       | Average  | Good     | Very good | Excellent |        |
|  | Indicate one grade (from average to excellent) |          |           |           |        |

## 3. Rubric for General Proficiency [Report & Presentation]

|  | General Proficiency [Report & Presentation] Marking guidelines [Total Marks=50]                 |                   |                    |                      |                     |                     |
|--|---|-------------------|--------------------|----------------------|---------------------|---------------------|
| Criteria [Maximum marks allotted]              | (0-20%)   | (20-40%)          | (40-60%)           | (60-80%)             | (80-100%)           | To-tal              |
| <b>Topic of study relevance with *</b><br>[10] | a. Technical<br>b. Social<br>c. Environmental<br>d. Ethical<br>e. Creative and non conventional | Contains “anyone” | Contains “any two” | Contains “any three” | Contains “any four” | Contains “all five” |

|  |   |   |   |   |                         |  |  |
|--|---|---|---|---|-------------------------|--|--|
|  | tional idea                                 |   |   |   |                         |  |  |
| <b>Literature survey/Field study *</b><br>[evaluate if sources have done quality work]<br>[10] | Fair  | Average   | Good  | V. Good   | Excellent               |  |  |
|  | Indicate one grade (from fair to excellent) |   |   |   |                         |  |  |
| <b>Ethical report preparation*</b><br>[10]   | (a) Already published work copied           | (b) Published work taken as reference and modified the work by own idea | (c) Published but study carried out by taking future scope as reference and no own idea given | (d) Published but study carried out by taking future scope as reference and own idea and solution given | (e) Original & new work |  |  |
|  | Indicate one among (a) to (e)               |   |   |   |                         |  |  |
| <b>Report quality ***</b><br>[writing format refer to annx.1(a)]<br>[8]                        | Fair  | Average   | Good  | Very Good   | Excellent               |  |  |
|  | Indicate one grade (from fair to excellent) |   |   |   |                         |  |  |
| <b>Presentation &amp; Communication skill **</b><br>[8]  | Fair  | Average   | Good  | Very Good   | Excellent               |  |  |
|  | Indicate one grade (from fair to excellent) |   |   |   |                         |  |  |
| <b>Domain knowledge tested in viva**</b><br>[4]  | Fair  | Average   | Good  | Very Good   | Excellent               |  |  |
|  | Indicate one grade (from fair to excellent) |   |   |   |                         |  |  |

#### 4. Rubric for General Proficiency [Group Discussion]

| Rubrics - General Proficiency [Group Discussion]           |                        |                     |                    |                  |         |
|--|------------------------|---------------------|--------------------|------------------|---------|
| Criteria [Maximum marks]                                   | Needs Work (0-25%)     | Developing (25-50%) | Competent (50-75%) | Strong (75-100%) | To- tal |
| Presentation skill/communication skill/ participation [20] |                        |                     |                    |                  |         |
|  | <b><u>Remarks:</u></b> |                     |                    |                  |         |
| Domain knowledge [10]                                      |                        |                     |                    |                  |         |
|  | <b><u>Remarks:</u></b> |                     |                    |                  |         |
| Team work / individual                                     |                        |                     |                    |                  |         |

|   |                 |  |  |  |  |  |  |
|---|-----------------|--|--|--|--|--|--|
| work/initiation [10]                          | <u>Remarks:</u> |  |  |  |  |  |  |
| Social / Environmental issues referred to [2] |                 |  |  |  |  |  |  |
|   | <u>Remarks:</u> |  |  |  |  |  |  |
| Ethics [2]                                    |                 |  |  |  |  |  |  |
|   | <u>Remarks:</u> |  |  |  |  |  |  |
| Leadership skill [3]                          |                 |  |  |  |  |  |  |
|   | <u>Remarks:</u> |  |  |  |  |  |  |
| Conclusion/Summary [3]                        |                 |  |  |  |  |  |  |
|   | <u>Remarks:</u> |  |  |  |  |  |  |

## 5. Rubrics for Selection of Best B E Project

| Criteria                                     | Disagree        | Poor  | Below average | Average | Good  | Excellent | Total |
|--|-----------------|-------|---------------|---------|-------|-----------|-------|
|  | (0)             | (1-2) | (3-4)         | (5-6)   | (7-8) | (9-10)    |       |
| Novelty of the project                       |                 |       |               |         |       |           |       |
|  | <u>Remarks:</u> |       |               |         |       |           |       |
| Literature survey                            |                 |       |               |         |       |           |       |
|  | <u>Remarks:</u> |       |               |         |       |           |       |
| Results and Future scope                     |                 |       |               |         |       |           |       |
|  | <u>Remarks:</u> |       |               |         |       |           |       |
| Utility/feasibility of practical application |                 |       |               |         |       |           |       |
|  | <u>Remarks:</u> |       |               |         |       |           |       |
| Impact on Society and the Environment        |                 |       |               |         |       |           |       |
|  | <u>Remarks:</u> |       |               |         |       |           |       |
|  |                 |       |               |         |       |           |       |

|                               |                 |  |
|-------------------------------|-----------------|--|
| <b>Academic contributions</b> | <b>Remarks:</b> |  |
|-------------------------------|-----------------|--|

Some other tools and methods used by the faculties in Teaching and Learning Process are Smart class rooms with the facility of Multimedia Learning Process with LCD projector, Power point presentation, e-learning materials, NPTEL resources. These aids help in interactive teaching and learning and illustrate ideas and concepts of actual operations and processes in a better way. Moreover, laboratory work, seminars, projects and industry visits are arranged for enhancing learning process of the students.

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

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

**Table B.5.6**

| <b>Name of Faculty</b>   | <b>Max. 5 per Faculty</b> |                   |                   |
|--|---------------------------|-------------------|-------------------|
|  | <b>CAY'2018</b>           | <b>CAYm1'2017</b> | <b>CAYm2'2016</b> |
| Dr R K Dutta   |                           | 3                 |                   |
| Dr D K Mahanta   |                           | 3                 | 3                 |
| Dr S K Deb   |                           | 3                 |                   |
| Dr K Kalita  |                           | 3                 |                   |
| Dr N Saha  |                           |                   | 3                 |
| Dr P Kakati  |                           | 5                 | 5                 |
| Dr A Borah   |                           | 5                 | 5                 |
| Dr M Hazarika  |                           | 5                 | 5                 |
| Dr D Borah   |                           |                   |                   |
| Dr K K Das   |                           | 5                 | 5                 |
| Mr K K Brahma  |                           |                   | 3                 |
| Mr P K Choudhury   |                           | 5                 | 5                 |
| Dr P Baisya  |                           | 5                 | 5                 |
| Ms M Gogoi   |                           | 5                 | 3                 |
| Mr Jitul Baruah  |                           | 3                 | 5                 |
| Mr B J Phukan  |                           | 3                 | 5                 |
| Mr M Baruah  |                           | 3                 | 3                 |
| Mr Manash Bhuyan   |                           | 3                 | 3                 |
| Mr Monoj Baruah  |                           | 3                 | 3                 |
| Subhransu Sekhar Mallick   | 3                         |                   |                   |
| Dr Mayuri Baruah   | 3                         |                   |                   |
| Piyush Singh   | 3                         |                   |                   |
| Jyothis A  | 3                         |                   |                   |
| Mohammed Rafi  | 3                         |                   |                   |
| Anirban Saha   | 3                         |                   |                   |
| Juan Chowdhury   | 3                         |                   |                   |
| Devarshi Kashyap   | 3                         |                   |                   |
| Dr Abhimanyu Kar   | 3                         |                   |                   |
| Sum  | 27                        | 62                | 61                |
| RF = Number of Faculty required to comply with 15:1 Student-Faculty ratio as per 5.1 | 22                        | 22                | 22                |
| Assessment = $3 \times (\text{Sum}/0.5\text{RF})$                                    | 7.36                      | 16.91             | 16.64             |
| Average Assessment over three years (Marks limited to 15) =                          | <b>13.64</b>              |                   |                   |

## 5.7 Research and Development (30)

### 5.7.1 Academic Research (10)

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

- No. of quality publications in refereed/SCI journals, citations, Books/Book Chapters, etc. (6)

#### **Publications by the faculties during assessment year 2017–2018**

*4 Book chapters, 9 International journal papers, 3 International conference papers, 15 National conference papers.*

#### **Publications by the faculties during assessment year 2016–2017**

*1 Book, 1 Book chapter, 16 International journal papers, 8 International conference papers, 18 National conference papers, 2 patents filed.*

#### **Publications by the faculties during assessment year 2015–2016**

*13 International journal papers, 15 International conference papers, 19 National conference papers, 1 patent filed.*

- **PhD guided/ PhD awarded during the assessment period while working in the institute (4)**

*PhD awarded during the assessment period= 4*

*PhD guidance continuing = 33*

**Table B.5.7.1: Number of Publications and PhD Guidance**

| Name of Faculty | Publications   |  |   | PhD guided/awarded  |
|-----------------|--|--|---|---|
|                 | CAY'2018   | CAYm1'2017                                   | CAYm2'2016                                      |   |
| Dr R K Dutta    | 1 Int. Journal paper                                 | 1 Int. Conference and 1 Int. Journal paper   |   | Guiding 1 scholar   |
| Dr D K Mahanta  |  | 4 National Conference papers                 | 1 Int. Journal paper                            | PhD awarded 3.<br>Guiding 3 scholars.                           |
| Dr S K Deb      | 1 Int. Journal paper and 1 National Conference paper | 4 National Conference papers                 | 1 Int. Journal paper                            | Guiding 3 scholars.   |
| Dr K Kalita     |  | 1 National Conference, 2 Int. Journal papers |   | PhD awarded 1.<br>Guiding 3 scholars.<br>Co-guiding 3 scholars. |
| Dr N Saha       |  |  | 1 Int. Conference                               | Guiding 5 scholars.   |
| Dr P Kakati     |  | 2 National Conference papers                 | 2 National Conference papers                    |   |
| Dr A Borah      |  |  | 1 Int. Conference, 2 National Conference papers | Guiding 2 scholars.   |
| Dr M Hazarika   | 1 Book Chap-   | 1 Book, 2 Na-                                | 1 National                                      | Guiding 1 scholar   |

|                          |   |  |   |   |
|--------------------------|---|--|---|---|
|                          | ter, 1 National Conference paper                          | tional Conference papers                     | Conference, 1 Int. Journal papers                       |   |
| Dr D Borah               |   | 1 National Conference, 1 Int. Journal papers |   | Guiding 4 scholars.<br>Co-guiding 3 scholars. |
| Dr K K Das               | 1 Int. Journal and 8 national conference papers           | 2 Int. Journal papers                        | 2 Int. Journal, 3 Int. and 8 National Conference papers | Guiding 6 scholars.                           |
| Mr K K Brahma            |   | 2 Int. Journal papers                        |   |   |
| Mr P K Choudhury         |   | 2 Int. Conference, 1 Int. Journal papers     | 1 National Conference, 1 Int. Journal papers            |   |
| Mr M Hazarika            |   | 3 Int. Conference, 2 Int. Journal papers     | 1 Int. Journal paper                                    |   |
| Mr P Baisya              |   | 1 National Conference paper                  | 1 Int. Journal, 3 Int. and 4 National Conference papers |   |
| Mr Jitul Baruah          |   | 1 Int. Journal paper                         |   |   |
| Mr B J Phukan            | 1 Int. Journal paper and 1 National Conference paper      | 2 National Conference papers                 |   |   |
| Mr Manash Bhuyan         | 2 Int. Journal papers                                     | 1 national conference paper                  |   |   |
| Mr Monoj Baruah          | 4 National conference papers                              |  |   |   |
| Subhransu Sekhar Mallick | 2 International conference papers                         |  |   |   |
| Dr Mayuri Baruah         | 2 Int. Journal paper, 1 Book Chapter                      | 3 Int. Journal paper                         | 3 Int. Journal, 3 Int. conference papers                |   |
| Piyush Singh             | 1 Int. Journal, 1 Int. conference papers, Book Chapter: 1 | 1 Int. conference paper                      | 1 Int. Journal, 2 Int. conference papers                |   |
| Juan Chowdhury           |   | 1 national conference paper                  |   |   |
| Devarshi Kashyap         | 1 Book Chapter  | 1 Int. conference paper, 1 Book chapter      | 2 Int., 1 national conference papers                    |   |
| Dr Abhimanyu Kar         |   |  | 1 Int. Journal paper, Patent : 1 (published)            |   |

| Guide                                   | Co-Guide       | Research Scholars Enrolled in                                |                                       |
|---|----------------|--|---------------------------------------|
|   |                | 2016-2017 (CAYm1)  | 2017 -2018(CAY)                       |
| Dr. R K Dutta                           |                |  | MENON J KALITA                        |
| Dr. D K Mahanta                         |                | NEELAM GOSWAMI,<br>SHARMI DEV SHARMA                         | ZUNAID AHMED                          |
| Dr. K Kalita                            |                |  | UDITYA BORAH,<br>BHARGAV KALITA       |
| Dr. P K Mahanta<br>[Transferred to JEC] | Dr D K Mahanta | RAJIB LOCHAN BI-<br>KASH ROY                                 |                                       |
| Dr. A Borah                             |                | MANASH BHUYAN,<br>MONOJ BARUAH                               |                                       |
| Dr. N Saha                              |                | MANASH J BORAH,<br>RAJIB BHOWMIK,<br>NABAJIT DEV<br>CHOUDURY | NASIM RAJ AHMED,<br>AKASHDEEP GOSWAMI |
| Dr. D Borah                             |                |  | RAKESH NATH                           |
| Dr. M Hazarika                          |                | PALASH SAIKA   |                                       |

### **Detail of Publications for the assessment years 2016–2017–2018**

#### **Dr R K Dutta**

1. A Pathak, P K Choudhury, **R K Dutta**, "Taguchi-grey relational based multi-objective optimization of process parameters on the emission and fuel consumption characteristics of a VCR petrol engine", 7<sup>th</sup> international conference on materials processing and characterization (IC-MPC) 17-19 March 2017.
2. Apurba Pathak, P K Choudhury, **R K Dutta**, "Taguchi-Grey Relational Based Multi-Objective Optimization Of Process Parameters On The Emission And Fuel Consumption Characteristics Of A VCR Petrol Engine", Materials Today: Proceedings, Elsevier, Article reference MATPR4355 (In Press dated 11.12.2017).
3. Tribenoy Roy and **R K Dutta**, "Integrated Fuzzy AHP and Fuzzy TOPSIS methods for multi-objective optimization of Electro Discharge Machining process", Accepted for publication in Soft Computing (Springer), Ref: Ms. No. SOCO-D-18-00139R2, 2018.

#### **Dr D K Mahanta**

1. Manoj Bardaloi, **D K Mahanta**, Production of pyrolysis oil from Areca tree using a fixed bed reactor; Journal of Engineering Research (Published by Academic Publication Council of Kuwait University); Yr 4, Vol 2; June 2016.
2. Sarmi Dev Sarma and **D K Mahanta**, Production and property study of bio-diesel from Olive oil, National Conference on Non- Conventional Energy: Harvesting Technology and Its Challenges, Nov 2017.
3. Neelam Goswami, **D K Mahanta**, Waste to Energy (WTE) in Assam: Scope and Challenges; National Conference on Non- Conventional Energy: Harvesting Technology and Its Challenges, Nov 2017.
4. Banashri Gagoi, **D K Mahanta**, Thermo-economic analysis of a power plant, National Conference on Non- Conventional Energy: Harvesting Technology and Its Challenges, Nov 2017.
5. Kamal Brahma, **D K Mahanta**, National Conference on Non- Conventional Energy: Harvesting Technology and Its Challenges, Nov 2017.

#### **Dr S K Deb**

1. Sanchari Deb, **S.K.Deb**, "Comparative Analysis of Different Micro Energy Resources under Distributed Generation", Asian Journal of Electrical Sciences, ISSN: 2249 - 6297 Vol. 5 No. 1, pp.40-42, 2016.

2. Bashab J Phukan, **S.K.Deb**, "Assessment of Thermal Comfort and Indoor Air Quality in an Air Conditioned Room", National conference on Science, Technology & Environment: Prospects and Limitations in the 21st Century (NCSTEPL-2017), BBEC, Kokrajhar, 2017.
3. Manash Bhuyan, Jitul Baruah, **S.K.Deb**, "Renewable Energy Utilization in India- Issues and Challenges", National conference on Non-conventional Energy: Harvesting Technology and its Challenges, Assam Engineering College, Guwahati ,17-18 October, 2017.
4. Bashab J Phukan, **S.K.Deb**, "Reducing Energy Consumption through Evaporative Cooled Condenser under Air Conditioning System: A Review", National conference on Non-conventional Energy: Harvesting Technology and its Challenges, Assam Engineering College, Guwahati ,17-18 October, 2017.
5. S Choudhury, M J Das, M M Deb Sarma, **S K Deb**, "Design and Development of Efficient and Cost Effective Solar Cooker", National conference on Non-conventional Energy: Harvesting Technology and its Challenges, Assam Engineering College, Guwahati ,17-18 October, 2017.
6. Bashab J Phukan, **S K Deb**, " Performance improvement of Split Air conditioner using evaporative cooling method in the climatic condition of Guwahati" International Research Journal of Engineering and Technology, e-ISSN:2395-0056, p-ISSN:2395-0072
7. Bashab J Phukan, Animesh Goswami, **S K Deb**, " Assessment of Indoor air quality(IAQ) and thermal comfort with and without fresh air supply to a split air conditioner" National Conference on Recent Advances In Science and Technology(NCRAST-2018), March-2018

#### **Dr Kalyan Kalita**

1. Bichitra Bikash, Dilip Kumar Bora, **K. Kalita**, "Feasibility study of pumpkin seed oil as a viable feed stock for biodiesel production", National Seminar on Petroleum Biotechnology and Bioenergy, 3-4 March 2017, Tezpur University.
2. Bichitra Bikash, N. D. Choudhury, Dilip Kumar Bora, **K. Kalita**, "Physico-chemical assessment of pumpkin seed oil as a viable feed stock for biodiesel production", Springer Proceedings in Energy, ISBN: 978-981-10-6106-6, 2017.
3. S.Islam and **K. Kalita** (2017) "Assessment of Traffic Noise in Guwahati City, India", International Research Journal of Engineering and Technology, Issue 04, Vol. 04, April 2017.

#### **Dr Plabon Kakoti**

1. Hazarika D P, **Kakoti P**, Deb S K; "Energy Recovery from the Waste Air Available in the Withering Trough under Tea Manufacturing Process"; Souvenir Cum Technical Volume, All India Seminar on Recent Trends in Mechanical Engineering, Organised by The Institution of Engineers (India) Assam State Centre, 21-22 October, 2016, Page 66—69
2. Dutta A.K., **Kakoti P**, Deb S K; "Identifying Cost Factors of Black Tea Manufacturing using Pareto and Ishikawa Diagram" "; Souvenir Cum Technical Volume, All India Seminar on Recent Trends in Mechanical Engineering, Organised by The Institution of Engineers (India) Assam State Centre, 21-22 October, 2016, Page 95-100
3. **Kakoti P**, Barua P B, Deb S K; "Development of a Performance Index for the Energy Management (SPIENG) of Tea Gardens using System Dynamics Causal Model", Souvenir, National conference on Non-conventional Energy: Harvesting Technology and its Challenges, Assam Engineering College, Guwahati ,17-18 October, 2017; , Page 6—17.
4. Deb S K , **Kakoti P**; "Opportunities on Energy Research under Smart City Initiation", Souvenir, National conference on Non-conventional Energy: Harvesting Technology and its Challenges, Assam Engineering College, Guwahati ,17-18 October, 2017; , Page 18-21

#### **Dr Niharendu Saha**

- i. Rejah, R. A., Baishya, P., **Saha, N.**, Roy, R. L. B., "A comprehensive study on Domestic Source of municipal solid waste of Guwahati city in North East India : Generation trend and characterization" International Conference on Waste Management, IIT Guwahati, 1-2 April, 2016.

### **Dr Anil Bora**

1. Author: S. K. Rajbongshi, K. Saikia, D. Baruah, P. Rajkhowa, S. Deka, **A. Borah**, Effect of welding parameters on mechanical properties in MIG Welding of 1050 grade aluminium alloys, Proceedings of the International Conference on Materials, Design and Manufacturing Process, ICMMD '16, February 17-19, 2016, College of Engineering, Guindy, Anna University, Chennai, INDIA. [Paper ID 4984], 2016.
2. Authors: A. Dhar, A. Saikia, M.K. Barman, N. Kashyap, **A. Borah**, A Comparative Study of CNC Milling of Aluminium using Flood Coolant and Air Cooled Machining, Proceedings AICTE Sponsored National Conference on Innovative Trends in Mechanical & Automobile Engineering [ITMAE-2016], 11-12 February, 2016, MVSR Engineering College, Hyderabad, Page 71—74, 2016.
3. Authors: Nilav J. Sarma, **Anil Borah**, U.S. Dixit, Analytical and Experimental Investigations on Temperature Distribution I Laser Line Heating, Souvenir Cum Technical Volume, All India Seminar on Recent Trends in Mechanical Engineering, Organised by The Institution of Engineers (India) Assam State Centre, 21-22 October, Page 1—8, 2016.

### **Dr Manjuri Hazarika**

1. B. Sarma, K. Borah, B. Saikia, A. Dhar, **M. Hazarika**, 'An Experimental Study on Burr Formation in Milling', All India Seminar on Recent Trends in Mechanical Engineering, pp. 22—26, The Institution of Engineers (India), Assam State Centre, Guwahati, 21—22 October, 2016.
2. N. Saha, D. Talukdar, K. Upadhyaya, C. Barbhuiya, **M. Hazarika**, 'An Experimental Study on Burr Formation in Turning', International Journal of Innovative Research in Science, Engineering and Technology, Vol. 5, pp. 3215—3222, 2016.
3. U. S. Dixit, **Manjuri Hazarika** and J. P. Davim, 'A Brief History of Mechanical Engineering', Book, Series Title: Materials Forming, Machining and Tribology, Springer International Publishing AG, Cham, Switzerland, 2017.
4. A. Goswami, A. Phukan, A. Borah, **M. Hazarika**, "Solar Energy Utilization in Raj Bhawan and Bijulee Bhawan, Guwahati: A Case Study", National Exhibition & Conference on New and Renewable Energy, ADBU Journal of Engineering Technology (AJET), 6-7 October, 2017.
5. A. Goswami, **M. Hazarika**, "A Review of Rural Electrification in Assam Using Solar Energy Through Decentralized Distributed Generation (DDG)", National Conference on Non-conventional Energy: Harvesting Technology and its Challenges, Assam Engineering College, Guwahati, 17-18 October, 2017.
6. Uday S. Dixit, **Manjuri Hazarika** and J. Paulo Davim, "History of Production and Industrial Engineering through Contributions of Stalwarts", Book Chapter in 'Manufacturing Engineering Education', Elsevier, ISBN: 9780081012475, 2018.
7. Anubhav Goswami, Anamitra Phukan, Abhishek Goswami, **Manjuri Hazarika**, "Prediction of Surface Roughness in Milling Using Regression Analysis", Research Conclave'18, Students' Academic Board, I I T Guwahati, 8-11 March, 2018.

### **Dr Dilip Bora**

1. Bichitra Bikash, **Dilip Kumar Bora**, K Kalita, "Feasibility study of pumpkin seed oil as a viable feed stock for biodiesel production", National Seminar on Petroleum Biotechnology and Bioenergy, 3-4 March 2017, Tezpur University.
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### **Dr Kalyan Kumar Das**

1. **Das K.K.** Das H.R, Ghosh A.K., Sinhamahapatra K.P, 2016, " Damage Potential of Extreme wind events – Downburst and Tornado", Journal of Aerospace Engineering and Technology ( ISSN: 2348-7887), Vol:6, no.2, pp 28-46, 2016.

2. Gogoi A, **Das K K**, 2016, Investigation of a Possibly EF2 Tornado That had occurred in the city of Shillong (India) on the 5<sup>th</sup> of April 2016”, Journal of Aerospace Engineering and Technology ( ISSN: 2348-7887), Vol:6, no.2,Case study,2016.
3. Das H.R, **Das K.K**, S. Jain.2016 “Optimization of slope for sloped roofed buildings under downburst wind flow using ANSYS”, International Conference on Recent Trends in Engineering and Material Sciences (17-19 March 2016), Jaipur National University, Jaipur, India
4. Das H.R, **Das K.K**, S.Jain. 2016, “Effect of Downburst Windon Buildings with various Geometrical Shapes” International NAFEMS Conference on Engineering Analysis, Modeling, Simulation and 3D-Printing (NAFEMS-3D) – 2016” at Bangalore during 29-31 August 2016. Awarded as the best paper of the conference.
5. **Das K.K.**, 2016, “Investigation of Damage Potential of Extreme Winds”, International Conference on Civil Engineering for sustainable Development –Opportunities and Challenges (CESDOC2016)”, Assam Engineering College, Guwahati-781013 from 19-21 December 2016 (Accepted).
6. Gogoi A, **Das K.K.**, 2016, Wind related destructions in Eastern Part of India”, Proceedings of the National Seminar of “Green Energy- Prospects and Challenges” organized by Assam Science and Technology University held on 26<sup>th</sup> -27<sup>th</sup> April 2016 (ISBN:978-93-83588-11-4).
7. Das H.R, **Das K.K.**, Ghosh A.K, 2016, “A Numerical Study of Wind induced external and internal flow fields on Prismatic building with wall openings”, Proceedings of the National Seminar of “Green Energy- Prospects and Challenges” organized by Assam Science and Technology University held on 26<sup>th</sup> -27<sup>th</sup> April 2016 (ISBN:978-93-83588-11-4).
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9. Das H.R, **Das K.K.**, Ghosh A.K, Pathak J.,2016, “Comparison of downburst and synoptic wind effects on prismatic building”, Proceedings of the National Seminar of “Green Energy- Prospects and Challenges” organized by Assam Science and Technology University held on 26<sup>th</sup> -27<sup>th</sup> April 2016 (ISBN:978-93-83588-11-4).
10. **Das K.K.** 2016, “ Survey report on Ferry disaster accident due to HWE” ,Proceedings of the National Seminar of “Green Energy- Prospects and Challenges” organized by Assam Science and Technology University held on 26<sup>th</sup> -27<sup>th</sup> April 2016 (ISBN:978-93-83588-11-4).
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15. Deka R, **Das K.K**, Numerical investigation of unsteady incompressible viscous flow over flat plate having rectangular obstruction using vorticity stream function approach, International Journal of advance research in science and Technology(IJARSE)(ISSN:2319-8354, Vol.06,issue 11, 2017.

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18. H.R Das, **Das K.K**, Ghosh A.K, 2018, "A numerical study of wind induced external and internal flow field within wall openings" in the proceedings of the Nation Seminar of Wind Engineering (NSWE2018) organized by PCPS Girls polytechnic, Guwahati and Indian society of Wind Engineering (ISWE) and sponsored by NEQIP program of AICTE on 8-9<sup>th</sup> February 2018 (ISBN :978-93-83588-15-2 )
19. **Das K.K**, Bhattacharyya H.K, 2018, " Wind related disaster in Assam" in the proceedings of the Nation Seminar of Wind Engineering (NSWE2018) organized by PCPS Girls polytechnic, Guwahati and Indian society of Wind Engineering (ISWE) and sponsored by NEQIP program of AICTE on 8-9<sup>th</sup> February 2018 (ISBN: 978-93-83588-15-2 )
20. Bhattacharyya H.K, **Das K.K**, 2018 " Propeller design- a theoretical approach of HAWT blade design" in the proceedings of the Nation Seminar of Wind Engineering (NSWE2018) organized by PCPS Girls polytechnic, Guwahati and Indian society of Wind Engineering (ISWE) and sponsored by NEQIP program of AICTE on 8-9<sup>th</sup> February 2018 (ISBN :978-93-83588-15-2 )
21. **Das K. K.**, Bhattacharyya H. K, 2018, " Damage potential of extreme wind" in the proceedings of the Nation Seminar of Wind Engineering (NSWE2018) organized by PCPS Girls polytechnic, Guwahati and Indian society of Wind Engineering (ISWE) and sponsored by NEQIP program of AICTE on 8-9<sup>th</sup> February 2018 (ISBN :978-93-83588-15-2 )
22. **Das K.K.**, Ghosh A.K, 2018, " Numerical and experimental simulation of downburst wind" in the proceedings of the Nation Seminar of Wind Engineering (NSWE2018) organized by PCPS Girls polytechnic, Guwahati and Indian society of Wind Engineering (ISWE) and sponsored by NEQIP program of AICTE on 8-9<sup>th</sup> February 2018 (ISBN: 978-93-83588-15-2 )
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24. **Das K.K**, 2018, "CFD in building design" as invited speaker at the National Conference on Recent advances in Science and Technology (NCRAST 2018 ) organized by Assam Science and Technology University on 15-17<sup>th</sup> March 2018 at Guwahati under TEQIP-III.

#### **Mr. Kamal Brahma**

1. **Brahma K.K.**, Mahanta D. K. Blending properties of petro-diesel and biodiesel from the seeds of pongamia pinnata Material Today: Proceeding (Elsevier) Accepted.
2. **Brahma K.K.**, Mahanta D. K. Performance analysis of CI engine using biodiesel from pongamia pinnata Int. Journal of Mech. Engg. and Technology, 8(1), 281-291, 2017, ISSN- 0976-6359.

#### **Mr Prasanta K Choudhury**

1. Mazarbhuuya R.M., **Choudhury P. K.**, Rahang M., "Taguchi Grey Relational based Multi Objective Optimization of Process Parameters in Electro Discharge Machining of Aluminium with Copper electrode", Journal of Basic and Applied Engineering Research (JBAER), Volume 3, Issue 13. October-December, 2016.
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3. Mazarbhuuya R. M., **Choudhury P. K.**, Patowari P. K., "An Experimental Study on Parametric Optimization for Material Removal Rate and Surface Roughness on EDM by using Taguchi Method", 7th International Conference on Materials Processing and Characterization (ICMPC-2017), Materials Today Proceedings.(in press)
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#### **Mr Bashab J Phukan**

1. **Bashab J Phukan**, S.K.Deb, "Assessment of Thermal Comfort and Indoor Air Quality in an Air Conditioned Room", National conference on Science, Technology & Environment: Prospects and Limitations in the 21st Century (NCSTEPL-2017), BBEC, Kokrajhar, 2017.
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#### **Mr Jitul Baruah**

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#### **Dr. Pradip Baishya**

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2. A Comprehensive Study on Domestic Source of Municipal Solid Waste (MSW) of Guwahati City in North-East India: Generation Trend and Characterization. Conference paper presented on International Conference on Waste Management (RECYCLE 2016) at IIT, Guwahati, India.
3. Modelling Affordable Waste Management Solutions for India. Conference paper presented on International Conference on Waste Management (RECYCLE 2016) at IIT, Guwahati, India.
4. Waste Segregation and Composting. Conference paper presented on National Seminar on Green Energy- Prospects and Challenges at Assam Science & Technology University, April, 2016. ISBN 9789383588-11-4.
5. Eco Design in Waste Management. Conference paper presented on National Conference on Emerging Trends in Engineering: Opportunities In North-east India at Royal Group of Institution, Guwahati, April, 2016.
6. Presented paper on Recycling of Waste Expanded Polystyrene (EPS) at the All India Seminar on "Recent Trends in Mechanical Engineering" on 21-22 October, 2016 at Institute of Engineers (India) Assam State Centre, Guwahati.

7. Presented paper on Solid Waste Management for Smart Cities at the All India Seminar on “Tackling Urban Environmental Concerns in Upcoming Smart Cities of our Country” on 25-26 October, 2016 at Institute of Engineers (India) Assam State Centre, Guwahati.
8. Source Segregation of Municipal Solid Waste. Paper presented on International Conference on Civil Engineering for Sustainable Development – Opportunities and Challenges, at Assam Engineering College held from 19th to 21st December 2016 in Guwahati, Assam, India.
9. Paper presented on Case Study of Critical Operational and Maintenance Problem of a Waste Heat Recovery Power Plant at National Conference on Non Conventional Energy: harvesting Technology and Its Challenges from 17<sup>th</sup> -18<sup>th</sup> November, 2017 at Assam Engineering College, Assam, India.

**Mr Manash Hazarika**

1. **Manash Hazarika** and Dipak Laha. Machine-Part Cell Formation for Maximum Grouping Efficacy Based on Genetic Algorithm. IEEE, Workshop on Computational Intelligence: Theories, Applications and Future Directions (WCI) 2015. DOI: 10.1109/WCI.2015.7495521.
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**Mr. Manash Bhuyan**

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**Mr Monoj Baruah**

1. **Monoj Baruah** , Manash Borah ” Computational Investigation of Elliptical Pin Fin Heat Exchanger” National Conference On Recent Advances in Science and Technology, March 2018.
2. Bhupenjeet Deka, **Monoj Baruah** “A Thermal Behaviour Study on Tunnel Kiln and its Performance Analysis with its Energy Conservation Opportunities” National Conference On Recent Advances in Science and Technology, March 2018.

3. Pronuj Biswas, **Monoj Baruah**, Papul Changmai, Mrinal Krishna Chaudhury, Nabajit Dev Choudhary, "Partial Shading Analysis on Solar PV Module" National Conference On Recent Advances in Science and Technology, March 2018.
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#### **Dr Mayuri Baruah**

1. **M. Baruah**, "Experimental Measurement of Residual stress of Ti6Al4V Alloys", *Journal of Manufacturing and Materials Processing*, 2018. (accepted).
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11. **M. Baruah** and S. Bag: Influence of gap conductance in thermal analysis of laser transmission welding, Recent Trend in Mechanical Engineering, 21<sup>st</sup> – 22<sup>nd</sup> October, 2016, Institute of Engineers (India, Assam State Centre), Guwahati.
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#### **Dr Abhimanyu Kar**

1. **Abhimanyu Kar** and Prasanta Kumar Das, "Entrainment Caused by a Single Bubble Passing Through Liquid-liquid Interface in Unconfined Space" 9<sup>th</sup> *International Conference of Multiphase Flow, Firenze, Italy, 2016*

#### **Patent**

- 1 Roshmi Sen, **Abhimanyu Kar** and Nishith Ranjan Mandal "Transformable bunk beds in twin bed and workspace configuration" Indian patent no. **973/KOL/2014**, published in 2016, pending for final grant.

#### **Mr Piyush Singh**

1. **Piyush Singh**, Pankaj Biswas, Sachin D Kore, Finite Element and Experimental Study of Self-Reacting Friction Stir Welding of Aluminium Alloy AA6061-T6, 6<sup>th</sup> International & 27<sup>th</sup> All India Manufacturing Technology, Design and Research Conference, 2016, Excel India, Vol. ISBN: 978-93-86256-27-0, pp 967-971.

2. **Piyush Singh**, Pankaj Biswas, Sachin D. Kore, A three-dimensional fully coupled thermo-mechanical model for Self-reacting Friction Stir Welding of Aluminium AA6061 sheets, 2016, *J. Phys.: Conf. Ser.*, 759, pp. 012047.
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**Mr Subhransu Sekhar Mallick**

1. **S .S Mallick**, P Mahanta, A Mahapatro, "Studies on Total and Radiative heat transfer in Circulating Fluidized Beds", 11th International conference on Circulating Fluidized Bed Technology, Page. 447-453, May 14-17,2014, Beijing, China. (Scopus indexed).
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**Mr Juan Chowdhury**

1. **Juan Chowdhury**, Gaurav Kumar, Karuna Kalita, Kari Tammi and Sashindra K Kakoty, Rakenteiden Mekaniikka, "A review on linear switched reluctance motor", Journal of Structural Mechanics, Vol. 50, No3, 2017, pp. 261–270. <https://rakenteidenmekaniikka.journal.fi/index> <https://doi.org/10.23998/rm.65121>

**Patents:**

1. **Linear Switched Reluctance Actuator for Powerloom**  
Application Number: 201731045107  
Priority Date :15/12/2017
2. **High Force Density Quad Air Gap Switched Reluctance Motor**  
Application Number: 201731045006  
Priority Date :14/12/2017

**Mr Devarshi Kashyap**

1. **D. Kashyap** and S. Kanagaraj; Development of nano-barium sulfate filled shape memory polymer composite for endovascular embolization.; Indo-Australian conference on biomaterials, tissue engineering, drug delivery system and Regenerative medicine (BiTERM-2016), April 2016
2. **D.Kashyap** and S.Kanagaraj; Shape memory polymers for morphing wings; International Workshops, Conferences and Expo for Military and Marine Applications.; (IWCEM 2016), June 2016.
3. **D.Kashyap** and S. Kanagaraj; Radiopaque shape memory polymers for minimally invasive embolization.; National conference on Emerging Biomaterials (NCEB-2016), October 2016.(Awarded best oral presentation.)
4. **D. Kashyap** and S Kanagaraj; 3D printed Shape memory polyurethane foam for endovascular embolization; 6<sup>th</sup> Asian Biomaterials Congress (ABMC6), October 2017

5. **D. Kashyap** and S. Kanagaraj; Injectable biomaterials for endovascular applications in “Advances in Polymer Materials and Technologies”; edited by Prof. Sri Bandyopadhyay and S. Anandhan, CRC press. (ISBN 9781498718813)
6. **Devarshi Kashyap**, Charan Mukundan, S Kanagaraj; Manufacturing and characterization of shape memory polymer and composites.; Primary and Secondary Manufacturing of Polymer Matrix Composites. Edited by Kishore Debnath, Inderdeep Singh. CRC press. 5 October 2017. ISBN 978-1498799300.

### **5.7.2 Sponsored Research (5)**

Funded research:

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

### **5.7.3 Development Activities (10)**

Provide details:

- *Product development*
- *Research laboratories*
- *Instructional materials*
- *Working models/charts/monograms, etc.*

**1. The HVAC Laboratory** is established in the department during the assessment period with the following details.

| <b>Name of the Laboratory</b>                                   | <b>Objective</b>                                    | <b>Equipments/Software</b>  |
|---|---|---|
| HVAC Laboratory<br>(Heating Ventilation & Air Conditioning Lab) | Research in PG and PhD level and laboratory for UG. | <ul style="list-style-type: none"> <li>• Indoor air quality monitoring instrument</li> <li>• Clamp meter</li> <li>• Hygrometer</li> <li>• Air capture hood</li> <li>• Compressed air meter</li> <li>• TRANSYS Software</li> </ul> |

**2.** Several working models and products are developed under the guidance of faculties during project works as given below.

| <b>Sr. No</b> | <b>Name of faculty</b> | <b>Working model/Product</b>   | <b>Year</b> |
|---------------|------------------------|--|-------------|
| 1             | Ms Mousumi Gogoi       | Design and Fabrication of a Working Model of Geo-Fountain                              | 2018        |
| 2             | Dr Dilip Kr Borah      | Design and Fabrication of a Multi-purpose Agricultural Equipment                       | 2018        |
| 3             | Dr Manjuri Hazarika    | Design, Fabrication and Testing of a Package Transport Mechanism                       | 2018        |
| 4             | Mr Manash Bhuyan       | Design and Fabrication of a Pedal Powered Pounding Machine (Going to apply for Patent) | 2018        |
| 5             | Mr Manash Bhuyan       | Design and Fabrication of a Portable Folding Bicycle                                   | 2017        |
| 6             | Dr D K Mahanta         | Design, Construction and Experimentation of an Incubator                               | 2017        |
| 7             | Dr D K Mahanta         | Automatic Parking System   | 2017        |
| 8             | Dr S K Deb             | Fabrication and Analysis of Poly Generative Solar Thermal System                       | 2016        |

|    |                  |  |      |
|----|------------------|--|------|
| 9  | Dr Anil Borah    | Design and Construction of Low Smoke Chula   | 2016 |
| 10 | Mr P K Choudhury | Fabrication of Fixtures for Variable Welding Speed and Torch Height Adjustment in the Existing MIG Welding Setup | 2016 |
| 11 | Dr Kalyan Kr Das | Fabrication of an Aircraft with Vertical Landing & Vertical Take Off   | 2016 |

#### **5.7.4 Consultancy (From Industry) (5)**

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

#### **5.8 Faculty Performance Appraisal and Development System (FPADS) (30)**

*The assessment is based on:*

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

As Assam Engineering College is a government institution, performance is appraised by the Government of Assam. An annual self-assessment report is submitted to the Government of Assam (through the principal) by the faculties with a copy to the head of the department. The format of the self-assessment report is given by the Government of Assam which is given below.

#### **Annual self-Assessment for the performance based appraisal system (PBAS)**

Session/ Year

(To be completed and submitted at the end of each academic year)

#### **PART-A** **GENERAL INFORMATION**

1. Name(Block letters) : \_\_\_\_\_
2. Father's/ Mother's name/ : \_\_\_\_\_  
Husband's name \_\_\_\_\_
3. Department : \_\_\_\_\_
4. Current designation and grade pay : \_\_\_\_\_
5. Date of last promotion : \_\_\_\_\_
6. Address for correspondence : \_\_\_\_\_  
(With pin code)
7. Permanent Address : \_\_\_\_\_  
(With pin code)  
Telephone no : \_\_\_\_\_  
E-mail : \_\_\_\_\_
8. Whether acquired any degrees of fresh academic qualifications during the year : \_\_\_\_\_
9. Academic staff college orientation/ Refresher course attended during the year : \_\_\_\_\_

| Name of the course/summer school | Place | Duration | Sponsoring agency |
|----------------------------------|-------|----------|-------------------|
|                                  |       |          |                   |
|                                  |       |          |                   |

10. Date of appointment in Govt. of Assam : \_\_\_\_\_
11. Date of joining: \_\_\_\_\_
12. For which position & AGP you are applying under CAS: \_\_\_\_\_
13. Date of eligibility for the position : \_\_\_\_\_
14. Education Qualification (Graduation onwards): \_\_\_\_\_

| Examination               | Name of the University | Year of passing | Marks Obtained (%) | Class/Grade |
|---------------------------|------------------------|-----------------|--------------------|-------------|
| BE/B. Tech                |                        |                 |                    |             |
| M. Tech/ME                |                        |                 |                    |             |
| Other examination, if any |                        |                 |                    |             |

15. Research Degree(s):

| Degree                    | Name of the University | Date of Award | Title |
|---------------------------|------------------------|---------------|-------|
| Ph.D/D.Phil               |                        |               |       |
| D.Sc/D.Lit                |                        |               |       |
| Other examination, if any |                        |               |       |

16. Details of Teaching/ Research/Academic Experience

| Designation | Employer | Period of service From To | Scale of pay |
|-------------|----------|---------------------------|--------------|
|             |          |                           |              |
|             |          |                           |              |
|             |          |                           |              |

I declare that the particulars given above are correct to the best of my knowledge and belief

Signature of the Candidate

All entries made above are checked and verified and found to be correct.

Signature of Principal

Date:

Seal

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

1. **Dr. Pradip Baishya**, Assistant Professor, Mechanical Engineering Department visited University of Melbourne, Australia from 22.04.2017 to 20.06.2017 and developed three Courses for the proposed PG Programme on Construction Management to be started at Assam Engineering College as a part of AEC-University of Melbourne Collaborative Project.
2. **Dr Sudip Kumar Deb** visited University of Melbourne from 5.3.2018 to 27.4.2018 as a part of the collaborative research project on Smart Villages. He collaborated with researchers within the Faculty of Architecture, Building and Planning. The purpose of the visit was to develop expertise on key issues in Construction Management, Project Finance and Economics and Project Procurement and to help build collective capacity in construction management education and research across the State of Assam.

## 6. FACILITIES AND TECHNICAL SUPPORT (80):

### 6.1 Adequate and well equipped laboratories, and technical manpower

Table B.6.1: Laboratories and Technical man Power

| Sl<br>N<br>o | Name<br>of the<br>labora-<br>tory | No of<br>stu-<br>dents<br>per set<br>up | Name of important<br>equipment   | Week<br>ly utili-<br>sation<br>status | Technical manpower support     |                      |                    |
|--------------|-----------------------------------|---|--|---------------------------------------|--------------------------------|----------------------|--------------------|
|              |                                   |   |  |                                       | Name of the<br>technical staff | Desig-<br>nation     | Qualifi-<br>cation |
| 1            | IC Engines Lab                    | 6                                       | 1. S I engine (four-stroke single cylinder Honda G 300 SI engine, Swept volume 272 cm <sup>3</sup> , air-cooled, Max power 7 HP) with an electric dynamometer. | 2 days per week during even semester. | Mr. Ajit Kr Bhattacharyya      | Sr Instructor        | ITI                |
|              |                                   |   | 2. S I engine (four-stroke single cylinder Honda G 200 SI engine, water-cooled, Max power 7 HP at 3600rpm) with rope brake dynamometer.                        |                                       |                                |                      |                    |
|              |                                   |   | 3. C I engine (Kirloskar made PK 65 type single cylinder CI engine, water-cooled, with rated power of 4 kW at 1500rpm) with rope brake dynamometer.            |                                       |                                |                      |                    |
|              |                                   |   | 4. C I engine (four-stroke single cylinder CI engine, Kirloskar made, 5 HP at 1500 rpm, water-cooled, Max power 317 kW) with eddy-current dynamometer.         |                                       | Nilamoni Sarma                 | Instructor           | ITI                |
|              |                                   |   | 5. Cut out model of a S I engine.  |                                       |                                |                      |                    |
|              |                                   |   | 6. Cut out model of a C I Engine.  |                                       |                                |                      |                    |
| 2            | Engineering Mechanics Lab         | 6                                       | Set up for verification of law of parallelogram of forces  | 2 days per week during even semester. | Dipak Das                      | Scientific Assistant | BSc                |
|              |                                   |   | Set up for determination of coefficient of friction  |                                       |                                |                      |                    |
|              |                                   |   | Set up for finding the moment of inertia of disc.  |                                       |                                |                      |                    |
|              |                                   |   | Compound pendulum  |                                       |                                |                      |                    |

|   |                            |   |   |                                       |                  |                      |  |
|---|----------------------------|---|---|---------------------------------------|------------------|----------------------|--|
| 3 | Fluid Mechanics Laboratory | 6 | <p>Flow through orifice and mouthpiece</p> <p>Impact of Jet on Vanes</p> <p>Losses due to friction in pipe Lines</p> <p>Rota meter Test Rig/Discharge</p> <p>Pitot tube Set-up</p> <p>Cavitations Apparatus</p> <p>Laminar flow Table</p> <p>Electrical Analogy Apparatus</p> <p>Forced Vortex Apparatus</p> <p>Darcy's Law Apparatus</p> <p>Study of pressure measurement devices</p>  | 2 days per week during even semester. | Dipak Das        | Scientific Assistant | BSc  |
| 4 | Instrumentation Lab        | 6 | <p>SENSOR Trainer Kit , Master Master Unit, with computer interface &amp;Moduler experimental Panels</p> <p>Strain Gauge Transducers,</p> <p>Piezo resistive transducer for pressure measurement(0-20PSI) with mounted pressure sensor (0-30PSI) with hand pump &amp; bourdon pressure gage</p> <p>Force/Weight measurement using piezo transducer-0 - 20kg. Uses weighing scale sensor of range 40kg.</p> <p>Level measurement using bubbler method</p> <p>Torque measurement setup consisting of single phase motor, loading belt pulley arrangement, sensor</p> <p>Flow Measurment using Venturi Consisiting of Compact, lightweight setup of size (190X700) consisting of venturi plate sensor (200LPH), ball valve (3X2) to isolate using DPT sensor mounted in MIT1, water pump, rotameter, sump water tank (15 liters). Cannot share MIT1 with option a,d simultaneously Standalone sys-</p> | 2 days per week during even semester. | Apurba Kumar Das | Technical Operator   | ME(Civil)<br>Diploma in Computer Application |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | <p>tem</p> <p>Speed Sensing Transducers with all six sensors with following optional addon</p> <p>Flow measurement using photo interruptive turbine flow sensor consisting of Rotameter, water pump, sump tank, manual valve, Aluminium table top stand, complete with sensor conditioning &amp; display. Standalone system</p> <p>Sound sensing transducers Distance measurement using ultrasound sensor</p> <p>Light Sensing Transducers using all sensors optional addons for MIT5</p> <p>Vibration sensor and airflow sensor experiment panel</p> <p>Electrical parameters measurement sensor panel</p> <p>Facilitates measurements of AC voltage, current (peak, average, RMS), power-S (apparent), P (active), Q(reactive), cos (PF),.CT(2A) as a current sensor and PT (240vac) as a voltage sensor mounted on the panel itself.</p> <p>Loading setup provided with 1 lamp bulb (process I modified), multi tap Reactive (inductor capacitor) load, 4 relays to automate PC based measurement. PC inter-</p> |  |  |
|--|--|---|--|--|

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | <p>face supported by master unit (Optional).</p> <p>Temperature sensor calibration panel</p> <p>Compact light weight setup (size: 190X700) consisting of process vessel (SS 304) with 750W heater, thermometer, provision to mount either one RTD/NTC (thermistor) &amp; one K type TC or 2 TCs (standard &amp; under calibration), EMT9 panel acts as heater controller consisting of signal conditioning circuit for RTD or NTC &amp; TC.</p> <p>Displacement Sensing Transducers full specification covering LVDT, inductive, capacitive, resistive with following optional addon</p> <p>Temperature Sensing Transducers with PT100, thermocouple J&amp;K, thermister, Bimetalic relay, IC sensor</p> <p>PC based control of Pressure, Temperature and Flow using PID as well as ratio, cascading and feed forward Control schemes with USB Adaptor<br/>(PC is not in scope of supply, however P4/XP with parallel port from lab is needed)</p> <p>OPTIONAL: AIR compressor 0 - 10 BAR, 2 HP, and 230 VAC sup-</p> |  |  |
|--|--|---|--|--|

|   |                       |   |  |   |           |                      |     |
|---|-----------------------|---|--|---|-----------|----------------------|-----|
|   |                       |   | plies Tank capacity 110 Liters   |   |           |                      |     |
|   |                       |   | CONTROL VALVE CHARACTERISTICS (Linear & Equal Percent & Quick Opening). Model: PC-108B, Make: K.C. Engineers Pvt. Ltd. Optional : Mini Air Compressor with Standard Make Motor and automatic switch  |   |           |                      |     |
|   |                       |   | CALIBRATION OF THERMOCOUPLE,   |   |           |                      |     |
|   |                       |   | DEAD WEIGHT PRESSURE GAUGE TESTER.   |   |           |                      |     |
| 5 | Material Science Lab  | 6 | 1) Computerised / Electronic Universal Testing Machine Capacity 100T. With<br>a) Electronic Extensometer<br>b) Shear test attachment<br>2) Impact Testing Machine Capacity 300J<br>3) Brinell hardness tester<br>4) Rockwell Hardness tester   | 2 days per week for 4 <sup>th</sup> semester. | Dipak Das | Scientific Assistant | BSc |
| 6 | THEORY OF MACHINE LAB | 6 | Universal Vibration Apparatus<br>Cam Analysis Apparatus<br>Whirling of Shaft Demonstrator<br>Motorised Gyroscope Apparatus<br>Journal Bearing Apparatus<br>Universal Governors Apparatus<br>Coriolli's Component of Acceleration Apparatus<br>Epicyclic Gear train Apparatus<br>spur Gear train Apparatus<br>Digital Tachometer (3 Nos.)<br>Digital Stroboscope ( 2 Nos) | 2 days per week during odd semester.          | Dipak Das | Scientific Assistant | BSc |
|   | Ref : e               |   | Refrigeration Test Rig   | 2 days  |           |                      |     |

|    |                   |   |   |                                       |               |                  |  |
|----|-------------------|---|---|---------------------------------------|---------------|------------------|--|
| 7  |                   | 6 | Air-Conditioning Test Rig<br>Ice Plant Tutor<br>Air to Water Heat Pump  | per week during odd semester.         |               |                  |  |
| 8  | Heat Transfer Lab | 6 | Heat Pipe Apparatus<br>Force Convection Apparatus<br>Condensation in Drop and film form<br>Thermal Conductivity of Liquid<br>Thermal Conductivity guarded hot plate<br>Thermal Conductivity of insulation powder<br>Emissivity measurement Apparatus<br>Stefan Boltzmann Apparatus<br>Unsteady H.T. Apparatus   | 2 days per week during odd semester.  | Mahesh Barman | Boiler Attendant | HSLC and Boiler Attendant certificate passed |
| 9  | Machine Tool Lab  | 6 | MTAB MAKE FLEX-TURN CNC Slant Bed turning centre with 8 station Indexing Tool post with FANUC oI Mate Control.<br>(Specifications as per Your Quotation No: GS/MTAB/1151/2010 dated 22.01.10)   | 2 days per week during even semester. |               |                  |  |
| 10 | Metrology Lab     | 6 | Toolmaker's Microscope,<br>Profile Projector With Digital Data Processor<br>Surface Roughness Tester<br>Vernier height Gauge<br>Digital Vernier Caliper , 0-300 mm<br>Dial calipers<br>Digital micrometer<br>Screw pitch gauge<br>Screw thread micrometer<br>Micrometer<br>Micrometer depth , Make: Mitutoyo<br>Feeler gauge set length 100mm 28 leaves ,<br>Universal bevel protractor , | 2 days per week during even semester. |               |                  |  |

|    |                       |   |  |                                       |                   |                    |  |
|----|-----------------------|---|--|---------------------------------------|-------------------|--------------------|--|
|    |                       |   | Dial indicator plunger typ,<br>Coating Thickness Meter   |                                       |                   |                    |  |
| 11 | Steam Engine Lab      | 6 | Nano steam turbine,<br>Vertical type oil fired NON IBR Steam boiler,<br>Combine Separating and Throttling Calorimeter  | 2 days per week during even semester. | Jyotish Kr.Kathar | Sr Instructor      | Boiler certificate course passed, H.S. passed  |
| 12 | CAD/ CAM Lab          | 6 | CNC MILLING with Fanuc oi MC control system:   | 2 days per week during even semester. |                   |                    |  |
| 13 | Hydraulic Machine Lab | 6 | Centrifugal Pump Test Rig (variable Speed with Swinging Field dynamometer)<br>Reciprocating Pump Test Rig (variable Speed with Swinging Field dynamometer)<br>Submersible Pump Test Rig<br>Hydraulic Ram Test Rig<br>Pelton Wheel Turbine Test Rig,<br>Francis Turbine Test Rig, | 2 days per week during odd semester.  | Mahesh Barman     | Boiler Attendant   | HSLC and Boiler Attendant certificate passed   |
| 14 | Computer Lab          | 1 | Server (2)<br>Desktop PC. P-IV machine (70)<br>Net work Printer (3)<br>D-link Switch (8)<br>UPS (5)  | 2 days per week during even semester. | Apurba Kumar Das  | Technical Operator | BE(Civil ), PG Diploma in Computer Application |
|    |                       |   |  |                                       | Naren Dutta       | Guest instructor   |  |

|    |             |   |  |                                       |                                  |            |     |
|----|-------------|---|--|---------------------------------------|----------------------------------|------------|-----|
| 15 | SMITHY SHOP | 6 | (1)Power Hammer<br>(2)Open hearth Furnace<br>(3)Sheet Bending Machine<br>(4)Heat Treatment Furnace(mini) | 2 days per week during even semester. | 1.Pranab Bhatta<br>2. Ramen Neog | Instructor | ITI |
|----|-------------|---|--|---------------------------------------|----------------------------------|------------|-----|

## 6.2 Additional facilities created for improving the quality of learning experience in laboratories

**Table B.6.2: Additional Facilities**

| Sl No | Facility Name                               | Details   | Reasons for creating facility   | Utilization        | Areas in which students are expected to have enhanced learning | Relevance to POs/PSOs            |
|-------|---|---|---|--------------------|--|----------------------------------|
| 1     | A heat exchanger in the SI engine test rig. | Heat exchanger to raise the temperature of incoming air to the cylinder with the help of exhaust gases. | To estimate the effect of pre-heated air on the overall performance of the SI engine. | In project work    | (i) Heat transfer<br>(ii) IC Engine performance parameters.    | POs: 1, 2, 3, 4, 12<br>PSO: 1, 2 |
| 2     | Exhaust gas analyser                        | Environment & Process Instrument Division; Model NPM CH1  | To investigate the effects of operating parameters on emission.                       | During lab classes | Combustion, Emission   | POs: 5, 6, 12<br>PSO: 1, 2       |

## 6.3 Laboratories: Maintenance and overall ambience

### Maintenance & Overall Ambience

- 1) Each workshop with appropriate layout is designed & maintained as per AICTE norms with respect to carpet area, lighting, ventilation & furniture to have conducive ambience.
- 2) Do's and Don'ts are displayed in each laboratory.
- 3) Laboratories are maintained by the qualified technical staff.
- 4) Periodic servicing of equipment/instruments is carried out.
- 5) Safety precautions like First Aid kit, Fire extinguisher are kept in place.
- 6) Major repair of equipment/instruments are outsourced as per the Institute norms.
- 7) Appropriate and relevant equipment/instruments are procured as and when the scheme changes if required.
- 8) Laboratory manuals are maintained in the laboratory to ensure uniformity in conducting experiments for all the batches.
- 9) Log books are maintained in the laboratory to know the effective usage of the laboratory.

#### **6.4 Project laboratories**

1. Project room is provided to keep the earlier projects.
2. Students can overview the earlier projects and even they can continue it modifications.
3. Students can carry out computing, modelling, and analysis in the computer laboratories.
4. Design and fabrications are carried out in house in the workshop.
5. Internet facilities are provided to students to access the freely available journals.
6. Students those wants to carry out projects in Air Conditioning and Refrigeration they can access HVAC Laboratory.

#### **6.5 Safety measures in Laboratories**

**Table B.6.5: Safety Measures**

| <b>Sl.No</b> | <b>Name of the Laboratory</b> | <b>Safety measures</b>   |
|--------------|-------------------------------|--|
| 1            | IC Engines Lab                |  |
| 2            | Engineering Mechanics Lab     |  |
| 3            | Fluid Mechanics Laboratory    |  |
| 4            | Instrumentation Lab           |  |
| 5            | Material Science Lab          |  |
| 6            | THEORY OF MACHINE LAB         |  |
| 7            | Refrigeration & A.C. Lab      |  |
| 8            | Heat Transfer Lab             |  |
| 9            | Machine Tool Lab (IPE)        |  |
| 10           | Metrology Lab                 | <ol style="list-style-type: none"><li>1. General Rules of Conduct in Laboratories are displayed.</li><li>2. Specific Safety Rules for students are displayed.</li><li>3. First aid box, Fire extinguisher and Earthing facilities are provided at appropriate places.</li><li>4. Out of order stickers are pasted at appropriate places.</li><li>5. Periodical servicing of the lab equipments is carried out.</li><li>6. Maintain clean and organized laboratory.</li></ol> |
| 11           | Steam Engine Lab              |  |
| 12           | CAD/ CAM Lab                  |  |
| 13           | Hydraulic Machine Lab         |  |
| 14           | Computer Lab                  |  |
| 15           | Smithy Shop                   |  |

|                    |                               |           |
|--------------------|-------------------------------|-----------|
| <b>CRITERION 7</b> | <b>Continuous Improvement</b> | <b>50</b> |
|--------------------|-------------------------------|-----------|

## 7. CONTINUOUS IMPROVEMENT (50)

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

#### POs & PSOs Attainment Levels and Actions for improvement – CAYm1 (2016-17)

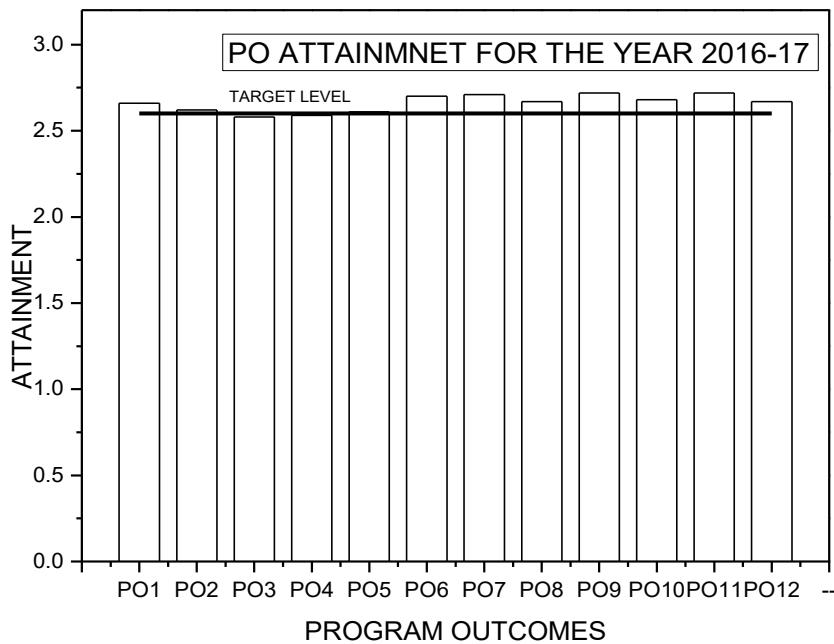
**Table B.7.1a: PO- ATTAINMENT for the year 2016-2017**

| <b>Cour<br/>se<br/>code</b> | <b>Course name</b>                                   | <b>PO<br/>1</b> | <b>PO<br/>2</b> | <b>PO<br/>3</b> | <b>PO<br/>4</b> | <b>PO<br/>5</b> | <b>PO<br/>6</b> | <b>PO<br/>7</b> | <b>PO<br/>8</b> | <b>PO<br/>9</b> | <b>PO<br/>10</b> | <b>PO<br/>11</b> | <b>PO<br/>12</b> |
|-----------------------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| PH10<br>1                   | Engg. Physics-I                                      | 2.5<br>95       | 2.5<br>95       | 2.5<br>95       | -               | -               | -               | -               | -               | -               | -                | -                | -                |
| CY10<br>2                   | Enggg. Chemistry-I                                   | 2.5<br>25       | -               | 2.5<br>25       | 2.5<br>25        | -                | 2.5<br>25        |
| MA1<br>03                   | Mathematics-I  | 2.4<br>05       | 2.4<br>05       | 2.4<br>05       | -               | -               | -               | -               | -               | 2.4<br>05       | -                | -                | -                |
| CE10<br>4                   | Mechanics of sol-<br>ids                             | 2.3<br>05       | 2.3<br>05       | 2.3<br>05       | 2.3<br>05       | 2.3<br>05       | -               | -               | -               | -               | -                | -                | -                |
| HU10<br>5                   | Technical Report<br>Writing                          | -<br>8          | 2.3<br>8        | -               | 2.3<br>8        | -               | 2.3<br>8        | -               | 2.3<br>8        | 2.3<br>8        | 2.3<br>8         | -                | 2.3<br>8         |
| CS10<br>7                   | Computer Pro-<br>gramming                            | 2.7<br>25        | 2.7<br>25        | 2.7<br>25        |
| CE10<br>6                   | Engineering<br>Graphics-I                            | 2.6<br>35       | -               | -               | -                | -                | -                |
| CS10<br>7                   | Computer Pro-<br>gramming lab                        | 2.7<br>4         | 2.7<br>4         | 2.7<br>4         |
| ME10<br>8                   | Workshop Prac-<br>tice-I                             | 2.9<br>3        | 2.9<br>3        | -               | -               | -               | -               | -               | 2.9<br>3        | 2.9<br>3        | -                | -                | -                |
| PH10<br>1L                  | Engg. Physics-I<br>Lab                               | 2.6<br>1        | -               | -               | -               | -               | -               | -               | -               | 2.6<br>1        | -                | -                | -                |
| CY10<br>2L                  | Engg. Chemistry-<br>I Lab                            | 2.9<br>8        | 2.9<br>8        | -               | 2.9<br>8        | -               | -               | 2.9<br>8        | -               | 2.9<br>8        | 2.9<br>8         | -                | -                |
| PH20<br>1                   | Engg. Physics-II                                     | 2.5<br>75       | 2.5<br>75       | 2.5<br>75       | -               | 2.5<br>75       | -               | -               | -               | -               | -                | -                | -                |
| CY20<br>2                   | Advanced Chem-<br>istry & Environ-<br>mental Studies | 2.4<br>95       | -               | -               | 2.4<br>95        | -                | 2.4<br>95        |
| MA2<br>03                   | Mathematics-II                                       | 2.4<br>9        | 2.4<br>9        | 2.4<br>9        | -               | -               | -               | -               | -               | -               | -                | -                | 2.4<br>9         |
| ME2<br>04                   | Engg. Mechanics-<br>I                                | 2.4<br>9        | 2.4<br>9        | 2.4<br>9        | 2.4<br>9        | 2.4<br>9        | -               | -               | -               | -               | -                | -                | 2.4<br>9         |
| EE20<br>6                   | Basic Electrical<br>Engg& Electron-<br>ics           | 2.3<br>7        | -               | -                | -                | 2.3<br>7         |
| HU                          | Sociology  | -<br>35         | 2.3<br>35       | -               | -               | -               | 2.3<br>35       | -               | 2.3<br>35       | 2.3<br>35       | 2.3<br>35        | 2.3<br>35        | 2.3<br>35        |
| ME2<br>07                   | Engg Graphics-II                                     | 2.4<br>65       | 2.4<br>65       | 2.4<br>65       | -               | 2.4<br>65       | 2.4<br>65       | -               | -               | -               | -                | -                | 2.4<br>65        |
| PH20<br>1L                  | Engg. Physics-II<br>Lab                              | 2.8<br>3        | -               | -               | -               | -               | -               | -               | -               | 2.8<br>3        | -                | -                | -                |
| CY20                        | Advanced Chem-                                       | 2.9             | 2.9             | 2.9             | 2.9             | 2.9             | 2.9             | 2.9             | -               | 2.9             | 2.9              | 2.9              | 2.9              |

|         |   |        |        |        |        |        |       |        |       |        |        |       |        |
|---------|---|--------|--------|--------|--------|--------|-------|--------|-------|--------|--------|-------|--------|
| 2L      | stry & environmental studies Lab  | 7      | 7      | 7      | 7      | 7      | 7     | 7      | 7     | 7      | 7      | 7     | 7      |
| ME2 04L | EnggMech-I Lab  | 1.8 9  | 1.8 9  | 1.8 9  | 1.8 9  | 1.8 9  | -     | -      | -     | -      | -      | -     | 1.8 9  |
| EE20 6L | Basic Electrical Engg& Electronics Lab  | 2.3 3  | 2.3 3  | -      | 2.3 3  | -      | -     | -      | -     | 2.3 3  | -      | -     | 2.3 3  |
| MA 301  | Mathematics – III   | 2.5 1  | 2.5 1  | -      | -      | -      | -     | -      | -     | -      | -      | -     | -      |
| EE 303  | Electro Technology – I  | 2.5 8  | 2.5 8  | -      | -      | -      | -     | -      | -     | -      | -      | -     | 2.5 8  |
| ME 305  | Basic Thermodynamics  | 2.7 65 | 2.7 65 | 2.7 65 | 2.7 65 | 2.7 65 | -     | 2.7 65 | -     | -      | -      | -     | -      |
| ME 322  | Theory of Machine   | 2.7 15 | 2.7 15 | 2.7 15 | 2.7 15 | 2.7 15 | -     | -      | -     | -      | -      | -     | 2.7 15 |
| ME 323  | Engineering Graphics – III  | 2.4 27 | 2.4 27 | 2.4 27 | 2.4 27 | -      | -     | -      | -     | 2.4 27 | -      | -     | 2.4 27 |
| ME 324  | Mechanics of Material   | 2.5 35 | 2.5 35 | 2.5 35 | -      | -      | -     | -      | -     | 2.5 35 | 2.5 35 | -     | 2.5 35 |
| EE 303L | Electro Technology – I  | 2.4 1  | 2.4 1  | -      | 2.4 1  | -      | -     | -      | -     | -      | 2.4 1  | -     | 2.4 1  |
| ME 322L | Theory of Machines  | 3      | 3      | 3      | 3      | 3      | -     | -      | -     | -      | -      | -     | 3      |
| ME 323L | Engineering Graphics – III  | 2.9 7  | 2.9 7  | -      | 2.9 7  | -      | -     | -      | -     | -      | 2.9 7  | -     | 2.9 7  |
| ME 324L | Mechanics of Materials  | 3      | 3      | -      | -      | 3      | -     | -      | -     | 3      | 3      | -     | 3      |
| MA 401  | Numerical Methods in Engineering  | 2.3 4  | 2.3 4  | -      | -      | -      | -     | -      | -     | -      | -      | -     | -      |
| HU 402  | Accountancy for Engineers (Half [Paper]) + Communication & Presentation Skills (Half Paper) | -      | 2.6 5  | -      | -      | -      | 2.6 5 | 2.6 5  | 2.6 5 | 2.6 5  | 2.6 5  | 2.6 5 | 2.6 5  |
| EE 404  | Electro Technology – II   | 2.5 4  | 2.5 4  | -      | 2.5 4  | -      | -     | -      | -     | -      | 2.5 4  | -     | 2.5 4  |
| ME 425  | Workshop Theory – I   | 2.6 7  | 2.6 7  | 2.6 7  | -      | -      | -     | -      | -     | -      | -      | -     | 2.6 7  |
| ME 426  | Fluid Mechanics - I   | 2.5 5  | 2.5 5  | 2.5 5  | 2.5 5  | 2.5 5  | -     | -      | -     | 2.5 5  | -      | -     | 2.5 5  |
| ME 427  | Material Science  | 2.4    | 2.4    | 2.4    | -      | -      | -     | -      | -     | -      | -      | -     | 2.4    |
| EE 404L | Electro Technology – II   | 2.6 4  | 2.6 4  | -      | 2.6 4  | -      | -     | -      | -     | -      | -      | -     | 2.6 4  |
| ME 425L | Workshop Theory – I   | 2.8 8  | 2.8 8  | 2.8 8  | -      | -      | -     | -      | -     | -      | -      | -     | 2.8 8  |
| ME 426L | Fluid Mechanics   | 3      | 3      | 3      | 3      | -      | 3     | -      | -     | 3      | 3      | 3     | 3      |
| HU4 02L | Communication/Language Lab  | -      | 2.8 6  | -      | -      | -      | 2.8 6 | 2.8 6  | 2.8 6 | 2.8 6  | 2.8 6  | 2.8 6 | 2.8 6  |
| HU      | Economics &   | -      | 2.2    | -      | -      | -      | 2.2   | 2.2    | 2.2   | 2.2    | 2.2    | 2.2   | 2.2    |

|         |                                      |           |           |           |           |           |           |           |           |           |           |           |           |
|---------|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 501     | Principle of Management              |           | 17        |           |           |           | 17        | 17        | 17        | 17        | 17        | 17        | 17        |
| ME 522  | Mechanism & Dynamics of Machines     | 2.5<br>87 | 2.5<br>87 | 2.5<br>87 | 2.5<br>87 | 2.5<br>87 | -         | -         | -         | 2.5<br>87 | -         | -         | 2.5<br>87 |
| ME 523  | Applied Thermodynamics – I           | 2.7<br>47 | 2.7<br>47 | -         | 2.7<br>47 | -         | -         | 2.7<br>47 | -         | 2.7<br>47 | -         | -         | 2.7<br>47 |
| ME 524  | Heat Transfer – I                    | 2.7<br>83 | -         | 2.7<br>83 | 2.7<br>83 | 2.7<br>83 | 2.7<br>83 |
| ME 525  | Instrumentation                      | 2.7<br>73 |
| ME 526  | Machine Design - I                   | 2.4<br>1  | 2.4<br>1  | 2.4<br>1  | 2.4<br>1  | 2.4<br>1  | -         | 2.4<br>1  | 2.4<br>1  | -         | 2.4<br>1  | 2.4<br>1  | 2.4<br>1  |
| ME 527  | General Proficiency                  | -         | -         | -         | -         | -         | -         | -         | -         | -         | 3         | 3         | 3         |
| ME 522L | Mechanism & Dynamics of Machines     | 3         | 3         | 3         | 3         | 3         | 3         | 3         | 3         | 3         | 3         | 3         | 3         |
| ME 523L | Applied Thermodynamics – I           | 2.9<br>2  | 2.9<br>2  | 2.9<br>2  | 2.9<br>2  | -         | -         | 2.9<br>2  | -         | 2.9<br>2  | 2.9<br>2  | -         | 2.9<br>2  |
| ME 525L | Instrumentation LAB                  | 2.9<br>8  |
| ME 524L | Heat Transfer – I LAB                | 2.9<br>7  |
| ME 621  | Machine Design - II                  | 2.8<br>8  | 2.8<br>8  | 2.8<br>8  | 2.8<br>8  | 2.8<br>8  | -         | -         | -         | 2.8<br>8  | 2.8<br>8  | -         | 2.8<br>8  |
| ME 622  | Operation Research                   | 2.7<br>5  | 2.7<br>5  | 2.7<br>5  | 2.7<br>5  | -         | -         | -         | -         | -         | -         | -         | 2.7<br>45 |
| ME 623  | Fluid Mechanics – II                 | 2.5<br>5  | 2.5<br>5  | 2.5<br>5  | 2.5<br>5  | -         | 2.5<br>5  | -         | -         | 2.5<br>5  | 2.5<br>5  | -         | 2.5<br>5  |
| ME 624  | Engineering Inspection and Metrology | 2.8<br>6  | 2.8<br>6  | 2.8<br>6  | 2.8<br>6  | -         | -         | -         | -         | -         | -         | -         | 2.8<br>6  |
| ME 625  | Workshop Theory – II                 | 2.7<br>0  | 2.7<br>0  | 2.7<br>0  | 2.7<br>0  | -         | -         | -         | -         | -         | -         | -         | 2.7<br>05 |
| ME 626  | Numerical Methods and Computation    | 2.8<br>4  | 2.8<br>4  | 2.8<br>4  | 2.8<br>4  | 2.8<br>4  | -         | -         | -         | 2.8<br>4  | -         | -         | 2.8<br>4  |
| ME 627  | General Proficiency                  | -         | -         | -         | -         | -         | -         | -         | -         | -         | 2.9<br>6  | -         | 2.9<br>6  |
| ME 621L | Machine Design – II LAB              | 3         | 3         | 3         | 3         | 3         | -         | 3         | -         | -         | 3         | 3         | 3         |
| ME 623L | Fluid Mechanics – II                 | 2.9<br>9  | 2.9<br>9  | 2.9<br>9  | 2.9<br>9  | -         | 2.9<br>9  | -         | -         | 2.9<br>9  | 2.9<br>9  | -         | 2.9<br>9  |
| ME 624L | Engineering Inspection and Metrology | 3         | 3         | 3         | -         | -         | -         | -         | -         | -         | -         | -         | 3         |
| ME 625L | Workshop Theory – II                 | 2.7       | 2.7       | 2.7       | 2.7       | 2.7       | 2.7       | 2.7       | -         | 2.7       | -         | -         | 2.7       |
| ME 721  | Mechanical Vibration                 | 2.9<br>4  | 2.9<br>4  | 2.9<br>4  | -         | 2.9<br>4  | -         | -         | -         | 2.9<br>4  | 2.9<br>4  | -         | 2.9<br>4  |

|   |   |           |           |           |           |          |           |           |           |          |          |           |           |
|---|---|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|----------|-----------|-----------|
| ME 722  | Applied Thermodynamics – II   | 2.4<br>9  | 2.4<br>9  | 2.4<br>9  | 2.4<br>9  | -        | -         | 2.4<br>9  | -         | -        | 2.4<br>9 | -         | 2.4<br>9  |
| ME 723  | Hydraulic Machines  | 2.6<br>4  | 2.6<br>4  | 2.6<br>4  | 2.6<br>4  | -        | 2.6<br>4  | 2.6<br>4  | -         | 2.6<br>4 | 2.6<br>4 | 2.6<br>4  | 2.6<br>4  |
| ME 724  | Heat Transfer – II  | 2.7<br>9  | 2.7<br>9  | 2.7<br>9  | 2.7<br>9  | 2.7<br>9 | 2.7<br>9  | -         | 2.7<br>9  | 2.7<br>9 | 2.7<br>9 | -         | 2.7<br>9  |
| ME 725  | Elective – I<br>Refrigeration   | 2.7<br>6  | 2.7<br>6  | 2.7<br>6  | 2.7<br>6  | -        | 2.7<br>6  | -         | -         | -        | -        | -         | 2.7<br>6  |
|   | Machine Tools   |           |           |           |           |          |           |           |           |          |          |           |           |
| ME 726  | Elective – II<br>(Open)<br>Computational Fluid Dynamics and Heat Transfer | 2.9       | 2.9       | 2.9       | 2.9       | 2.9      | -         | -         | -         | 2.9      | -        | -         | 2.9       |
|   | Non Conventional Energy Systems   |           |           |           |           |          |           |           |           |          |          |           |           |
| ME 727L   | Practical Training  | 2.6<br>8  | 2.6<br>8  | 2.6<br>8  | -         | -        | 2.6<br>8  | -         | 2.6<br>8  | 2.6<br>8 | 2.6<br>8 | -         | 2.6<br>8  |
| ME 728L   | Project – I   | 3         | 3         | 3         | 3         | 3        | 3         | 3         | -         | 3        | -        | 3         | 3         |
| ME 821  | Manufacturing Method  | 2.3<br>2  | 2.3<br>2  | 2.3<br>2  | -         | -        | -         | -         | -         | -        | -        | -         | 2.3<br>2  |
| ME 822  | Industrial Engg & Management  | 2.8       | 2.8       | 2.8       | 2.8       | 2.8      | 2.8       | 2.8       | 2.8       | 2.8      | 2.8      | 2.8       | 2.8       |
| ME 823  | Internal Combustion Engine  | 2.7<br>8  | 2.7<br>8  | 2.7<br>8  | 2.7<br>8  | 2.7<br>8 | 2.7<br>8  | 2.7<br>8  | -         | 2.7<br>8 | 2.7<br>8 | -         | 2.7<br>8  |
| ME 824  | Elective – III Air Conditioning   | 2.7<br>45 | 2.7<br>45 | 2.7<br>45 | 2.7<br>45 | -        | 2.7<br>45 | 2.7<br>45 | 2.7<br>45 | -        | -        | 2.7<br>45 | 2.7<br>45 |
| ME 825  | Elective – IV<br>(Open)<br>Power Plant Technology                         | 3         | 3         | 3         | 3         | -        | 3         | 3         | -         | 3        | 3        | -         | 3         |
|   | Robotics & Applications   | 2.8       | 2.8       | 2.8       | -         | 2.8      | -         | -         | -         | 2.8      | 2.8      | -         | 2.8       |
| ME 826  | Project – II  | 2.9<br>7  | 2.9<br>7  | 2.9<br>7  | 2.9<br>7  | 2.9<br>7 | 2.9<br>7  | 2.9<br>7  | -         | 2.9<br>7 | -        | 2.9<br>7  | 2.9<br>7  |
| ME 827  | Viva-Voce   | 2.7<br>3  | 2.7<br>3  | 2.7<br>3  | -         | -        | -         | 2.7<br>3  | 2.7<br>3  | -        | 2.7<br>3 | -         | 2.7<br>3  |
| Indirect attainment (present final year students) |   | 2.0<br>9  | 2.0<br>7  | 1.8<br>3  | 1.8<br>3  | 1.9<br>4 | 2.3<br>7  | 2.2<br>2  | 2.4<br>8  | 2.2<br>4 | 2.3<br>3 | 2.3<br>3  | 2.4<br>3  |
| Indirect attainment (last passed out batch)       |   | 2.5<br>6  | 2.3<br>3  | 2         | 2.2<br>2  | 2.4<br>4 | 2.6<br>7  | 2.7<br>8  | 2.5<br>6  | 2.7<br>8 | 2.2<br>2 | 2.4<br>4  | 2.4<br>4  |
| Indirect attainment (Parents & alumni)            |   | 2.8<br>5  | 2.6<br>9  | 2.3<br>8  | 2.3<br>1  | 2        | 2.6<br>9  | 2.6<br>9  | 2.7<br>7  | 2.9<br>2 | 2.6<br>2 | 2.5<br>4  | 2.6<br>9  |
| Direct Avg Attn.                                  |   | 2.7<br>0  | 2.6<br>9  | 2.7<br>1  | 2.7<br>1  | 2.7<br>3 | 2.7<br>3  | 2.7<br>5  | 2.6<br>9  | 2.7<br>4 | 2.7<br>5 | 2.7<br>9  | 2.7<br>1  |
| Indirect Avg Attn.                                |   | 2.5<br>0  | 2.3<br>6  | 2.0<br>7  | 2.1<br>2  | 2.1<br>3 | 2.5<br>8  | 2.5<br>6  | 2.6<br>0  | 2.6<br>5 | 2.3<br>9 | 2.4<br>4  | 2.5<br>2  |
| Overall PO attainment                             |   | 2.6<br>6  | 2.6<br>2  | 2.5<br>8  | 2.5<br>9  | 2.6<br>1 | 2.7<br>0  | 2.7<br>1  | 2.6<br>7  | 2.7<br>2 | 2.6<br>8 | 2.7<br>2  | 2.6<br>7  |



**Fig 15: Histograms showing PO attainment for the year 2016-17**

**Table B.7.1 b: PO Attainment Level and Observations**

| POs   | Target level | Attainment Level | Observations  |
|---|--------------|------------------|---|
| <b>PO1: Engineering Knowledge:</b>  |              |                  |   |
| <b>PO1</b>  | <b>2.6</b>   | <b>2.66</b>      | Attainment is achieved. However, in courses PH101, CY102, MA103, CE104, PH201, CY202, MA203, ME204, EE206, ME207, ME204L, EE206L, MA 301, EE 303, ME 323, ME 324, EE 303L, MA 401, EE 404, ME 426, ME 427, ME 522, ME 526, ME 623, ME 722, ME 821 have scope for improvement.                             |
| <i>Action 1:</i> Identifying mathematical related subjects and instruct the students to practise more problems regularly. This should be monitored periodically.<br><i>Action 2:</i> Students are advised to download the previous GATE papers, and basic apps to strengthen the engineering basics. The relevant websites are to be provided by the instructor in the class. |              |                  |   |
| <b>PO2: Problem analysis</b>  |              |                  |   |
| <b>PO2</b>  | <b>2.6</b>   | <b>2.62</b>      | Attainment is achieved. However, in courses PH101, CY102, MA103, CE104, HU105, PH201, CY202, MA203, ME204, EE206, HU, ME207, ME204L, EE206L, MA 301, EE 303, ME 323, ME 324, EE 303L, EE 303L, MA 401, EE 404, ME 426, ME 427, HU 501, ME 522, ME 526, ME 623, ME 722, ME 821 have scope for improvement. |
| <i>Action 1:</i> To conduct tutorial/remedial classes & clearing the concepts by giving assignments.  |              |                  |   |
| <b>PO3: Design/development of solutions</b>   |              |                  |   |
| <b>PO3</b>  | <b>2.6</b>   | <b>2.58</b>      | The following courses have contributed less towards the attainment of the PO3: PH101, CY102, MA103,   |

|  |            |             |  |
|--|------------|-------------|--|
|  |            |             | CE104, PH201, CY202, MA203, ME204, EE206, ME207, ME204L, ME 323, ME 324, ME 426, ME 427, ME 522, ME 526, ME 623, ME 722, ME 821. Less attainment is due to limited scope in the curriculum.  |
| <i>Action 1:</i> Provide more assignments which involve complex engineering problems.  |            |             |  |
| <b>PO4: Conduct investigations of complex problems</b>   |            |             |  |
| <b>PO4</b>   | <b>2.6</b> | <b>2.59</b> | The following courses have contributed less towards the attainment of the PO4: CY102, CE104, HU105, CY202, ME204, EE206, ME204L, EE206L, ME 323, EE 303L, EE 404, ME 426, ME 522, ME 526, ME 623, ME 722, ME 821. Less attainment is due to limited scope in the curriculum. |
| <i>Action 1:</i> Students are advised to carry out their major and mini projects involving design, experimentation and analysis of data.               |            |             |  |
| <b>PO5: Modern Tool Usage</b>  |            |             |  |
| <b>PO5</b>   | <b>2.6</b> | <b>2.61</b> | Attainment is achieved. However, in courses ME204, ME207, ME 426, ME 522, ME 526 have scope for improvement.   |
| <i>Action 1:</i> Students are encouraged to develop mini projects, attending expert's talks.   |            |             |  |
| <i>Action 2:</i> Students are advised to participate in hands on training.   |            |             |  |
| <i>Action 3:</i> Students are encouraged to use mobile apps to solve complex problems in the class.  |            |             |  |
| <b>PO6: The Engineer and Society</b>   |            |             |  |
| <b>PO6</b>   | <b>2.6</b> | <b>2.70</b> | Attainment is achieved. However, not many courses address PO6. In courses CY102, HU105, CY202, EE206, ME207, HU 501, ME 623 have scope for improvement.  |
| <i>Action 1:</i> Projects relevant to the societal problems needs to be made as a theme.   |            |             |  |
| <b>PO7: Environment and Sustainability</b>   |            |             |  |
| <b>PO7</b>   | <b>2.6</b> | <b>2.71</b> | Attainment is achieved. However, in courses CY102, CY202, EE206, HU 501, ME 722, ME 726 and ME 824 have scope for improvement.   |
| <i>Action 1:</i> Organize guest lectures, seminars on environment and sustainability.  |            |             |  |
| <i>Action 2:</i> Organize student interaction programs with alumni to discuss current technological trends, their impact on environment and solutions. |            |             |  |
| <b>PO8: Ethics</b>   |            |             |  |
| <b>PO8</b>   | <b>2.6</b> | <b>2.67</b> | Attainment is achieved. However, in courses HU105, HU 501, ME 526 and ME 621 have scope for improvement.   |
| <i>Action 1:</i> Organize guest lectures on technical report writing and plagiarism.   |            |             |  |
| <i>Action 2:</i> Encourage students to use ISO and BIS standards in design and fabrication.  |            |             |  |
| <i>Action 3:</i> Educate students to cite the sources properly in the reports/papers.  |            |             |  |
| <b>PO9: Individual and Team Work</b>   |            |             |  |
| <b>PO9</b>   | <b>2.6</b> | <b>2.72</b> | Attainment is achieved. However, in courses CY102L, EE206L, ME 323L, ME 324L, ME 426L,   |

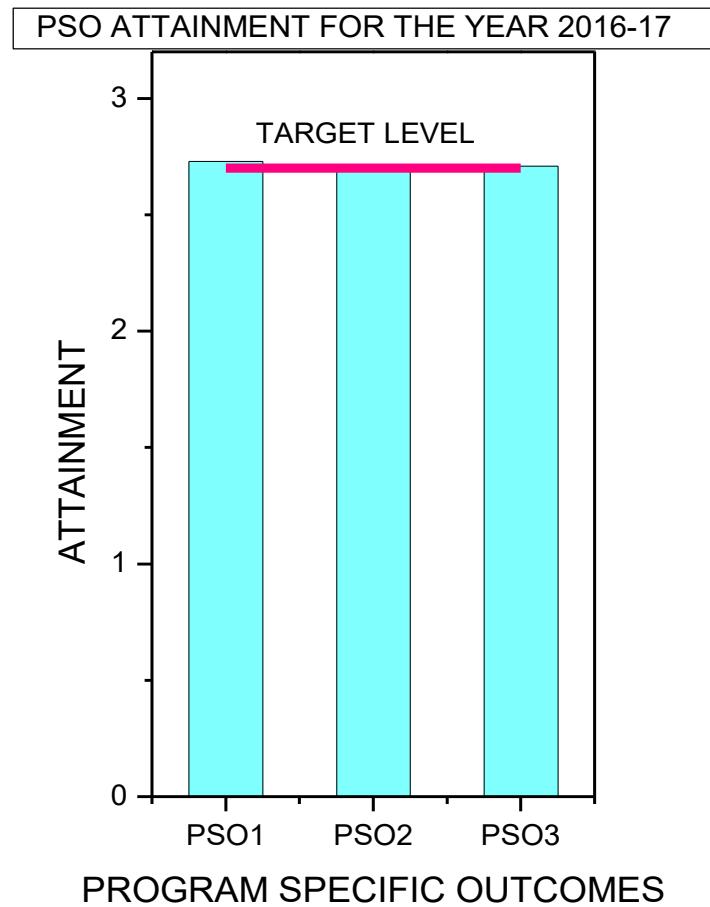
|  |            |             |   |
|--|------------|-------------|---|
|  |            |             | ME 621L, ME 728L and ME 826 have scope for improvement.   |
| <i>Action 1:</i> To encourage team work in final year projects.  |            |             |   |
| <i>Action 2:</i> To encourage in General Proficiency courses.  |            |             |   |
| <i>Action 3:</i> To encourage to participate in social service activities like NSS, Blood Donation camp, Swachh Bharat Mission, and also to present a technical paper in and around the college. |            |             |   |
| <b>PO10: Communication</b>   |            |             |   |
| <b>PO10</b>  | <b>2.6</b> | <b>2.68</b> | Attainment is achieved. However, in courses HU105, HU 402, HU 403, HU 501 have scope for improvement.                                     |
| <i>Action 1:</i> To improve the communication skill training by external resource person is planned.   |            |             |   |
| <i>Action 2:</i> To encourage the students to communicate in English.  |            |             |   |
| <i>Action 3:</i> To encourage the students to summarize the lecture delivered in the class for about 5 minutes after completion of the class.  |            |             |   |
| <b>PO11: Project Management and Finance</b>  |            |             |   |
| <b>PO11</b>  | <b>2.6</b> | <b>2.72</b> | Attainment is achieved. However, in courses Not many courses address PO11. However, in courses HU 501, ME 822 have scope for improvement. |
| <i>Action 1:</i> To encourage the students to organize the technical and cultural activities within a given constraint of finance and resources.   |            |             |   |
| <i>Action 2:</i> To encourage students to carry out their major project with constraints of finance in mind to meet the requirement posed by the department.                                     |            |             |   |
| <b>PO12: Life-long learning</b>  |            |             |   |
| <b>PO12</b>  | <b>2.6</b> | <b>2.66</b> | Attainment achieved. However, not many courses directly addresses PO 12.  |
| <i>Action 1:</i> Organized invited talks, seminars.  |            |             |   |
| <i>Action 2:</i> Creating awareness about the latest development in the industry   |            |             |   |

**Table B7.1c: PSO ATTAINMENT for the year 2016-2017**

| Course code | Course name                                | PSO1  | PSO2  | PSO3  |
|-------------|--|-------|-------|-------|
| PH101       | Engg. Physics-I                            | -     | -     | -     |
| CY102       | Enggg. Chemistry-I                         | -     | -     | -     |
| MA103       | Mathematics-I                              | -     | -     | -     |
| CE104       | Mechanics of solids                        | -     | -     | -     |
| HU105       | Technical Report Writing                   | -     | -     | -     |
| CS107       | Computer Programming                       | 2.725 | 2.725 | 2.725 |
| CE106       | Engineering Graphics-I                     | -     | -     | -     |
| CS107       | Computer Programming lab                   | 2.74  | 2.74  | 2.74  |
| ME108       | Workshop Practice-I                        | 2.93  | 2.93  | 2.93  |
| PH101L      | Engg. Physics-I Lab                        | -     | -     | -     |
| CY102L      | Engg. Chemistry-I Lab                      | -     | -     | -     |
| PH201       | Engg. Physics-II                           | -     | -     | -     |
| CY202       | Advanced Chemistry & Environmental Studies | -     | -     | -     |
| MA203       | Mathematics-II                             |       |       |       |
| ME204       | Engg. Mechanics-I                          | 2.49  | 2.49  | -     |
| EE206       | Basic Electrical Engg& Electronics         | -     | -     | -     |

|         |  |       |       |       |
|---------|--|-------|-------|-------|
| HU      | Sociology  | -     | -     | -     |
| ME207   | Engg Graphics-II   | -     | 2.465 | -     |
| PH201L  | Engg. Physics-II Lab   | -     | -     | -     |
| CY202L  | Advanced Chemistry & environmental studies Lab   | -     | -     | -     |
| ME204L  | EnggMech-I Lab   | 1.89  | 1.89  | 1.89  |
| EE206L  | Basic Electrical Engg& Electronics Lab   | -     | -     | -     |
| MA 301  | Mathematics – III  | 2.51  | 2.51  | 2.51  |
| EE 303  | Electro Technology – I   | 2.58  | 2.58  | 2.58  |
| ME 305  | Basic Thermodynamics   | 2.765 | 2.765 | 2.765 |
| ME 322  | Theory of Machine  | 2.715 | 2.715 | 2.715 |
| ME 323  | Engineering Graphics – III   | 2.427 | 2.427 | 2.427 |
| ME 324  | Mechanics of Material  | 2.535 | 2.535 | 2.535 |
| EE 303L | Electro Technology – I   | 2.41  | 2.41  | 2.41  |
| ME 322L | Theory of Machines   | 3     | 3     | 3     |
| ME 323L | Engineering Graphics – III   | 2.97  | 2.97  | 2.97  |
| ME 324L | Mechanics of Materials   | 3     | 3     | 3     |
| MA 401  | Numerical Methods in Engineering   | 2.34  | 2.34  | 2.34  |
| HU 402  | Accountancy for Engineers (Half [Paper] + Communication & Presentation Skills (Half Paper) | -     | -     | -     |
| EE 404  | Electro Technology – II  | 2.54  | 2.54  | 2.54  |
| ME 425  | Workshop Theory – I  | 2.67  | 2.67  | 2.67  |
| ME 426  | Fluid Mechanics - I  | 2.55  | 2.55  | 2.55  |
| ME 427  | Material Science   | 2.4   | -     | 2.4   |
| EE 404L | Electro Technology – II  | 2.64  | -     | 2.64  |
| ME 425L | Workshop Theory – I  | 2.88  | 2.88  | 2.88  |
| ME 426L | Fluid Mechanics  | 3     | 3     | 3     |
| HU402L  | Communication/Language Lab   | -     | -     | -     |
| HU 501  | Economics & Principle of Management  | -     | -     | -     |
| ME 522  | Mechanism & Dynamics of Machines   | 2.587 | 2.587 | 2.587 |
| ME 523  | Applied Thermodynamics – I   | 2.747 | 2.747 | 2.747 |
| ME 524  | Heat Transfer – I  | 2.783 | 2.783 | 2.783 |
| ME 525  | Instrumentation  | 2.773 | 2.773 | 2.773 |
| ME 526  | Machine Design - I   | 2.41  | 2.41  | 2.41  |
| ME 527  | General Proficiency  | 3     | 3     | 3     |
| ME 522L | Mechanism & Dynamics of Machines   | 3     | 3     | 3     |
| ME 523L | Applied Thermodynamics – I   | 2.92  | 2.92  | 2.92  |
| ME 525L | Instrumentation LAB  | 2.98  | 2.98  | 2.98  |
| ME 524L | Heat Transfer – I LAB  | 2.97  | 2.97  | 2.97  |
| ME 621  | Machine Design - II  | 2.88  | 2.88  | 2.88  |
| ME 622  | Operation Research   | 2.745 | 2.745 | 2.745 |
| ME 623  | Fluid Mechanics – II   | 2.55  | 2.55  | 2.55  |
| ME 624  | Engineering Inspection and Metrology   | 2.86  | 2.86  | 2.86  |
| ME 625  | Workshop Theory – II   | 2.70  | 2.70  | 2.70  |
| ME 626  | Numerical Methods and Computation  | 2.84  | 2.84  | 2.84  |

|   |   |       |       |       |
|---|---|-------|-------|-------|
| ME 627  | General Proficiency   | 2.96  | 2.96  | 2.96  |
| ME 621L   | Machine Design – II LAB   | -     | -     | -     |
| ME 623L   | Fluid Mechanics – II  | 2.99  | 2.99  | 2.99  |
| ME 624L   | Engineering Inspection and Me-<br>trology                                 | 3     | 3     | 3     |
| ME 625L   | Workshop Theory – II  | 2.7   | 2.7   | 2.7   |
| ME 721  | Mechanical Vibration  | 2.94  | 2.94  | 2.94  |
| ME 722  | Applied Thermodynamics – II   | 2.49  | 2.49  | 2.49  |
| ME 723  | Hydraulic Machines  | 2.64  | 2.64  | 2.64  |
| ME 724  | Heat Transfer – II  | -     | -     | -     |
| ME 725  | Elective – I    Refrigeration   | 2.76  | 2.76  | 2.76  |
|   | Machine Tools   |       |       |       |
| ME 726  | Elective – II (Open)<br>Computational Fluid Dynamics and<br>Heat Transfer | 2.9   | 2.9   | 2.9   |
|   | Non Conventional Energy Systems   |       |       |       |
| ME 727L   | Practical Training  | 2.68  | 2.68  | 2.68  |
| ME 728L   | Project – I   | 3     | 3     | 3     |
| ME 821  | Manufacturing Method  | 2.32  | -     | 2.32  |
| ME 822  | Industrial Engg & Management  | 2.8   | 2.8   | 2.8   |
| ME 823  | Internal Combustion Engine  | 2.78  | 2.78  | 2.78  |
| ME 824  | Elective – III Air Conditioning   | 2.745 | 2.745 | 2.745 |
| ME 825  | Elective – IV (Open)<br>Power Plant Technology                            | 3     | 3     | 3     |
|   | Robotics & Applications   | 2.8   | 2.8   | 2.8   |
| ME 826  | Project – II  | 2.97  | 2.97  | 2.97  |
| ME 827  | Viva-Voce   | 2.73  | 2.73  | 2.73  |
| Indirect attainment (present final year students) |   | 2.35  | 2.31  | 2.37  |
| Indirect attainment (last passed out batch)       |   | 2.89  | 2.44  | 2.44  |
| Indirect attainment (Parents & alumni)            |   | 2.85  | 2.85  | 2.92  |
| Direct Avg Attainment                             |   | 2.74  | 2.75  | 2.74  |
| Indirect Avg Attainment                           |   | 2.69  | 2.53  | 2.58  |
| Overall PSO attainment                            |   | 2.73  | 2.71  | 2.71  |



**Fig 16: Histograms showing PSO attainment for the year 2016-17**

**Table B.7.1d: PSO Attainment Level and Observations**

| PSOs  | Target level | Attainment Level | Observations  |
|---|--------------|------------------|---|
| <b>PSO1:</b> Mechanical Engineers would be able to identify, analyze and solve Mechanical Engineering problems as well as problems of allied engineering streams for meaningful implementation. |              |                  |   |
| <b>PSO1</b>   | <b>2.7</b>   | <b>2.73</b>      | Attainment is achieved. However, in courses ME204, ME204L, MA 301, EE 303, ME 323, ME 324, EE 303L, MA 401, EE 404, ME 426, ME 427, ME 522, ME 526, ME 623, ME 722, ME 821 have scope for improvement.        |
| <i>Action 1:</i> Organize interactive lectures for doubt clarification & workshops for better understanding and improving the basic foundation of the students.                                 |              |                  |   |
| <b>PSO2:</b> Mechanical engineers would be able to apply the basic principles of engineering in various engineering problems by engaging themselves in research work.                           |              |                  |   |
| <b>PSO2</b>   | <b>2.7</b>   | <b>2.71</b>      | Attainment is achieved. However, in courses ME204, ME207, ME204L, MA 301, EE 303, ME 323, ME 324, EE 303L, MA 401, EE 404, ME 426, ME 427, ME 522, ME 526, ME 623, ME 722, ME 821 have scope for improvement. |
| <i>Action 1:</i> To motivate students to go for higher studies and engage themselves in research.   |              |                  |   |
| <b>PSO3:</b> Mechanical engineers would be able to cater to the fast changing needs of industry, society and the country.   |              |                  |   |

|   |            |             |   |
|---|------------|-------------|---|
| <b>PSO3</b>   | <b>2.7</b> | <b>2.71</b> | Attainment is achieved. However, in courses ME204L, MA 301, EE 303, ME 323, ME 324, EE 303L, MA 401, EE 404, ME 426, ME 427, ME 522, ME 526, ME 623, ME 722, ME 821 have scope for improvement. |
| <p><i>Action 1:</i> To organise industrial visits to keep pace with the changing advancement in technology.</p> <p><i>Action 2:</i> To organise expert talks to enlighten the students about the recent developments in various fields.</p> |            |             |   |

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

(Academic Audit system/process and its implementation in relation to Continuous Improvement)

Academic audit is faculty driven process carried out to improve quality processes in teaching and learning and thus enhance student success.

**Table B.7.2: Procedures adopted by the department for academic audit**

| <b>Method</b>                                    | <b>Execution</b>  | <b>Auditor</b>                 |
|--|---|--------------------------------|
| Weekly Report                                    | Submission of weekly report of the classes held to the HOD. (Sample copy attached at the bottom of the table)                     | HOD                            |
| Term plan  | a) Academic Calendar<br>b) Subject allocation<br>c) Faculty training<br>d) Work load calculation<br>e) Course file                | HOD, Senior faculties          |
| Teaching Plan                                    | a) Syllabus<br>b) Text books<br>c) Study materials<br>d) Lab manuals<br>e) Lesson plan  | HOD, Senior faculties          |
| Course monitoring                                | a) Class test question paper<br>b) Class test conduct<br>c) Assignment<br>d) Student feedback                                     | HOD, Senior faculties          |
| <b>Support activities</b>                        |   |                                |
| Infrastructure management and equipment purchase | Tender call   | Administrative office          |
| Examination                                      | a) University examinations form fill up<br>b) Conduction of theory and practical examination<br>c) Allocation invigilation duties | Examination cell               |
| Training & Placement (T&P) cell                  | a) Identify company<br>b) Conduct training  | Training and Placement Officer |

|  |                                    |  |
|--|------------------------------------|--|
|  | c) Campus interview and placements |  |
|--|------------------------------------|--|

Subject Code & Name: [ME 821] Manufacturing Methods

Name of Instructor: Dr. Anil Borah

| Date (Class No) | Topic (Keywords)                            | Total Students present | Roll Nos absent & remark if any  | Signature |
|-----------------|---|------------------------|--|-----------|
| 27/3/18 (28)    | Powder Characteristics, Power Fabrication   | 56/67                  | 14(92, 100, 130, 136, 142, 150, 384, 421, 423), 15(510, 514)=11            |           |
| 28/3/18 (29)    | Powder Production                           | 60/67                  | 14(139, 142, 143, 150, 185), 15(510, 514)=7                                |           |
| 30/3/18         | Holiday                                     |                        |  |           |
| 31/3/18 (30)    | Mixing and blending, Briquetting, sintering | 54/67                  | 14(121, 124, 126, 128, 130, 133, 135, 354, 386, 426, 427), 15(510, 514)=13 |           |

Following students have poor attendance (<=60%)

14(51, 96, 115, 129, 137, 138, 139, 140, 143, 325, 421), 15(510, 515)

**Fig 17: Screen shot of a weekly report**

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

**Table B.7.3a: Placement: number, quality placement, core industry, pay packages etc. in 2015**

| Sl. No. | Name of Company                      | Industry type                     |                               | Name                   |
|---------|--------------------------------------|-----------------------------------|-------------------------------|------------------------|
|         |                                      | Software [no. of students placed] | Core [no. of students placed] |                        |
| 1       | TCS                                  | Software[1]                       |                               | Deepjyoti Dutta        |
| 2       | IBM                                  | Software [1]                      |                               | Kawshik Kumar Sar-mah  |
| 3       | TATA ADVANCED SYSTEM LIMITED         |                                   | Core [4]                      | Abhishek Borkotoky     |
| 4       |                                      |                                   |                               | Eashan Saikia          |
| 5       |                                      |                                   |                               | Gaurav Pathak          |
| 6       |                                      |                                   |                               | Manash Malakar         |
| 7       | MAX CEMENT                           |                                   | Core [1]                      | Biplob Kumar           |
| 8       | PREMIUM TRANSMISSION LIMITED         |                                   | Core [2]                      | Jyotirmoy Das          |
| 9       |                                      |                                   |                               | Prem Nath Panjiyar     |
| 10      | ASHOK LEYLAND                        |                                   | Core [3]                      | Niranjan Sureka        |
| 11      |                                      |                                   |                               | Thang Min Lun Simte    |
| 12      |                                      |                                   |                               | Siddharth Bhattacharoy |
| 13      | COFFEE DAY BEVERAGES                 |                                   | Core [1]                      | Abhisek Bora           |
| 14      | BHARAT PETROLEUM CORPORATION LIMITED | Core [PSU] [6]                    |                               | S.Gopi Rao             |
| 15      |                                      |                                   |                               | Ashawari Talukdar      |
| 16      |                                      |                                   |                               | Deepjyoti Dutta        |
| 17      |                                      |                                   |                               | Prithviraj Nath        |
| 18      |                                      |                                   |                               | Biswajit Sarma         |
| 19      |                                      |                                   |                               | Gautam Singha          |
|         | <b>Total</b>                         | <b>2</b>                          | <b>17</b>                     | <b>19</b>              |

**Table B.7.3b: Placement: number, quality placement, core industry, pay packages etc. in 2016**

| Sl. No. | Company                              | Industry type                     |                               | Name                 |
|---------|--------------------------------------|-----------------------------------|-------------------------------|----------------------|
|         |                                      | Software [no. of students placed] | Core [no. of students placed] |                      |
| 1       | TCS                                  | Software [2]                      |                               | Arupjyoti Das        |
| 2       |                                      |                                   |                               | Nibir Saha           |
| 3       | ACCENTURE                            | Software [16]                     |                               | Chandana Pathak      |
| 4       |                                      |                                   |                               | Barnikha Borah       |
| 5       |                                      |                                   |                               | Hudipta Sonowal      |
| 6       |                                      |                                   |                               | Prerna Phukan        |
| 7       |                                      |                                   |                               | Nibir Saha           |
| 8       |                                      |                                   |                               | Aakashdip Das        |
| 9       |                                      |                                   |                               | Arijeet Debnath      |
| 10      |                                      |                                   |                               | Prince Kr. Jain      |
| 11      |                                      |                                   |                               | Sayedur Anchari      |
| 12      |                                      |                                   |                               | Uddalok Kashyap      |
| 13      |                                      |                                   |                               | Bhanita Boro         |
| 14      |                                      |                                   |                               | Satyajit Chakrabarty |
| 14      |                                      |                                   |                               | Barun Barman         |
| 16      | TATA ADVANCED SYSTEMS LIMITED        |                                   | Core[2]                       | Murchana Baruah      |
| 17      |                                      |                                   |                               | Pratik Das           |
| 18      |                                      |                                   |                               | Amit Laskar          |
| 19      |                                      |                                   |                               | Anubhab Dutta        |
| 20      | EVEREADY INDUSTRIES INDIA LIMITED    |                                   | Core[1]                       | Aakash Tayal         |
| 21      |                                      |                                   |                               | Amit Dhar            |
| 22      | BHARAT PETROLEUM CORPORATION LIMITED |                                   | Core [PSU]<br>[2]             | Aakashdip Das        |
| 23      |                                      |                                   |                               | Debaprotim Kashyap   |
| 24      | OIL INDIA LIMITED                    |                                   | Core [PSU]<br>[3]             | Satyajit Chakrabarty |
| 25      |                                      |                                   |                               | Uddalok Kashyap      |
| 26      |                                      |                                   |                               | Barnikha Borah       |
| 27      | EMAMI                                |                                   | Core [6]                      | Kshounish Brahma     |
| 28      |                                      |                                   |                               | Bijit Deka           |
| 29      |                                      |                                   |                               | Prerna Phukan        |
| 30      |                                      |                                   |                               | Pratik Das           |
| 31      |                                      |                                   |                               | Arindam Paul         |
| 32      |                                      |                                   |                               | Gurdas Joon          |
|         | <b>Total</b>                         | <b>18</b>                         | <b>14</b>                     | <b>32</b>            |

**Table B.7.3c: Placement: number, quality placement, core industry, pay packages etc. in 2017**

| Sl No | Name of Company              | Industry type                     |                               | Name                     |
|-------|------------------------------|-----------------------------------|-------------------------------|--------------------------|
|       |                              | Software [no. of students placed] | Core [no. of students placed] |                          |
| 1.    | ACCENTURE                    | Software [14]                     |                               | Samir Choudhury          |
| 2.    |                              |                                   |                               | Jaipyaloan Shyam Bailung |
| 3.    |                              |                                   |                               | Karishma Mittal          |
| 4.    |                              |                                   |                               | Bibhuti Bikash Kagyung   |
| 5.    |                              |                                   |                               | Gourav Banik             |
| 6.    |                              |                                   |                               | Abinash Medhi            |
| 7.    |                              |                                   |                               | Nitiraj Sahariah         |
| 8.    |                              |                                   |                               | Jitumoni Hoque           |
| 9.    |                              |                                   |                               | Mahanubhav Borthakur     |
| 10.   |                              |                                   |                               | Shubham Dey              |
| 11.   |                              |                                   |                               | Madhurjya Pratim Baishya |
| 12.   |                              |                                   |                               | Sumi Das                 |
| 13.   |                              |                                   |                               | Akash Pratim Das         |
| 14.   |                              |                                   |                               | Parineeta Borpujari      |
| 15.   | ASHOK LEYLAND                |                                   | Core [4]                      | Parineeta Borpujari      |
| 16.   |                              |                                   |                               | Sumi Das                 |
| 17.   |                              |                                   |                               | Akash Pratim Das         |
| 18.   |                              |                                   |                               | Subham Dey               |
| 19.   | CUMMINS INDIA                |                                   | Core [2]                      | Mubaraque Ali            |
| 20.   |                              |                                   |                               | Nitiraj Sahariah         |
| 21.   | HUL                          |                                   | Core [1]                      | Paramjeet singh          |
| 22.   | TATA ADVANCED SYSTEM LIMITED |                                   | Core [3]                      | Jitumoni Hoque           |
| 23.   |                              |                                   |                               | Karishma Mittal          |
| 24.   |                              |                                   |                               | Jimpi Anan               |
| 25.   | OIL INDIA                    |                                   | Core [PSU] [5]                | Akashdeep Sharma         |
| 26.   |                              |                                   |                               | Vishal Goswami           |
| 27.   |                              |                                   |                               | Sanjeev Pandit           |
| 28.   |                              |                                   |                               | Jaipyaloan Shyam Bailung |
| 29.   |                              |                                   |                               | Kaushik Das              |
| 30.   | BERGER PAINT                 |                                   | Core [1]                      | Prashant Kumar Parihar   |
| 31.   | IOCL                         |                                   | Core [PSU] [5]                | Bitopan Sarma            |
| 32.   |                              |                                   |                               | Madhurjya Pratim Baishya |
| 33.   |                              |                                   |                               | Abinash Medhi            |
| 34.   |                              |                                   |                               | Nilkamal Saha            |
| 35.   |                              |                                   |                               | Nitya Ranjan Mandal      |
| 36.   | BYJU'S, THINK AND LEARN PVT. | Software [2]                      |                               | Ratan Kumar Jha          |
| 37.   |                              |                                   |                               | Sahin Aktar Laskar       |

|    |                                      |    |                   |                     |
|----|--------------------------------------|----|-------------------|---------------------|
|    | LTD                                  |    |                   |                     |
| 38 | BHARAT PETROLEUM CORPORATION LIMITED |    | Core [PSU]<br>[2] | Abhijit Paul        |
| 39 |                                      |    |                   | Abhinash Kumar Nath |
|    | <b>Total</b>                         | 16 | 23                | 39                  |

**Table B.7.3d: Placement: number, quality placement, core industry, pay packages etc. in 2018 upto April 2018**

| Name of the Organisation             | Sl No | Name of the Student       | Pay Package         | Industry type                     |                               |
|--------------------------------------|-------|---------------------------|---------------------|-----------------------------------|-------------------------------|
|                                      |       |                           |                     | Software [no. of students placed] | Core [no. of students placed] |
| ASHOK LEYLAND                        | 1.    | Mansmit Kalita            | 4 lpa               |                                   | Core [PSU][3]                 |
|                                      | 2.    | Jishnu Sankar Bora        | 4 lpa               |                                   |                               |
|                                      | 3.    | Santanu Chowdhury         | 4 lpa               |                                   |                               |
| HINDUSTAN UNILEVER LIMITED           | 4.    | Agradeep Deb              | 7 lpa               |                                   | Core [1]                      |
| CONCEPT EDUCATION PVT. LTD.          | 5.    | Noor Ahmed Mazarbhuiya    | 3.5 lpa             | Software [1]                      |                               |
| CUMMINS INDIA LIMITED                | 6.    | Ananya Paul               | 5 lpa               |                                   | Core [3]                      |
|                                      | 7.    | Arindam Baishya           | 5 lpa               |                                   |                               |
|                                      | 8.    | Jagriti Kakati            | 5 lpa               |                                   |                               |
| TATA ADVANCED SYSTEMS LIMITED        | 9.    | Sumanta Sarathi Borthakur | 3.93 lpa            |                                   | Core [2]                      |
|                                      | 10.   | Shyamalim Saikia          | 3.93 lpa            |                                   |                               |
| BHARAT PETROLEUM CORPORATION LIMITED | 11.   | Ritusmita Baruah          | 17.3 lpa            |                                   | Core [PSU][4]                 |
|                                      | 12.   | Chayanika Borah           | 17.3 lpa            |                                   |                               |
|                                      | 13.   | Manash Pratim Doley       | 17.3 lpa            |                                   |                               |
|                                      | 14.   | Binayak Laskar            | 17.3 lpa            |                                   |                               |
| INDIAN OIL CORPORATION LIMITED       | 15.   | Jyoti Sagar Medhi         | 16.5 lpa            |                                   | Core [PSU][5]                 |
|                                      | 16.   | Anjali Ladha              | 16.5 lpa            |                                   |                               |
|                                      | 17.   | Monami Bhuyan             | 16.5 lpa            |                                   |                               |
|                                      | 18.   | Rishiraj Mazumdar         | 16.5 lpa            |                                   |                               |
|                                      | 19.   | Hirak Jyoti Das           | 16.5 lpa            |                                   |                               |
| OIL INDIA LIMITED                    | 20.   | Uddiptaa Deka             | 60000 –<br>1,80,000 |                                   | Core [PSU][4]                 |
|                                      | 21.   | Manish Baruah             | 60000 –<br>1,80,000 |                                   |                               |
|                                      | 22.   | Mrinmoy Deka              | 60000 –<br>1,80,000 |                                   |                               |
|                                      | 23.   | Partho Nath               | 60000 –             |                                   |                               |

|  |  |  |                 |          |           |
|--|--|--|-----------------|----------|-----------|
|  |  |  | 1,80,000        |          |           |
|  |  |  | <b>Total=23</b> | <b>1</b> | <b>22</b> |

### Placement Record

| Year  | Core      | Software  | Number of Students Appointed |
|-------|-----------|-----------|------------------------------|
| CAYm3 | <b>17</b> | <b>2</b>  | <b>19</b>                    |
| CAYm2 | <b>14</b> | <b>18</b> | <b>32</b>                    |
| CAYm1 | <b>23</b> | <b>16</b> | <b>39</b>                    |
| CAY   | <b>22</b> | <b>1</b>  | <b>23 (till April 2018)</b>  |

### Higher Studies: Performance in GATE, GRE, GMAT, CAT etc. and admission in premier institutions

#### CAYm2

| Sl No | Name of students | Contact Information                   | Qualifying Exam, Rank | Program Name and Institute address  |
|-------|------------------|---------------------------------------|-----------------------|---|
| 1     | Eashan Saikia    | Email: esaikia@ethz.ch                | GRE, TOEFL            | PhD (Computation Physics)<br>ETH Zurich, Stefano Franscini Platz, 8094, Zurich, Switzerland (2018–21) |
| 2     | Apurba Roy       | 8486085295, apurba.royin@gmail.com    | GATE 722 (2016)       | IIT GUWAHATI, MTECH 2 <sup>ND</sup> YEAR  |
| 3     | Prerna Phukan    | 9085542790, prerna-phukan@gmail.com   | GATE 2789 (2016)      | IIT GUWAHATI, MTECH 2 <sup>ND</sup> YEAR  |
| 4     | Kaushik Ojah     | 7339664717, kaushikojah1994@gmail.com | GATE 901 (2016)       | IIT GUWAHATI, MTECH 2 <sup>ND</sup> YEAR  |
| 5     | Amrita Pathak    | 8133075178, pathakamrita5@gmal.com    | GATE 4725 (2016)      | IIT GUWAHATI, MTECH 2 <sup>ND</sup> YEAR  |
| 6     | Arnab Saikia     | 9706386818, Arnabsaikia1993@gmail.com | GATE 11971 (2016)     | AEC, ME 2 <sup>ND</sup> YEAR  |

#### CAYm1

| Sl No | Name of students       | Contact Information                     | Qualifying Exam  | Program Name and Institute address       |
|-------|------------------------|---|------------------|--|
| 1     | Nibir Saha             | 7663923194, nibir.15@gmail.com          | GATE 787 (2017)  | IIT GUWAHATI, MTECH 1 <sup>ST</sup> YEAR |
| 2     | Sayedur Rahman Anchari | 7002264490, sayedur-rahman177@gmail.com | GATE 2679 (2017) | IIT GUWAHATI, MTECH 1 <sup>ST</sup> YEAR |
| 3     | Murchana Baruah        | 7002582857, murchanaba-ruah01@gmail.com | GATE 2850 (2017) | IIT GUWAHATI, MTECH 1 <sup>ST</sup> YEAR |

|   |                   |  |                   |  |
|---|-------------------|--|-------------------|--|
| 4 | Abhishek Barman   | 8486566038, barman-abhishek121@gmail.com     | GATE 1426 (2017)  | IIT MADRAS ,MTECH 1 <sup>ST</sup> YEAR   |
| 5 | Deepak Hojai      | 8402820557, ho-jaideepak@gmail.com           | GATE              | IIT GUWAHATI, MTECH 1 <sup>ST</sup> YEAR |
| 6 | Niraj Kashyap     | 8638608637, Niraj-kashyap2008.nk@gmail.com   | GATE 24523 (2017) | AEC, ME 1 <sup>ST</sup> YEAR             |
| 7 | Mrinal Kr. Barman | 8471937321, Mrinalku-marbar-man420@gmail.com | GATE 15119 (2017) | AEC, ME 1 <sup>ST</sup> YEAR             |
| 8 | Jimpi Anan        | jimpi1anan2@gmail.com                        | Roll No. ME 17/18 | AEC, ME 1 <sup>ST</sup> YEAR             |

#### Indian Engineering Services Qualified Student (CAYm2)

| Sl No | Name of students | Roll No & Year | Rank |
|-------|------------------|----------------|------|
| 1     | Anindita Goswami | 0217270, 2016  | 82   |

#### Gate/CAT Qualified Students (CAYm1) (Not joined in higher studies)

| Sl No | Name of students | Contact Information       | GATE/CAT rank          |
|-------|------------------|---------------------------|------------------------|
| 1     | Vishal Goswami   | vishalgoswami14@gmail.com | 1147 (GATE)            |
| 2     | Akash Pratim Das | Akash.das8@gmail.com      | 92.93 percentile (CAT) |

#### GATE qualified students (CAY)

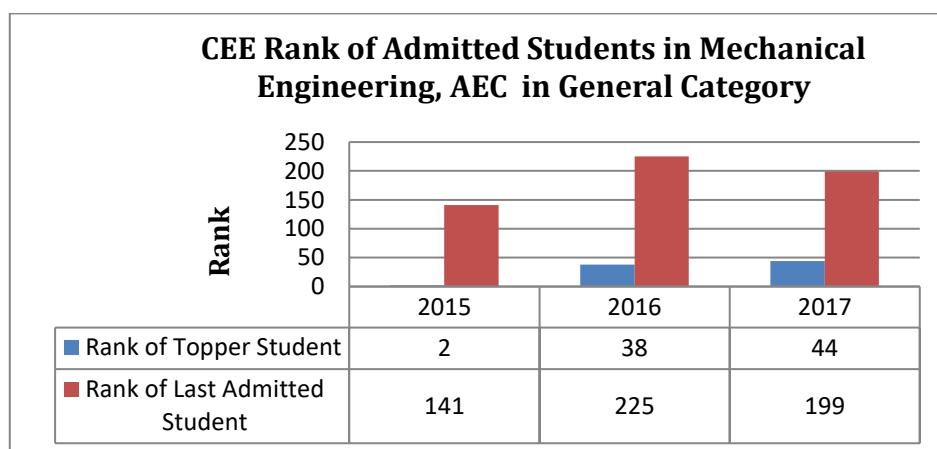
| Sl No | Name of students       | GATE/CAT rank |
|-------|------------------------|---------------|
| 1.    | Mahanubhav Borthakur   | 1808 (GATE)   |
| 2.    | Shubhankar Nath        | 12348 (GATE)  |
| 3.    | Himadri Sikhar Das     | 13583 (GATE)  |
| 4.    | Akash Jyoti Dutta      | 18127 (GATE)  |
| 5.    | Bibhuti Bikash Kagyung | 38801 (GATE)  |
| 6.    | Partho Nath            | 7355 (GATE)   |
| 7.    | Jyoti Sagar Medhi      | 8313 (GATE)   |
| 8.    | Farhanuddin Ahmed      | 15682 (GATE)  |
| 9.    | Anjali Ladha           | 16436 (GATE)  |
| 10.   | Mrinmoy Deka           | 20413 (GATE)  |
| 11.   | Arunav Kar             | 22726 (GATE)  |
| 12.   | Navadeep Kalita        | 22726 (GATE)  |

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

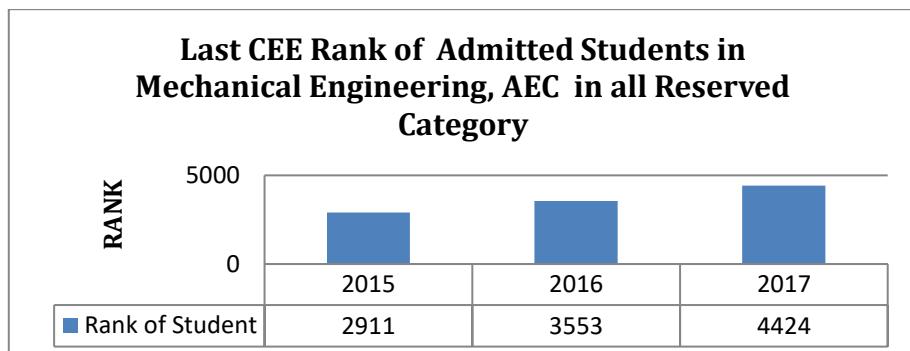
Assessment is based on improvement in terms of ranks/score in qualifying state level/national level entrances tests, percentage marks in Physics, Chemistry and Mathematics in 12th Standard and percentage marks of the lateral entry students.

**Table B.7.4: Name of State Level Entrance Test (Combined Entrance Examination), Physics, Chemistry and Mathematics marks are considered.**

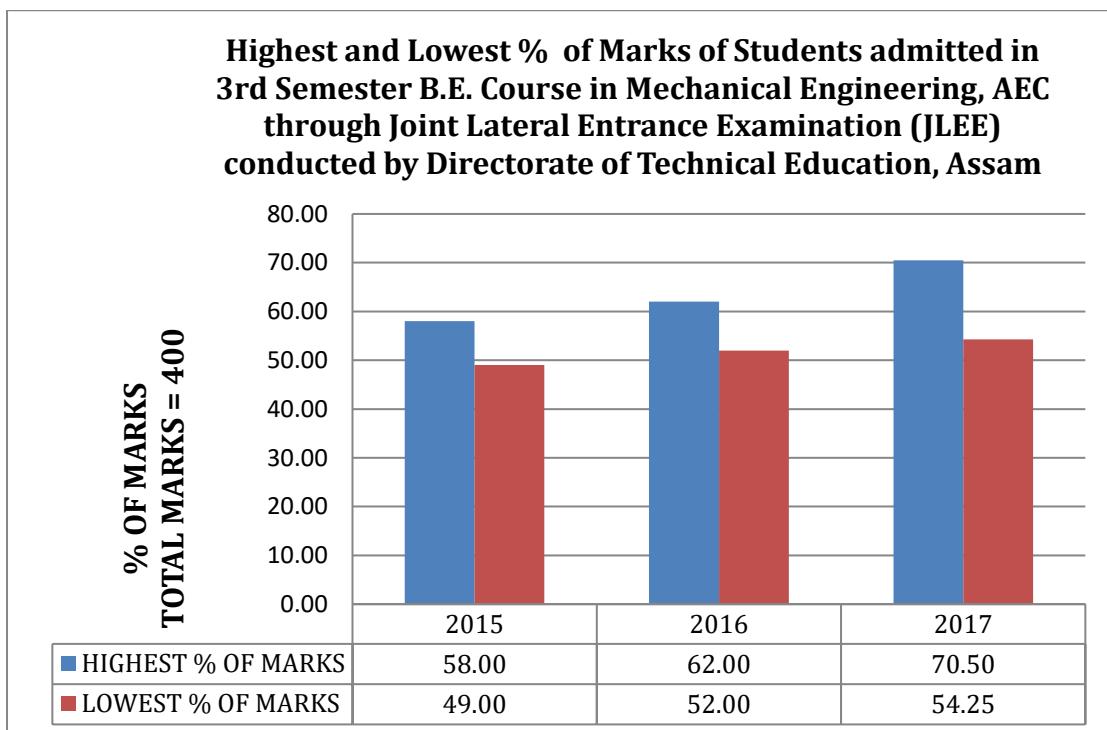
| Item   |                         | CAY   | CAYm1  | CAYm2  |
|--|-------------------------|---|--|--|
| State Level Entrance Examination [Combined Entrance Examination (CEE)]                 | No. of student admitted | 60  | 60   | 60   |
|  | Opening Score/Rank      | 256.2/44                                      | 196/38   | 248/2  |
|  | Closing Score/Rank      | 199/199<br>(Gen)<br>55/4428<br>(all category) | 162/225<br>(Gen)<br>104/3553<br>(all category) | 169/141<br>(Gen)<br>116/2911<br>(all category) |
| Lateral Admission<br>(Assam Joint Lateral Entrance Examination)                        | No. of student admitted | 6   | 6  | 6  |
|  | Opening Score/Rank      | 282/1   | 248/1  | 232/1  |
|  | Closing Score/Rank      | 217/6   | 208/6  | 196/6  |
| Average CBSE/any other Board Results of admitted students (Physics, Chemistry & Maths) |                         | 81.15   | 79.72  | 81.75  |



**Fig 18: Histograms showing CEE rank in general category**



**Fig 19: Histograms showing CEE rank in all reserved category**



**Fig 20: Histograms showing Lateral Entry Category**

|                    |                             |           |
|--------------------|-----------------------------|-----------|
| <b>CRITERION 8</b> | <b>FIRST YEAR ACADEMICS</b> | <b>50</b> |
|--------------------|-----------------------------|-----------|

## 8. FIRST YEAR ACADEMICS (50)

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

Assessment =  $(5 \times 15) / \text{Average FYSFR}$  (Limited to Max. 5) Data

for first year courses to calculate the FYSFR:

**Table B.8.1**

| <b>Year</b>   | <b>Number of students (approved intake strength)</b> | <b>Number of faculty members (considering fractional load)</b> | <b>FYSFR</b> |
|---|--|--|--------------|
| <b>CAY (2017-18)</b>  | 420  | 19.32  | 21.74        |
| <b>CAYm1 (2016-17)</b>  | 420  | 22.87  | 18.36        |
| <b>CAYm2 (2015-16)</b>  | 420  | 24.52  | 17.13        |
| Average   | 19.08  |  |              |
| Assessment = $(5 \times 15) / \text{Average FYSFR}$ (Limited to Max. 5) | <b>3.93</b>  |  |              |

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

Assessment of qualification =  $(5x + 3y) / RF$ ,  $x$  = Number of Regular Faculty with Ph.D,  $y$  = Number of Regular Faculty with Post-graduate qualification  $RF$  = Number of faculty members required as per SFR of 15:1, Faculty definition as defined in 5.1

**Table B.8.2**

| <b>Year</b>            | <b>x</b> | <b>y</b>    | <b>R<br/>F</b> | <b>Assessment of faculty qualification <math>(5x + 3y) / RF</math></b> |
|------------------------|----------|-------------|----------------|--|
| <b>CAY (2017-18)</b>   | 19       | 22          | 28             | 5.75   |
| <b>CAYm1 (2016-17)</b> | 22       | 23          | 28             | 6.39   |
| <b>CAYm2 (2015-16)</b> | 22       | 24          | 28             | 6.50   |
| Average Assessment     |          | <b>6.21</b> |                |  |

### 8.3. First Year Academic Performance (10)

Table B.8.3

| Academic Performance   | CAY<br>(2017-18)        | CAYm1<br>(2016-17) | CAYm2<br>(2015-16) |
|--|-------------------------|--------------------|--------------------|
| Mean of CGPA or Mean Percentage of all successful students (X) | -                       | 5.96               | 6.13               |
| Total no. of successful students (Y)                           | -                       | 66                 | 66                 |
| Total no. of students appeared in the examination (Z)          | -                       | 66                 | 66                 |
| API = x* (Y/Z)   | -                       | 5.96               | 6.13               |
| Average API = (AP1 + AP2 + AP3)/3                              | $(5.96+6.13)/2 = 6.045$ |                    |                    |

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

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

The attainments of COs for a particular course are calculated by equally distributing the average attainment of the course among all the COs. The average attainment is computed by taking 50% weightage from the internal marks and 50% weightage from the University exam. This weighted total for every student is then analyzed to check the % of students scoring more than the set attainment level of the subjects. The % of students scoring more than the attainment level is taken as CO outcome of the course and is expressed in terms of %. The attainment level is different for all the courses. Two attainment levels are set based on the performance of the students in those subjects. Some subjects like chemistry, workshop etc. are high scoring and hence their attainment level is set at 60. For other subjects, the attainment level is set at 50. The same is shown in table B.8.4.

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

Table B.8.4

| Short Code | Long Code | Course Name         | Att. Of CO<br>(2016-2020) | Set attainment Level |
|------------|-----------|---------------------|---------------------------|----------------------|
| 1.1 TS     | PH101     | Engg. Physics       | 81.36                     | 50                   |
| 1.1 P      | PH101L    | Engg. Physics Lab   | 79.66                     | 50                   |
| 1.2 TS     | CY102     | Engg. Chemistry     | 74.60                     | 60                   |
| 1.2 P      | CY102L    | Engg. Chemistry Lab | 100.00                    | 60                   |
| 1.3 TS     | MA103     | Mathematics-I       | 52.50                     | 50                   |
| 1.4 TS     | CE114     | Mechanics of Solids | 86.44                     | 50                   |

| Short Code | Long Code | Course Name                              | Att. Of CO (2016-2020) | Set attainment Level |
|------------|-----------|--|------------------------|----------------------|
| 1.5 TS     | HU105     | Technical Report Writing                 | 79.30                  | 50                   |
| 1.6 PS     | CE117     | Engineering Graphics-I                   | 89.66                  | 50                   |
| 1.7 TS     | CS106     | Computer Programming                     | 87.93                  | 50                   |
| 1.7 P      | CS106L    | Computer Programming Lab                 | 58.62                  | 50                   |
| 1.8 P      | ME108     | Workshop Practice                        | 96.61                  | 60                   |
| 2.1 TS     | PH201     | Engg. Physics-II                         | 67.24                  | 50                   |
| 2.1 P      | PH201L    | Engg. Physics-II Lab                     | 89.66                  | 50                   |
| 2.2 TS     | CY202     | Engg. Chemistry-II                       | 84.48                  | 50                   |
| 2.2 P      | CY202L    | Engg. Chemistry-II Lab                   | 100.00                 | 60                   |
| 2.3 TS     | MA203     | Mathematics-II                           | 71.43                  | 50                   |
| 2.4 TS     | ME224     | Engineering Mechanics I                  | 89.66                  | 50                   |
| 2.4 P      | ME224L    | Engineering Mechanics I Lab              | 93.10                  | 60                   |
| 2.5 TS     | EE245     | Basic Electrical Engg. & Electronics     | 63.80                  | 50                   |
| 2.5 P      | EE245L    | Basic Electrical Engg. & Electronics Lab | 72.41                  | 50                   |
| 2.6 TS     | HU206     | Sociology                                | 84.48                  | 50                   |
| 2.7 PS     | ME227     | Engineering Graphics-II                  | 81.03                  | 50                   |

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

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

The contribution of course in attaining a particular PO is calculated using the formula-

$$\frac{\text{Average CO to PO relevance value}}{100(\text{maximum value})} \times \text{Attainment of CO in \%}$$

Finally, for a particular PO all the values contributed by different courses are averaged up and is reported as the attainment of that particular PO.

**CO-PO mapping of 1<sup>st</sup> year courses**  
*Table B.8.5.1*

| Short Code | Long Code | Course Name         | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO10 | PO11 | PO12 |
|------------|-----------|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1.1 TS     | PH101     | Engg. Physics       | 2.50 | 2.00 |      |      |      |      |      |      |      |      |      |      |
| 1.1 P      | PH101L    | Engg. Physics Lab   | 2.00 |      |      |      |      |      |      |      |      |      |      |      |
| 1.2 TS     | CY102     | Engg. Chemistry     | 2.60 | 1.80 | 1.80 |      |      | 0.80 | 1.40 |      |      |      |      | 1.60 |
| 1.2 P      | CY102L    | Engg. Chemistry Lab | 2.00 | 1.80 |      | 1.00 |      |      |      |      | 1.20 | 1.80 |      |      |
| 1.3 TS     | MA103     | Mathematics-I       | 3.00 | 3.00 | 1.20 | 0.20 |      |      |      |      | 0.20 |      |      | 2.00 |

| Short Code | Long Code | Course Name                              | PO 1  | PO 2  | PO 3  | PO 4  | PO 5  | PO 6  | PO 7  | PO 8  | PO 9  | PO 10 | PO 11 | PO 12 |
|------------|-----------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.4 TS     | CE114     | Mechanics of Solids                      | 2.0 0 | 1.4 0 | 0.8 0 | 0.8 0 | 0.2 0 |       | 0.2 0 |       |       |       |       | 0.6 0 |
| 1.5 TS     | HU105     | Technical Report Writing                 |       | 0.6 0 | 0.6 0 | 0.8 0 |       | 1.4 0 | 1.0 0 | 1.4 0 | 1.6 0 | 2.8 0 | 1.0 0 | 3.0 0 |
| 1.6 PS     | CE117     | Engineering Graphics-I                   | 3.0 0 | 3.0 0 | 2.4 2 | 2.5 7 | 2.1 4 | 2.5 7 | 0.7 1 |       |       |       |       |       |
| 1.7 TS     | CS106     | Computer Programming                     | 2.0 0 | 1.8 0 | 2.4 0 | 1.2 0 | 1.2 0 |       |       |       |       |       |       |       |
| 1.7 P      | CS106 L   | Computer Programming Lab                 | 2.0 0 | 1.8 0 | 2.4 0 | 1.2 0 | 1.2 0 |       |       |       |       |       |       |       |
| 1.8 P      | ME108     | Workshop Practice                        | 1.6 0 | 2.0 0 |       |       |       |       |       |       | 1.0 0 | 1.6 0 |       |       |
| 2.1 TS     | PH201     | Engg. Physics-II                         | 2.5 0 | 2.0 0 |       |       |       |       |       |       |       |       |       |       |
| 2.1 P      | PH201L    | Engg. Physics-II Lab                     | 2.0 0 |       |       |       |       |       |       |       |       |       |       |       |
| 2.2 TS     | CY202     | Engg. Chemistry-II                       | 2.8 0 | 1.8 0 | 1.6 0 | 1.0 0 |       | 1.8 0 | 1.0 0 |       | 1.6 0 | 1.80  |       | 1.00  |
| 2.2P       | CY202L    | Engg. Chemistry-II Lab                   | 2.0 0 | 2.0 0 |       |       |       | 1.2 5 | 1.2 5 |       | 1.0 0 | 1.00  |       |       |
| 2.3 TS     | MA203     | Mathematics-II                           | 3.0 0 | 3.0 0 | 2.0 0 |       |       |       |       |       |       |       |       | 2.0 0 |
| 2.4 TS     | ME224     | Engineering Mechanics I                  | 3.0 0 | 2.0 0 | 2.0 0 | 2.5 0 | 1.8 0 |       |       |       |       |       |       | 1.00  |
| 2.4 P      | ME224L    | Engineering Mechanics I Lab              | 3.0 0 | 1.5 0 | 1.3 0 | 1.8 0 | 1.3 0 |       |       |       |       |       |       | 1.00  |
| 2.5 TS     | EE245     | Basic Electrical Engg. & Electronics     | 3.0 0 | 3.0 0 | 3.0 0 | 2.0 0 | 1.6 0 | 1.0 0 | 3.0 0 | 0.4 0 | 1.0 0 |       |       | 3.0 0 |
| 2.5 P      | EE245L    | Basic Electrical Engg. & Electronics Lab | 3.0 0 | 3.0 0 |       | 1.0 0 |       |       |       |       | 3.0 0 | 0.70  |       | 3.0 0 |

| Short Code | Long Code | Course Name             | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
|------------|-----------|-------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| 2.6 TS     | HU206     | Sociology               |      | 1.00 |      |      |      | 2.00 |      | 2.00 | 1.00 | 1.00  | 1.00  | 3.00  |
| 2.7 PS     | ME227     | Engineering Graphics-II | 3.00 | 3.00 | 1.00 |      | 0.40 | 0.60 |      |      |      |       |       | 1.00  |

**CO-PSO mapping of 1<sup>st</sup> year courses**  
**Table B.8.5.2**

| Sl No. | Short Code | Long Code | Course Name                              | PSO1 | PSO2 | PSO3 |
|--------|------------|-----------|--|------|------|------|
| 1      | 1.1 TS     | PH101     | Engg. Physics                            | -    | -    | -    |
| 2      | 1.1 P      | PH101L    | Engg. Physics Lab                        | -    | -    | -    |
| 3      | 1.2 TS     | CY102     | Engg. Chemistry                          | -    | -    | -    |
| 4      | 1.2 P      | CY102L    | Engg. Chemistry Lab                      | -    | -    | -    |
| 5      | 1.3 TS     | MA103     | Mathematics-I                            | -    | -    | -    |
| 6      | 1.4 TS     | CE114     | Mechanics of Solids                      | -    | -    | -    |
| 7      | 1.5 TS     | HU105     | Technical Report Writing                 | -    | -    | -    |
| 8      | 1.6 PS     | CE117     | Engineering Graphics-I                   | -    | -    | -    |
| 9      | 1.7 TS     | CS106     | Computer Programming                     | 2.8  | 2.8  | 2.8  |
| 10     | 1.7 P      | CS106L    | Computer Programming Lab                 | -    | -    | -    |
| 11     | 1.8 P      | ME108     | Workshop Practice                        | 1.8  | 1.2  | 3    |
| 12     | 2.1 TS     | PH201     | Engg. Physics-II                         | -    | -    | -    |
| 13     | 2.1 P      | PH201L    | Engg. Physics-II Lab                     | -    | -    | -    |
| 14     | 2.2 TS     | CY202     | Engg. Chemistry-II                       | -    | -    | -    |
| 15     | 2.2 P      | CY202L    | Engg. Chemistry-II Lab                   | -    | -    | -    |
| 16     | 2.3 TS     | MA203     | Mathematics-II                           | -    | -    | -    |
| 17     | 2.4 TS     | ME224     | Engineering Mechanics I                  | 2    | 2    | 1.8  |
| 18     | 2.4 P      | ME224L    | Engineering Mechanics I Lab              | 2    | 2    | 1.5  |
| 19     | 2.5 TS     | EE245     | Basic Electrical Engg. & Electronics     | -    | -    | -    |
| 20     | 2.5 P      | EE245L    | Basic Electrical Engg. & Electronics Lab | -    | -    | -    |
| 21     | 2.6 TS     | HU206     | Sociology                                | -    | -    | -    |
| 22     | 2.7 PS     | ME227     | Engineering Graphics-II                  | 2    | 2    | 2    |

**PO attainment for the batch 2016-17**  
**Table B.8.5.3**

| Sl No. | Short Code | Long Code | Course Name                        | PO1   | PO 2  | PO 3  | PO 4  | PO 5  | PO 6  | PO 7  | PO 8  | PO 9  | PO1 0 | PO1 1 | PO1 2 |
|--------|------------|-----------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1      | 1.1 TS     | PH101     | Engg. Physics                      | 2.03  | 1.63  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| 2      | 1.1 P      | PH101 L   | Engg. Physics Lab                  | 1.59  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| 3      | 1.2 TS     | CY102     | Engg. Chemistry                    | 1.94  | 1.34  | 1.34  | -     | -     | 0.6 0 | 1.04  | -     | -     | -     | -     | 1.19  |
| 4      | 1.2 P      | CY102 L   | Engg. Chemistry Lab                | 2.0 0 | 1.8 0 | -     | 1.0 0 | -     | -     | -     | -     | 1.20  | 1.80  | -     | -     |
| 5      | 1.3 TS     | MA103     | Mathematics-I                      | 1.58  | 1.58  | 0.6 3 | 0.11  | -     | -     | -     | -     | 0.11  | -     | -     | 1.05  |
| 6      | 1.4 TS     | CE114     | Mechanics of Solids                | 1.73  | 1.21  | 0.6 9 | 0.6 9 | 0.17  | -     | 0.17  | -     | -     | -     | -     | 0.52  |
| 7      | 1.5 TS     | HU105     | Technical Report Writing           | -     | 0.4 8 | 0.4 8 | 0.6 3 | -     | 1.11  | 0.79  | 1.11  | 1.27  | 2.22  | 0.79  | 2.38  |
| 8      | 1.6 PS     | CE117     | Engineering Graphics-I             | 2.69  | 2.6 9 | 2.17  | 2.3 0 | 1.92  | 2.3 0 | 0.6 4 | -     | -     | -     | -     | -     |
| 9      | 1.7 TS     | CS106     | Computer Programming               | 1.76  | 1.58  | 2.11  | 1.0 6 | 1.06  | -     | -     | -     | -     | -     | -     | -     |
| 10     | 1.7 P      | CS106 L   | Computer Programming Lab           | 1.17  | 1.0 6 | 1.41  | 0.7 0 | 0.7 0 | -     | -     | -     | -     | -     | -     | -     |
| 11     | 1.8 P      | ME108     | Workshop Practice                  | 1.55  | 1.93  | -     | -     | -     | -     | -     | 0.9 7 | 1.55  | -     | -     | -     |
| 12     | 2.1 TS     | PH201     | Engg. Physics-II                   | 1.68  | 1.34  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| 13     | 2.1 P      | PH201 L   | Engg. Physics-II Lab               | 1.79  | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| 14     | 2.2 TS     | CY202     | Engg. Chemistry-II                 | 2.37  | 1.52  | 1.35  | 0.8 4 | -     | 1.52  | 0.8 4 | -     | 1.35  | 1.52  | -     | 0.84  |
| 15     | 2.2P       | CY202 L   | Engg. Chemistry-II Lab             | 2.0 0 | 2.0 0 | -     | -     | -     | 1.25  | 1.25  | -     | 1.0 0 | 1.00  | -     | -     |
| 16     | 2.3 TS     | MA203     | Mathematics-II                     | 2.14  | 2.14  | 1.43  | -     | -     | -     | -     | -     | -     | -     | -     | 1.43  |
| 17     | 2.4 TS     | ME224     | Engineering Mechanics I            | 2.69  | 1.79  | 1.79  | 2.2 4 | 1.61  | -     | -     | -     | -     | -     | -     | 0.90  |
| 18     | 2.4 P      | ME224 L   | Engineering Mechanics I Lab        | 2.79  | 1.4 0 | 1.21  | 1.68  | 1.21  | -     | -     | -     | -     | -     | -     | 0.93  |
| 19     | 2.5 TS     | EE245     | Basic Electrical Engg. & Electron- | 1.91  | 1.91  | 1.91  | 1.28  | 1.02  | 0.6 4 | 1.91  | 0.2 6 | 0.6 4 | -     | -     | 1.91  |

| Sl No. | Short Code | Long Code | Course Name                              | PO1                      | PO 2         | PO 3         | PO 4         | PO 5         | PO 6         | PO 7         | PO 8         | PO 9         | PO1 0        | PO1 1         | PO1 2        |             |
|--------|------------|-----------|--|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|-------------|
|        |            |           | ics                                      |                          |              |              |              |              |              |              |              |              |              |               |              |             |
| 20     | 2.5 P      | EE245 L   | Basic Electrical Engg. & Electronics Lab | 2.17                     | 2.17         | -            | 0.7 2        | -            | -            | -            | -            | 2.17         | 0.51         | -             | 2.17         |             |
| 21     | 2.6 TS     | HU206     | Sociology                                | -                        | 0.8 4        | -            | -            | -            | 1.69         | -            | 1.69         | 0.8 4        | 0.84         | 0.84          | 2.53         |             |
| 22     | 2.7 PS     | ME227     | Engineering Graphics-II                  | 2.43                     | 2.4 3        | 0.8 1        | -            | 0.3 2        | 0.4 9        | -            | -            | -            | -            | -             | 0.81         |             |
|        |            |           |  | <b>Direct attainment</b> | <b>2.0 0</b> | <b>1.6 4</b> | <b>1.3 3</b> | <b>1.1 0</b> | <b>1.0 0</b> | <b>1.2 0</b> | <b>0.9 5</b> | <b>1.0 1</b> | <b>1.1 3</b> | <b>1.32 2</b> | <b>0.8 2</b> | <b>1.39</b> |

\* 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.

**Note:** Add PSOs; if applicable

**Table B.8.5.4**

| Sl No. | Short Code | Long Code | Course Name                              | PSO1                     | PSO2        | PSO3        |             |
|--------|------------|-----------|--|--------------------------|-------------|-------------|-------------|
| 1      | 1.1 TS     | PH101     | Engg. Physics                            | -                        | -           | -           |             |
| 2      | 1.1 P      | PH101L    | Engg. Physics Lab                        | -                        | -           | -           |             |
| 3      | 1.2 TS     | CY102     | Engg. Chemistry                          | -                        | -           | -           |             |
| 4      | 1.2 P      | CY102L    | Engg. Chemistry Lab                      | -                        | -           | -           |             |
| 5      | 1.3 TS     | MA103     | Mathematics-I                            | -                        | -           | -           |             |
| 6      | 1.4 TS     | CE114     | Mechanics of Solids                      | -                        | -           | -           |             |
| 7      | 1.5 TS     | HU105     | Technical Report Writing                 | -                        | -           | -           |             |
| 8      | 1.6 PS     | CE117     | Engineering Graphics-I                   | -                        | -           | -           |             |
| 9      | 1.7 TS     | CS106     | Computer Programming                     | 2.46                     | 2.46        | 2.46        |             |
| 10     | 1.7 P      | CS106L    | Computer Programming Lab                 | -                        | -           | -           |             |
| 11     | 1.8 P      | ME108     | Workshop Practice                        | 1.74                     | 1.16        | 2.90        |             |
| 12     | 2.1 TS     | PH201     | Engg. Physics-II                         | -                        | -           | -           |             |
| 13     | 2.1 P      | PH201L    | Engg. Physics-II Lab                     | -                        | -           | -           |             |
| 14     | 2.2 TS     | CY202     | Engg. Chemistry-II                       | -                        | -           | -           |             |
| 15     | 2.2 P      | CY202L    | Engg. Chemistry-II Lab                   | -                        | -           | -           |             |
| 16     | 2.3 TS     | MA203     | Mathematics-II                           | -                        | -           | -           |             |
| 17     | 2.4 TS     | ME224     | Engineering Mechanics I                  | 1.79                     | 1.79        | 1.61        |             |
| 18     | 2.4 P      | ME224L    | Engineering Mechanics I Lab              | 1.86                     | 1.86        | 1.40        |             |
| 19     | 2.5 TS     | EE245     | Basic Electrical Engg. & Electronics     | -                        | -           | -           |             |
| 20     | 2.5 P      | EE245L    | Basic Electrical Engg. & Electronics Lab | -                        | -           | -           |             |
| 21     | 2.6 TS     | HU206     | Sociology                                | -                        | -           | -           |             |
| 22     | 2.7 PS     | ME227     | Engineering Graphics-II                  | 1.62                     | 1.62        | 1.62        |             |
|        |            |           |  | <b>Direct attainment</b> | <b>1.90</b> | <b>1.78</b> | <b>2.00</b> |

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

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

#### PO Attainment Levels and Actions for improvement - CAY – Mention for relevant POs

#### POs & PSOs Attainment Levels and Actions for improvement – 2017-18

| POs   | Target Level | Attainment Level | Observations  |
|---|--------------|------------------|---|
| <b>PO1: Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.  |              |                  |   |
| <b>PO1</b>  | <b>1.5</b>   | <b>2.00</b>      | <b>Target is achieved</b>   |
| <b>Action 1:</b>  |              |                  |   |
| <b>PO2: Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.   |              |                  |   |
| <b>PO2</b>  | <b>1.5</b>   | <b>1.64</b>      | <b>Target is achieved</b>   |
| <b>Action 1:</b>  |              |                  |   |
| <b>PO3: Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |              |                  |   |
| <b>PO3</b>  | <b>1.5</b>   | <b>1.33</b>      | <b>Not many subjects will contribute to this PO at first year level</b> |
| <b>Action 1:</b>  |              |                  |   |
| <b>PO4: Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.  |              |                  |   |
| <b>PO4</b>  | <b>1.5</b>   | <b>1.10</b>      | <b>Not many subjects will contribute to this PO at first year level</b> |
| <b>Action 1:</b>  |              |                  |   |
| <b>PO5: Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.   |              |                  |   |
| <b>PO5</b>  | <b>1.5</b>   | <b>1.00</b>      | <b>This PO will be addressed more in higher semesters</b>               |
| <b>Action 1:</b>  |              |                  |   |
| <b>PO6: The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to  |              |                  |   |

the professional engineering practice.

|            |            |             |   |
|------------|------------|-------------|---|
| <b>PO6</b> | <b>1.5</b> | <b>1.20</b> | <b>Not many subjects will contribute to this PO at first year level</b> |
|------------|------------|-------------|---|

**Action 1:**

**PO7: Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

|            |            |             |   |
|------------|------------|-------------|---|
| <b>PO7</b> | <b>1.5</b> | <b>0.95</b> | <b>Not many subjects will contribute to this PO at first year level</b> |
|------------|------------|-------------|---|

**Action 1:**

**PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

|            |            |             |   |
|------------|------------|-------------|---|
| <b>PO8</b> | <b>1.5</b> | <b>1.01</b> | <b>Not many subjects will contribute to this PO at first year level</b> |
|------------|------------|-------------|---|

**Action 1:**

**PO9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

|            |            |             |   |
|------------|------------|-------------|---|
| <b>PO9</b> | <b>1.5</b> | <b>1.13</b> | <b>Not many subjects will contribute to this PO at first year level</b> |
|------------|------------|-------------|---|

**Action 1:**

| POs  | Target Level | Attainment Level | Observations  |
|--|--------------|------------------|---|
| <b>PO10: Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |              |                  |   |
| <b>PO10</b>  | <b>1.5</b>   | <b>1.32</b>      | <b>Target is achieved</b>   |
| <b>Action 1:</b>   |              |                  |   |
| <b>PO11: Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.   |              |                  |   |
| <b>PO11</b>  | <b>1.5</b>   | <b>0.82</b>      | <b>Not many subjects will contribute to this PO at first year level</b> |
| <b>Action 1:</b>   |              |                  |   |
| <b>PO12: Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.   |              |                  |   |
| <b>PO12</b>  | <b>1.5</b>   | <b>1.39</b>      | <b>Not many subjects will contribute to this PO at first year level</b> |
| <b>Action 1:</b>   |              |                  |   |
| <b>Similar information is provided for PSOs</b>  |              |                  |   |
| PSOs   | Target Level | Attainment Level | Observations  |
| <b>PSO1:</b> Mechanical Engineers would be able to identify, analyze and solve Mechanical Engineering problems as well as problems of allied engineering streams for meaningful implementation   |              |                  |   |
| <b>PSO1</b>  | <b>1.5</b>   | <b>1.9</b>       | <b>Attained</b>   |
| <b>Action 1:</b>   |              |                  |   |
| <b>PSO2:</b> Mechanical engineers would be able to apply the basic principles of engineering in various engineering problems by engaging themselves in research work   |              |                  |   |
| <b>PSO2</b>  | <b>1.5</b>   | <b>1.78</b>      | <b>Attained</b>   |
| <b>Action 1:</b>   |              |                  |   |
| <b>PSO3:</b> Mechanical engineers would be able to cater to the fast changing needs of industry, society and the country.  |              |                  |   |
| <b>PSO3</b>  | <b>1.5</b>   | <b>2.0</b>       | <b>Attained</b>   |

| Criterion 9 | STUDENT SUPPORT SYSTEMS | 50 |
|-------------|-------------------------|----|
|-------------|-------------------------|----|

## 9. STUDENT SUPPORT SYSTEMS (50)

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

#### **Type of mentoring:**

The institute has mentoring system at department level. The B.E. students are mentored by the faculty members of the respective department. The students are continuously monitored by the mentor in his academic and extra-curricular pursuits. The mentors also do the job of information dissemination to the mentees by keeping in contact with their mentees constantly. The mentors are responsible for the information collection regarding their mentees whenever the department needs some extra information regarding the students. The subject teachers of the department are instructed to inform the mentors, regarding the attendance and performance of the mentees. Any alarming condition is preventively taken care of by the mentors. If the mentors find the matter to be not conclusive at his/her end, then the matter is forwarded to the senior professors/mentors or the HOD. If required the parents/guardians of the mentees are also contacted for discussion regarding the attendance and performance related issues.

The scope of the faculty members in student mentoring is set as mentioned below-

1. To monitor his/her attendance in class and if found irregular discuss the problems with the student and try to find out the solutions.
2. To monitor his/her academic performance in class and if found non-satisfactory, advise the student for improvement. If necessary arrange for remedial classes for the weak subjects in consultation with TEQIP coordinator.
3. Can guide them to do student research project with innovative ideas, write research papers, encourage them to join different national level competitions, encourage and help them to appear for competitive examinations like GATE, UPSC exams etc.
4. To motivate for co-curricular activities like development of different types of hobbies, membership of different clubs, social activities like helping unprivileged and differently abled sections of the society, environmental protection, blood donation, social services etc.
5. Motivate the students to maintain a healthy life by involving themselves with any kind of physical sports and taking balance diet.
6. Ultimately help them to grow as a responsible citizen of the nation and a good human being.

**Number of students per mentor:** Every faculty has been allotted 11/12 nos. of students under his/her mentorship.

**Frequency of meeting:** The frequency of meeting between a mentor and the student is not more than 2 weeks. Apart from the regular meetings, the mentees meet the mentors whenever there is a need for any guidance and counselling, thus enabling the mentors to show the way forward.

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

Feedback is also collected from the students at department level.

### Civil Engineering Department

Feedback collected from the students in the department of Civil Engineering are of two types. The first one is on the course and second one is on the teacher. The course end survey is merged with the first type of feedback and students are asked to write on the contents of the course, whether the students are confident on the COs of the course, what did they like most about the course, what did they hate most about the course and any suggestion for the junior batch. The course instructor then evaluates the feedback forms himself and answers the students if any is required. However, the second feedback form, which is on the course instructor are collected anonymously from the students and the course instructor can't see his/her feedbacks directly. The HoD goes through the feedbacks and take necessary action, if any is required.

| DEPARTMENT OF CIVIL ENGINEERING<br>ASSAM ENGINEERING COLLEGE, GUWAHATI-13                                       |   |              |   |         |   |   |
|---|---|--------------|---|---------|---|---|
| Subject Name: _____   |   |              |   |         |   |   |
| Subject Code: _____   |   |              |   |         |   |   |
| Name of teacher: _____  |   |              |   |         |   |   |
| Performance Appraisal of Class Room Teaching  |   |              |   |         |   |   |
| Dear student,   |   |              |   |         |   |   |
| Please tick the appropriate box honestly. Your input means a lot to improve the quality of class room teaching. |   |              |   |         |   |   |
| Sl. No.   | Element   | Rating Scale |   | Remarks |   |   |
| 1   | Aim/Objective of each lesson made clear                           | 0            | 1 | 2       | 3 | 4 |
| 2   | Teaching techniques are effective                                 | 0            | 1 | 2       | 3 | 4 |
| 3   | Concepts and principles explained with the help of examples       | 0            | 1 | 2       | 3 | 4 |
| 4   | Active student participation ensured in the class                 | 0            | 1 | 2       | 3 | 4 |
| 5   | Questions posed at proper levels                                  | 0            | 1 | 2       | 3 | 4 |
| 6   | Students free to raise doubts/ask questions                       | 0            | 1 | 2       | 3 | 4 |
| 7   | Communication effective   | 0            | 1 | 2       | 3 | 4 |
| 8   | Chalkboard/Presentation work systematic                           | 0            | 1 | 2       | 3 | 4 |
| 9   | Student interest maintained                                       | 0            | 1 | 2       | 3 | 4 |
| 10  | Points up the main points at the end of each class                | 0            | 1 | 2       | 3 | 4 |
| 11  | Planning and preparation for teaching evident                     | 0            | 1 | 2       | 3 | 4 |
| 12  | Confidence in subject matter evident                              | 0            | 1 | 2       | 3 | 4 |
| 13  | Homework/Assignments examined and returned within reasonable time | 0            | 1 | 2       | 3 | 4 |
| 14  | Engages class punctually  | 0            | 1 | 2       | 3 | 4 |

Date: \_\_\_\_\_ Semester: \_\_\_\_\_

Fig. 9.2.1 Sample Feedback survey sheet on teacher

Fig. 9.2.2 Sample course end survey form

Course End Survey  
Transportation Engineering Laboratory-II (CE 613 L)  
B.E. 6th Semester  
Department of Civil Engineering  
Assam Engineering College, Guwahati  
Date: 29th April, 2018

Roll No. \_\_\_\_\_ Name: \_\_\_\_\_

Dear student,  
This questionnaire is prepared to test the quality of the course, Transportation Engineering Laboratory-II (CE 613 L). Your input means a lot. Please fill up very frankly and let us know your confidence in the following outcomes after attending the course.  
On a scale of 0 to 100 please write down your confidence level.  
100-Totally confident, 0-No confidence at all

| Course Objective | After attending this course, you are able to-  | Confidence Level (0 to 100) |
|------------------|--|-----------------------------|
| CO 1             | Justify why a particular test is required for Bitumen i.e., you know why to perform the test         | _____                       |
| CO 2             | Predict in what type of situation or condition the material should be used by looking at the results | _____                       |
| CO 3             | Predict the change in test results for any shortcoming in the test                                   | _____                       |
| CO 4             | Review the test results to find out the limitations in the apparatus/tools used                      | _____                       |
| CO 5             | Judge different results of the test and choose the correct ones                                      | _____                       |
| CO 6             | Relate the consequence of the test protocols to real life situation                                  | _____                       |

1. What did you like most about this course?  
\_\_\_\_\_

2. What did you not like at all about this course?  
\_\_\_\_\_

3. What will you suggest to improve the outcome of this course for the junior batch?  
\_\_\_\_\_

### Mechanical Engineering Department

Department of Mechanical Engineering has a system of taking feedback from students about the course and the concerned teacher. The sample feedback form is attached here under. The concerned teacher can improve his teaching-learning capability by going through the feedback received from the students. The teacher will be able to know the topics in which the students have difficulty in understanding and require more elaborate and further discussions.

MECHANICAL ENGINEERING DEPARTMENT  
ASSAM ENGINEERING COLLEGE, GUWAHATI-13  
FEEDBACK FOR COURSE EVALUATION

**COURSE NAME: (ME 427) Materials Science (Week 01/01/2018 to 10/05/2018)**

**INSTRUCTIONS:**

- Please respond to each statement carefully.
- Do not write your name and roll number.
- Your independent and well-considered responses will contribute to the continuous effort of the teacher to improve teaching and learning process.
- Put a tickmark in the appropriate cell.

**1. About the teacher of the course**

|   | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|-----------------------|--------------|-------------|-----------|--------------------|
| 1. Overall, the teacher was excellent.  |                       |              |             |           |                    |
| 2. The teacher was well prepared for the class.                                 |                       |              |             |           |                    |
| 3. The concepts were explained properly.  |                       |              |             |           |                    |
| 4. Classes were held regularly as per time.                                     |                       |              |             |           |                    |
| 5. The teacher was audible and understandable.                                  |                       |              |             |           |                    |
| 6. Blackboard work/visual presentations were of good quality.                   |                       |              |             |           |                    |
| 7. Topics were covered in a logical sequence.                                   |                       |              |             |           |                    |
| 8. The coverage of the course was complete.                                     |                       |              |             |           |                    |
| 9. Questions and discussions were encouraged.                                   |                       |              |             |           |                    |
| 10. The basic steps and concepts of the topics/problems were explained clearly. |                       |              |             |           |                    |

**2. About the course**

|   | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|-----------------------|--------------|-------------|-----------|--------------------|
| 1. Text books were appropriate for the course.  |                       |              |             |           |                    |
| 2. Reference books available in the library and provide a good support for the course.            |                       |              |             |           |                    |
| 3. A detailed course syllabus along with course plan was provided at the beginning of the course. |                       |              |             |           |                    |
| 4. The course load was very heavy.  |                       |              |             |           |                    |
| 5. The course was highly enjoyable.   |                       |              |             |           |                    |

3. MENTION STRONG AND WEAK POINTS OF THE COURSE/INSTRUCTIONS: (write overleaf)

4. Any suggestion: (write overleaf)

Fig. 9.2.3 Sample Feedback form of ME department

### **Electrical Engineering department**

Two types of feedback are collected from the students in the department of Electrical Engineering that asks them to write on the contents of the course. The first form asks the students whether the laboratory facilities and the course coverage is adequate to meet their requirements for competitive examinations as well as promoting research. The course instructor then evaluates the feedback forms himself and answers the students if any is required. However, the second feedback form, which is on the course instructor are collected anonymously from the students and the course instructor can't see his/her feedbacks directly. The HoD goes through the feedbacks and take necessary action, if any is required.

GOVERNMENT OF ASSAM  
ASSAM ENGINEERING COLLEGE  
ELECTRICAL AND INSTRUMENTATION ENGINEERING DEPARTMENT  
Jalukbari, Guwahati-13, ASSAM

**STUDENT FEEDBACK FORM**

| 1. Name: _____  | 2. Roll No.: _____ |                |          |                   |                |
|---|--------------------|----------------|----------|-------------------|----------------|
| 3. Year of Admission: _____   |                    |                |          |                   |                |
| 4. Please rate the following according to the scale given below (✓ mark)  |                    |                |          |                   |                |
| 1. Strongly Disagree      2. Disagree      3. Somewhat Agree      4. Agree      5. Strongly Agree                             |                    |                |          |                   |                |
| 5. No. Items  |                    |                |          |                   |                |
| Strongly Agree  | Agree              | Somewhat Agree | Disagree | Strongly Disagree | Non Applicable |
| 5   | 4                  | 3              | 2        | 1                 |                |
| 1. Laboratory and computational facilities fulfilled the needs for undergraduate course and career.                           |                    |                |          |                   |                |
| 2. Faculty members were available for all assistance.   |                    |                |          |                   |                |
| 3. Faculty was supportive and provided constructive guidance.   |                    |                |          |                   |                |
| 4. Faculty are competent and well abreast of the course material.   |                    |                |          |                   |                |
| 5. Questions were always encouraged in the classroom.   |                    |                |          |                   |                |
| 6. Soft skills and computational ability were enhanced through classroom teaching, project works and laboratory examinations. |                    |                |          |                   |                |
| 7. Lecture delivery in the class were adequate and helpful for competitive examinations.                                      |                    |                |          |                   |                |
| 8. Laboratory facilities were adequate to promote research.   |                    |                |          |                   |                |
| 9. Academic environment of the department was conducive and motivating towards learning.                                      |                    |                |          |                   |                |
| 10. Course curriculum has helped in developing communication and presentation skills.   |                    |                |          |                   |                |
| What are the strengths of the department: _____   |                    |                |          |                   |                |
| What are the weaknesses of the department: _____  |                    |                |          |                   |                |

**COURSE FEEDBACK FORM**

| Academic year   | Term         | Course No.   | Course Title |                 |         |
|---|--------------|--------------|--------------|-----------------|---------|
| 1. Information on the Respondent (Tick (✓) Appropriately)                         |              |              |              |                 |         |
| 1. Description of classes provided  | 0-20         | 20-40        | 40-60        | 60-80           | 80-100  |
| 2. The expectations of the students from the course are: (Tick (✓) Appropriately) |              |              |              |                 |         |
| a) Enhanced by skill level in the area of specializations                         |              |              |              |                 |         |
| b) Got exposed to a relevant subject  |              |              |              |                 |         |
| c) Curiosity  |              |              |              |                 |         |
| d) Better Employment Opportunities  |              |              |              |                 |         |
| e) Complete Course requirements   |              |              |              |                 |         |
| f) Improve CGPA percentage  |              |              |              |                 |         |
| 3. About the Instructor: (Tick (✓) Appropriately)                                 | A            | B            | C            | D               | E       |
| 1. Coverage of syllabus   |              |              |              |                 |         |
| 2. Organization of the Course   |              |              |              |                 |         |
| 3. Availability of the teacher  |              |              |              |                 |         |
| 4. Availability of text book, study materials                                     |              |              |              |                 |         |
| 5. Usefulness of the prescribed text book   |              |              |              |                 |         |
| 6. Usefulness of tests and assignments  |              |              |              |                 |         |
| 7. Benefits received from the course?   |              |              |              |                 |         |
| 8. Pace of the Teaching Lecture   |              |              |              |                 |         |
| 9. Content of the Subject   |              |              |              |                 |         |
| 10. Clarity of expression   |              |              |              |                 |         |
| 11. Level of preparation  |              |              |              |                 |         |
| 12. Level of interaction  |              |              |              |                 |         |
| 13. Atmosphere outside the class  |              |              |              |                 |         |
| Overall Rating of the Course  | A: Excellent | B: Very Good | C: Good      | B: Satisfactory | E: Poor |
| (Tick off along the perforated line and submit separately)                        |              |              |              |                 |         |
| Name of the student: _____ Roll No.: _____  |              |              |              |                 |         |
| Percentage of classes attended  |              |              |              |                 |         |
| 0-20  | 20-40        | 40-60        | 60-80        | 80-100          |         |

Fig. 9.2.4 Sample course end survey form

Fig. 9.2.5 Sample feedback form on teacher

**Similarly, the system is there for other departments.** A few sample forms from the other departments are appended below-

**Department of Chemical Engineering**  
**Assam Engineering College**  
**Feedback Form**

Semester \_\_\_\_\_ Session \_\_\_\_\_

\*\*Please fill in the points (rating from 1 to 5) as per your opinion for each of the subject below.

| Sl No. | Questionnaire  | Subject Name  | CPI | FOCE | MSC |
|--------|--|---------------|-----|------|-----|
|        |  | Teachers Name |     |      |     |
|        |  | Points        | 1.5 | 1.5  | 1.5 |
| 1.     | How do you rate the contents of the curriculum   |               |     |      |     |
| 2.     | Completes the entire course syllabus in time   |               |     |      |     |
| 3.     | Was the classroom delivery audible and understandable  |               |     |      |     |
| 4.     | Discusses the outcome of class-test in the class   |               |     |      |     |
| 5.     | Helping approach towards varied academic interest  |               |     |      |     |
| 6.     | Helps students in providing study material which is not readily available in the text books                                  |               |     |      |     |
| 7.     | Approach towards developing professional skills/career awareness among students  |               |     |      |     |
| 8.     | Scheduled organization of assignments, class tests and seminars  |               |     |      |     |
| 9.     | Were opportunities provided for questions and discussions  |               |     |      |     |
| 10.    | Helps the students in conducting experiments through set of instructions or demonstrations [For Subjects having Lab Classes] |               |     |      |     |

\*CPI – Chemical Process Industries

Fig. 9.2.6 Feedback sheet for Chemical Engg. Dept.

**COURSE FEEDBACK FORM**

|  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
|--|--------------|------------|-----------------|---------|---|---|---|---|---|-----------------------------|--|--|--|--|--|-------------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|---------------------------------|--|--|--|--|--|---------------------------|--|--|--|--|--|--------------------------|--|--|--|--|--|--------------------------|--|--|--|--|--|--------------------------|--|--|--|--|--|-------------------------------------|--|--|--|--|--|
| Academic year  | Semester     | Course No. | Course title    |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| <b>I. Information on the Respondent: (Tick (✓) Appropriately)</b>  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 1. Percentage of classes attended  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 0-20   | 20-40        | 40-60      | 60-80           | 80-100  |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 2. The expectations of the students from the course are:   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| (a) Enhance by skill base in the area of specializations   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| (b) Get exposed to a relevant subject  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| (c) Curiosity  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| (d) Better Employment Opportunity  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| (e) Complete Course requirements   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| (f) Improve CGPA/percentage  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| <b>II About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)</b>  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>1. Coverage of the syllabus</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Organization of the Course</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Emphasis on fundamentals</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. Availability of text book/study materials</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. Usefulness of tests and assignments</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. Benefit you derived from the course?</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7. Pace of the Teaching lecture</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8. Comment of the Subject</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9. Clarity of expression</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10. Level of preparation</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>11. Level of interaction</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>12. Accessibility outside the class</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> |              |            |                 |         | A | B | C | D | E | 1. Coverage of the syllabus |  |  |  |  |  | 2. Organization of the Course |  |  |  |  |  | 3. Emphasis on fundamentals |  |  |  |  |  | 4. Availability of text book/study materials |  |  |  |  |  | 5. Usefulness of tests and assignments |  |  |  |  |  | 6. Benefit you derived from the course? |  |  |  |  |  | 7. Pace of the Teaching lecture |  |  |  |  |  | 8. Comment of the Subject |  |  |  |  |  | 9. Clarity of expression |  |  |  |  |  | 10. Level of preparation |  |  |  |  |  | 11. Level of interaction |  |  |  |  |  | 12. Accessibility outside the class |  |  |  |  |  |
|  | A            | B          | C               | D       | E |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 1. Coverage of the syllabus  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 2. Organization of the Course  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 3. Emphasis on fundamentals  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 4. Availability of text book/study materials   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 5. Usefulness of tests and assignments   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 6. Benefit you derived from the course?  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 7. Pace of the Teaching lecture  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 8. Comment of the Subject  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 9. Clarity of expression   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 10. Level of preparation   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 11. Level of interaction   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| 12. Accessibility outside the class  |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| Overall rating of the Course   |              |            |                 |         |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |
| A: Excellent   | B: Very Good | C: Good    | D: Satisfactory | E: Poor |   |   |   |   |   |                             |  |  |  |  |  |                               |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |  |  |  |  |                                 |  |  |  |  |  |                           |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                          |  |  |  |  |  |                                     |  |  |  |  |  |

**GOVERNMENT OF ASSAM**  
**ASSAM ENGINEERING COLLEGE**  
**ELECTRONICS & TELECOMMUNICATION ENGINEERING**  
**DEPARTMENT**  
**Jalukbari, Gauhati-13, ASSAM**

**STUDENT FEEDBACK FORM**

|   |  |                      |       |                      |       |                      |                   |
|---|--|----------------------|-------|----------------------|-------|----------------------|-------------------|
| 1. Name _____   | 2. Roll No. _____  |                      |       |                      |       |                      |                   |
| 3. Year of Admission _____  | 4. Branch _____  |                      |       |                      |       |                      |                   |
| 5. Please rate the following according to the scale given below: (1 mark)   |  |                      |       |                      |       |                      |                   |
| 1: Strongly disagree      2: Disagree<br>3: Somewhat agree      4: Agree<br>5: Strongly agree      Not applicable |  |                      |       |                      |       |                      |                   |
| Sl. No.   | Items  | Strongly<br>disagree | Agree | Somewhat<br>disagree | Agree | Strongly<br>disagree | Not<br>applicable |
| a)  | Laboratory and computational facilities fulfilled the needs for undergraduate course and career              |                      |       |                      |       |                      |                   |
| b)  | Faculty members were available for all assistance  |                      |       |                      |       |                      |                   |
| c)  | Faculty was supportive and provided constructive guidance  |                      |       |                      |       |                      |                   |
| d)  | Faculties are competent and well abreast of the course materials   |                      |       |                      |       |                      |                   |
| e)  | Questions were always encouraged in the classroom  |                      |       |                      |       |                      |                   |
| f)  | Soft skills and computational ability were enhanced through classroom teaching, project works and laboratory |                      |       |                      |       |                      |                   |
| g)  | Lecture delivery in the class were adequate and helpful for competitive examinations                         |                      |       |                      |       |                      |                   |
| h)  | Laboratory facilities were adequate to promote research  |                      |       |                      |       |                      |                   |
| i)  | Academic environment of the department was conducive and motivate towards learning                           |                      |       |                      |       |                      |                   |
| j)  | Course curriculum helped you in developing communication and presentation skills                             |                      |       |                      |       |                      |                   |
| 6. What are the strengths of the department:  |  |                      |       |                      |       |                      |                   |
| 7. What are the weaknesses of the department:   |  |                      |       |                      |       |                      |                   |

(Tear off along the perforated line and submit separately.)

Name of the student:

Roll No of the student:

Date:

Signature

Fig. 9.2.7-8 Feedback sheets for E&T Engg. Dept.

### 9.3. Feedback on facilities (5)

The feedback on facilities of the departments are collected at departmental level too.

#### Civil Engineering Department

Students give their feedbacks on the facilities available in the department. This includes all the facilities of the department such as- Classrooms, all the laboratories, drawing hall, departmental office, wifi/Internet, T&P support, mentoring system, departmental library etc. Their suggestions to improve the particular facility is also seek and the same is assessed and taken into consideration. A sample feedback survey form of the same is shown below-

**FEEDBACK ON FACILITIES**  
Department of Civil Engineering  
Assam Engineering College

| Particular                                  | Mark on available facilities<br>(out of 10) | Suggestion to improve the facility |
|---|---|------------------------------------|
| Classrooms                                  |   |                                    |
| Environmental Engg. Lab                     |   |                                    |
| Transportation Engg. Lab                    |   |                                    |
| Geotechnical Engg. Lab                      |   |                                    |
| Strength of Materials Lab                   |   |                                    |
| Surveying Lab                               |   |                                    |
| Departmental Computer Center                |   |                                    |
| Drawing Hall                                |   |                                    |
| Departmental office                         |   |                                    |
| Wifi / Internet                             |   |                                    |
| T&P support in Civil Engineering Department |   |                                    |
| Monitoring system                           |   |                                    |
| Departmental library                        |   |                                    |
| Other Spec:                                 |   |                                    |

|          |       |                     |
|----------|-------|---------------------|
| Roll No. | Name: |                     |
| Date:    |       | Concurrent semester |

Fig. 9.3.1 sample feedback survey sheet on facilities for CE department

### **Mechanical Engineering Department**

The Mechanical Engineering Department has a system of taking feedback from final semester students in the form of graduate survey. Feedbacks from students are taken for facilities in the department. This include computation facility, laboratory facilities etc. Feedbacks from students are also taken for the academic environment, teachers' supportiveness etc. Department critically analyses all the feedback and improve upon these.

  
GOVERNMENT OF ASSAM  
ASSAM ENGINEERING COLLEGE  
MECHANICAL ENGINEERING DEPARTMENT  
Jalukbari, Guwahati-13, ASSAM

| <b>STUDENT SURVEY FORM</b>  |             |                      |           |                      |       |                      |       |                   |                   |
|---|-------------|----------------------|-----------|----------------------|-------|----------------------|-------|-------------------|-------------------|
| 1. Name   | 2. Roll No. | 3. Year of Admission | 4. Branch |                      |       |                      |       |                   |                   |
| 5. Please rate the following according to the scale given below: (v mark)   |             |                      |           |                      |       |                      |       |                   |                   |
| 1: Strongly disagree      2: Disagree<br>3: Somewhat agree      4: Agree<br>5: Strongly agree      Not applicable |             |                      |           |                      |       |                      |       |                   |                   |
| Sl. No.   | Items       |                      |           | Strongly<br>disagree | Agree | Somewhat<br>disagree | Agree | Strongly<br>agree | Not<br>applicable |
|   | a)          | b)                   | c)        |                      |       |                      |       |                   |                   |
|   | d)          | e)                   | f)        |                      |       |                      |       |                   |                   |
|   | g)          | h)                   | i)        |                      |       |                      |       |                   |                   |
|   | j)          |                      |           |                      |       |                      |       |                   |                   |
| 6. What are the strengths of the department:  |             |                      |           |                      |       |                      |       |                   |                   |
| 7. What are the weaknesses of the department:   |             |                      |           |                      |       |                      |       |                   |                   |

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

Fig. 9.3.2 sample feedback survey sheet on facilities for ME department

**Similarly, the system is there for other departments.**

ASSAM ENGINEERING COLLEGE  
CHEMICAL ENGINEERING DEPARTMENT  
Aluakbari-781013

\*\*Departmental Feedback form for the Session.....  
Batch.....

| SI No. | QUESTIONNAIRE   | Poor<br>(1) | Average<br>(2) | Good<br>(3) | Very Good<br>(4) | Excellent<br>(5) |
|--------|---|-------------|----------------|-------------|------------------|------------------|
| 1.     | How do you rate the contents of the curriculum  |             |                |             |                  |                  |
| 2.     | Helping approach towards varied academic interests of students                                      |             |                |             |                  |                  |
| 3.     | Helps students in providing study material which is not readily available in the text books         |             |                |             |                  |                  |
| 4.     | Approach towards developing professional skills/career awareness                                    |             |                |             |                  |                  |
| 5.     | Impact of Industrial Training (as a part of curriculum)   |             |                |             |                  |                  |
| 6.     | Availability of computing facilities  |             |                |             |                  |                  |
| 7.     | Were manuals/data sheets/write-ups etc. available in the Labs?                                      |             |                |             |                  |                  |
| 8.     | Was Lab equipment functional while you were experimenting?  |             |                |             |                  |                  |
| 9.     | Are the lab facilities adequate?  |             |                |             |                  |                  |
| 10.    | Were you given proper assistance in the Lab?  |             |                |             |                  |                  |
| 11.    | Were sufficient number of practical conducted to illustrate important topics of the course content? |             |                |             |                  |                  |

FEEDBACK ON FACILITIES  
Department of Electrical Engineering  
Assam Engineering College

| Particulars                                      | Marks on available facilities<br>(Out of 10) | Suggestions to improve the facility |
|--|--|-------------------------------------|
| Classrooms                                       |  |                                     |
| Basic Electronics and Electrical Engineering Lab |  |                                     |
| Electrical Machines Lab                          |  |                                     |
| Computer Lab                                     |  |                                     |
| Microprocessor Lab                               |  |                                     |
| Digital Electronics Lab                          |  |                                     |
| Control Lab                                      |  |                                     |
| Power Electronics Lab                            |  |                                     |
| Wifi/Internet                                    |  |                                     |
| Departmental Office                              |  |                                     |
| T&F support in Electrical Engineering Department |  |                                     |
| Mentoring System                                 |  |                                     |
| Others (Specify)                                 |  |                                     |

|          |                  |
|----------|------------------|
| Roll No. | Name:            |
| Date:    | Current Semester |

Fig. 9.3.3 sample feedback survey sheet on facilities for Chemical Engg. department

Fig. 9.3.4 sample feedback survey sheet on facilities for Electrical engg department

In the Electronics and Telecommunication department, the feedback on facilities is integrated with other feedback forms.

#### 9.4. Self-Learning (5)

Self-learning capabilities of students are enhanced through various e-learning resources facilities and computing facilities like central computing and supercomputing center and the internet infrastructure created in the institute. In addition, library facilities, multidisciplinary center, laboratories and various other facilities are accessible to the students to enhance their knowledges beyond their curriculum. Students are promoted to go through various training program outside of their curriculum to enhance their skills, curiosity and self-learning capability.

The institute provides the self-facilities mentioned in the following table

| Facilities and material for the self-learning/beyond the syllabus in the department/institution |
|---|
| 1. Central computer center  |
| 2. C-DAC Super computer center  |
| 3. Multidisciplinary Center   |
| 4. Digital library  |
| 5. Access to the journals   |
| 6. Wi-Fi enabled campus   |
| 7. NPTEL  |
| 8. Central library  |

In addition, various activities are conducted in the campus outside the regular teaching learning process.

| <b>Facilities for the self-learning/beyond the syllabus in the department/institution</b> |
|---|
| 1. Annual Technical Festival-Udvabanam  |
| 2. Debate competition   |
| 3. Conduct seminars and workshops   |
| 4. Robotics Club  |
| 5. Energy Club  |
| 6. Group Discussion   |
| 7. Mini project   |
| 8. Professional societies   |
| 9. Entrepreneurship Development Cell  |

### **9.5. Career Guidance, Training, Placement (10)**

Since establishment in 1955, Assam Engineering College (AEC) graduates were in high demand in all sectors all throughout. The Training & Placement Cell (TPC) became an active functional unit of the college from the year 2002. The TPC initiated interaction with various organizations and industries to impress upon them and organize campus recruitments in AEC. Over the years the TPC has been providing opportunities to the students to prove their mettle and caliber in various areas starting from the ICT sectors to the Core industries, and they have been reasonably successful in their ventures. The TPC operates from the Multi-Disciplinary Centre (MDC) complex with its own communication set-up. Besides support from AEC authority, AEC Alumni Association, ex-AECians and present students have contributed towards the acquiring of essential gadgets and maintenance of this Cell. The TPC has been a significant and notable landmark in the history of AEC, and will continue to remain so in the coming years.

TPC also issues request letter for training for 6th semester student, which is compulsory as per syllabus, as many organisation requires a common letter issued by the training and placement cell. TPC comprises of Training and Placement Officer (TPO), Assistant Training and Placement Officer (ATO), Training and Placement Secretary (TPS) who is elected every year by the students of Assam Engineering College in the student union election, Training and Placement Faculty representative (TPFR) from respective departments, Training and Placement Coordinators (TPCor) and office support staff. They are assisted by other TP Coordinators comprising of student representatives from various disciplines.

It is not just concentrating on offering jobs to the students, it has been putting serious efforts to improve the quality of the students by organizing trainings, motivational talks, seminars, workshops, etc. through best-available experts.

TPC has the following facility:

- 5 nos. of Personal Interview Room
- 1 no. of GD Room

- 1 no. of Seminar room with a seating capacity of 100 students with adequate audio and video facility.
- 1 no. of TPO Room
- 1 no. of TPS Room
- Dining Room
- Lecture Room
- Lobby
- Reception

### **Career guidance including counselling for higher studies**

The training cell collects Rs. 1000 each from all the students of 3<sup>rd</sup> and 4<sup>th</sup> year. This money is then utilized for organizing counselling, mock interviews, supplementary classes for placements etc. Most of such classes are taken by T.I.M.E. Pvt. Ltd. The students get huge benefits from such type of classes and boost their confidence levels to face interviews and competitive examinations.

From 12<sup>th</sup> of March, 2018, the newly engaged TEQIP-III faculties of department of Civil Engineering have started coaching for GATE among the 6<sup>th</sup> semester students of Civil Engineering department. Classes are taken every Saturday and Monday of a week and the participation of the students is good.

The campus placement records for the last four years are shown below-

| <b>2017-18</b> |                           |              |           |           |            |                 |            |           |            |            |              |
|----------------|---------------------------|--------------|-----------|-----------|------------|-----------------|------------|-----------|------------|------------|--------------|
| <b>Sl</b>      | <b>Company</b>            | <b>Civil</b> | <b>ME</b> | <b>EE</b> | <b>ChE</b> | <b>E&amp;TE</b> | <b>CSE</b> | <b>IE</b> | <b>IPE</b> | <b>MCA</b> | <b>Total</b> |
| 1              | Rivigo (Passed Out)       | 1            | 0         | 0         | 0          | 0               | 0          | 2         | 0          | 0          | 3            |
| 2              | JUD Ce- ments (P/O)       | -            | 0         | -         | 1          | -               | -          | -         | -          | -          | 1            |
| 3              | Control Print (P/O)       | -            | 0         | -         | 0          | -               | -          | -         | -          | -          | 0            |
| 4              | Ashok Ley- land           | -            | 3         | -         | -          | -               | -          | -         | -          | -          | 3            |
| 5              | Wipro                     | -            | 0         | 3         | -          | 2               | 2          | 0         | -          | -          | 7            |
| 6              | Bureau Veri- tas          | -            | -         | -         | -          | 0               | 0          | -         | -          | -          | 0            |
| 7              | Zola Code                 | 12           | 2         | 6         | 3          | 9               | 0          | 2         | 0          | 3          | 37           |
| 8              | Zaloni                    | -            | -         | -         | -          | 0               | 0          | -         | -          | -          | 0            |
| 9              | Concept                   | 0            | 1         | 0         | 1          | 0               | 0          | 0         | 0          | 0          | 2            |
| 10             | Cummins India             | -            | 4         | -         | -          | -               | -          | -         | -          | -          | 4            |
| 11             | HUL                       | -            | 1         | 1         | 1          | -               | -          | 0         | 0          | -          | 3            |
| 12             | Live Health               | -            | -         | -         | -          | 0               | 0          | -         | -          | -          | 0            |
| 13             | Smartprix                 | -            | -         | -         | -          | 0               | 0          | -         | -          | 0          | 0            |
| 14             | Interview Air             | -            | -         | -         | -          | 1               | 0          | -         | -          | -          | 1            |
| 15             | BPCL                      | 3            | 4         | -         | -          | -               | -          | -         | -          | -          | 7            |
| 16             | Gannon and Dunkerly (P/O) | 1            | -         | -         | -          | -               | -          | -         | -          | -          | 1            |

| 2017-18                  |                    |           |           |           |           |           |           |           |           |           |            |  |
|--------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|--|
| Sl                       | Company            | Civil     | ME        | EE        | ChE       | E&TE      | CSE       | IE        | IPE       | MCA       | Total      |  |
| 17                       | TASL               | -         | 2         | -         | -         | -         | -         | -         | 0         | -         | 2          |  |
| 18                       | Godrej and Boyce   | -         | 0         | -         | -         | -         | -         | -         | -         | -         | 0          |  |
| 19                       | TCS                | 0         | 0         | 1         | 0         | 1         | 0         | 0         | 0         | -         | 2          |  |
| 20                       | IOCL               | 2         | 5         | -         | 4         | -         | -         | -         | -         | -         | 11         |  |
| 21                       | WSP                | 0         | 0         | 0         | -         | -         | -         | -         | -         | -         | 0          |  |
| 22                       | Directi            | -         | -         | -         | -         | -         | 0         | -         | -         | -         | 0          |  |
| 23                       | Patil Group        | -         | -         | -         | -         | -         | -         | -         | -         | -         | 0          |  |
| 24                       | GS Lab             | -         | -         | -         | -         | -         | -         | -         | -         | -         | waiting    |  |
| 25                       | ABCI (P/O)         | 3         | -         | -         | -         | -         | -         | -         | -         | -         | 3          |  |
| 26                       | Berger Paints      | -         | -         | -         | -         | -         | -         | -         | -         | -         | 0          |  |
| 27                       | ITC Foods          | -         | 0         | 1         | -         | -         | -         | -         | -         | -         | 1          |  |
| 28                       | Asian Oil Services | -         | -         | -         | -         | -         | -         | -         | -         | -         | waiting    |  |
| 29                       | Oil India          | 2         | 4         | 2         | -         | -         | -         | -         | -         | -         | 8          |  |
| 30                       | BPCL               | -         | -         | -         | 4         | -         | -         | -         | -         | -         | 4          |  |
| 31                       | Geruda Power       | -         | -         | 1         | -         | -         | -         | -         | -         | -         | 1          |  |
| 32                       | Kalpataru Power Tx | -         | -         | -         | -         | -         | -         | -         | -         | -         | waiting    |  |
| 33                       | MAX Cement         | -         | -         | -         | 2         | -         | -         | -         | -         | -         | 2          |  |
| 34                       | Parking Rhino      | -         | -         | -         | -         | 0         | 4         | -         | -         | 0         | 4          |  |
| <b>Branch-wise total</b> |                    | <b>24</b> | <b>26</b> | <b>15</b> | <b>16</b> | <b>13</b> | <b>06</b> | <b>04</b> | <b>00</b> | <b>03</b> | <b>107</b> |  |

| 2016-17 |                                    |       |    |    |     |      |     |    |      |     |       |  |
|---------|------------------------------------|-------|----|----|-----|------|-----|----|------|-----|-------|--|
| Sl      | Company                            | Civil | ME | EE | ChE | E&TE | CSE | IE | IP E | MCA | Total |  |
| 1       | Techaxis Inc (Passed Out) (Others) | 1     | 0  | 1  | 0   | 2    | 0   | 0  | 0    | 0   | 4     |  |
| 2       | OIL (Passed Out) (Core)            | -     | -  | -  | -   | 1    | -   | 3  | -    | -   | 4     |  |
| 3       | Amazon (Passed Out) (Others)       | 0     | 0  | 1  | 1   | 0    | 1   | 0  | 0    | 0   | 3     |  |
| 4       | Rivigo (Passed Out) (Others)       | 0     | 0  | 0  | 1   | 0    | 0   | 0  | 0    | 0   | 1     |  |
| 5       | Wipro (IT)                         | 0     | 0  | 4  | 0   | 2    | 0   | 0  | 0    | 0   | 6     |  |
| 6       | Accenture (IT)                     | 12    | 14 | 19 | 9   | 7    | 1   | 5  | 0    | 5   | 72    |  |
| 7       | IBM (IT)                           | -     | -  | 12 | -   | 4    | 0   | 1  | -    | 0   | 17    |  |
| 8       | Ashok Leyland (Core)               | -     | 4  | -  | -   | -    | -   | -  | -    | -   | 4     |  |
| 9       | Cummins India (Core)               | -     | 2  | -  | -   | -    | -   | -  | -    | -   | 2     |  |
| 10      | AIS Glass (Core)                   | -     | 0  | 0  | -   | -    | -   | -  | -    | -   | 0     |  |

| 2016-17                  |   |           |           |           |           |           |          |           |          |          |            |
|--------------------------|---|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|----------|------------|
| Sl                       | Company                                     | Civil     | ME        | EE        | ChE       | E&TE      | CSE      | IE        | IP E     | MCA      | Total      |
| 11                       | Avin Networks (IT)                          | 0         | 0         | 1         | 0         | 5         | 0        | 0         | 0        | 0        | 6          |
| 12                       | TASL(Core)                                  |           | 3         | -         | -         | -         | -        | -         | -        | -        | 3          |
| 13                       | Havells India (Core)                        |           | 1         | 2         | -         | -         | -        | -         | -        | -        | 3          |
| 14                       | Hindustan Unilever Ltd (Core)               |           | 1         | 0         | -         | -         | -        | 1         | -        | -        | 2          |
| 15                       | OIL (Core)                                  | 1         | 5         | 1         | -         | 2         | -        | -         | -        | -        | 9          |
| 16                       | British paints(Core)                        | -         | -         | -         | 2         | -         | -        | -         | -        | -        | 2          |
| 17                       | Berger Paints(Core)                         | -         | 1         | -         | 3         | -         | -        | -         | 0        | -        | 4          |
| 18                       | Britania Industries (Core)                  | -         | 0         | 0         | 0         | -         | -        | -         | -        | -        | 0          |
| 19                       | SAP (Core)                                  | -         | -         | -         | -         | 0         | -        | -         | -        | -        | 0          |
| 20                       | Amazon (Others)                             | 0         | 0         | 0         | 0         | 1         | 0        | 0         | 0        | 0        | 1          |
| 22                       | IOCL (Core)                                 | -         | 5         |           | 4         | -         | -        | 3         | -        | -        | 12         |
| 23                       | Huawei (Core)                               | -         | -         | -         | -         | 0         | 0        | -         | -        | -        | 0          |
| 24                       | ITC Foods (Core)                            |           | 0         | 0         | -         | -         | -        | -         | -        | -        | 0          |
| 25                       | RVNL (Core)                                 | 0         | -         | 5         | -         | 1         | -        | -         | -        | -        | 6          |
| 26                       | Dalmia Cements (Core)                       |           | P         | P         | P         |           |          | P         | P        |          | P          |
| 27                       | Josh Technologies (Core)                    | -         | -         | -         | -         | 0         | 0        | -         | -        | 0        | 0          |
| 28                       | ABCI Infrastructures (Passed Out) (Core)    | 5         | -         | -         | -         | -         | -        | -         | -        | -        | 5          |
| 29                       | Genpact (Others)                            | 0         | 0         | 0         | 0         | 0         | 0        | 0         | 0        | 0        | 0          |
| 30                       | ABCI Infrastructures (current Batch) (Core) | 1         | --        | --        | -         | -         | -        | -         | -        | -        | 1          |
| 31                       | Century Ply (Core)                          | -         | -         | -         | 2         | -         | -        | -         | -        | -        | 3          |
| 32                       | Zaloni Technologies(Core)                   | -         | -         | -         | -         | 0         | 0        | -         | -        | -        | 0          |
| 33                       | WSP Parsons Brinckerhoff (Core)             | 0         | 0         | 0         | -         | -         | -        | -         | -        | -        | 0          |
| 34                       | BCPL (Core)                                 | -         | -         | 1         | 10        | -         | -        | 1         | -        | -        | 12         |
| 35                       | BYJU'S (Others)                             | 0         | 2         | 3         | 1         | 1         | 0        | 0         | 0        | 0        | 7          |
| 36                       | Power Grid (Core)                           | -         | -         | 3         | -         | -         | -        | -         | -        | -        | 3          |
| 37                       | BPCL (Core)                                 | -         | 2         | -         | -         | -         | -        | 1         | -        | -        | 3          |
| 38                       | OYO Rooms (others)                          | 0         | 0         | 0         | 0         | 0         | 1        | 0         | 0        | 0        | 1          |
| 39                       | Technowell Services Pvt Ltd. (core)         | -         | -         | -         | -         | -         | 1        | -         | -        | -        | 1          |
| <b>Branch-wise total</b> |   | <b>20</b> | <b>40</b> | <b>54</b> | <b>34</b> | <b>27</b> | <b>2</b> | <b>15</b> | <b>0</b> | <b>5</b> | <b>197</b> |

| 2015-16                  |                                 |           |           |           |           |           |           |          |          |          |            |  |
|--------------------------|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|------------|--|
| Sl                       | Company                         | Civil     | ME        | EE        | ChE       | E&TE      | CSE       | IE       | IPE      | MCA      | Total      |  |
| 1                        | Zaloni                          | -         | -         | -         | -         | -         | 1         | -        | -        | -        | 1          |  |
| 2                        | TCS                             | -         | 2         | 17        | -         | 12        | 5         | 1        | -        | 3        | 40         |  |
| 3                        | Torrecid                        | -         | -         | -         | 2         | -         | -         | -        | -        | -        | 2          |  |
| 4                        | Godrej & B                      | -         | 0         | -         | -         | -         | -         | -        | -        | -        | 0          |  |
| 5                        | Wipro                           | -         | -         | 8         | -         | 4         | 2         | 3        | -        | -        | 17         |  |
| 6                        | TNS                             | -         | -         | 3         | -         | 1         | 0         | 0        | -        | -        | 4          |  |
| 7                        | Accenture                       | 8         | 16        | 13        | 10        | 5         | 2         | 2        | 0        | 2        | 58         |  |
| 8                        | Godrej Consumer Products        | -         | 1W        | 0         | 1W        | -         | -         | 1W       | -        | -        | 3W         |  |
| 9                        | TASL                            | -         | 2         | -         | -         | -         | -         | -        | -        | -        | 2          |  |
| 10                       | Eveready (Regular + Passed out) | -         | 1+2       | -         | 0         | -         | -         | -        | -        | -        | 3          |  |
| 11                       | Genpact                         | 2         | 0         | 1         | 0         | 1         | 1         | 1        | 0        | 0        | 6          |  |
| 12                       | Vodafone                        | -         | -         | -         | -         | 2         | -         | -        | -        | -        | 2          |  |
| 13                       | British Paint (Passed out)      | -         | -         | -         | 2         | -         | -         | -        | -        | -        | 2          |  |
| 14                       | Mu Sigma                        | 0         | 0         | 0         | 0         | 0         | 0         | 0        | 0        | 0        | 0          |  |
| 15                       | BPCL                            | -         | 2         | 1         | -         | -         | -         | -        | -        | -        | 3          |  |
| 16                       | Patil Group (Passed out)        | 2         | -         | -         | -         | -         | -         | -        | -        | -        | 2          |  |
| 17                       | OIL                             | -         | 3         | 2         | 3         | -         | -         | -        | -        | -        | 8          |  |
| 18                       | Huawei                          | -         | -         | -         | -         | 0         | 1         | -        | -        | -        | 1          |  |
| 19                       | Aristocrat Gaming               | -         | -         | -         | -         | 0         | 0         | -        | -        | 0        | 0          |  |
| 20                       | SAP Labs India                  | -         | -         | 0         | -         | 0         | 0         | -        | -        | -        | 0          |  |
| 21                       | SIB n JITs Life                 | 2W        | 0         | 0         | 0         | 0         | 0         | 0        | 0        | 1W       | 3W         |  |
| 22                       | Coffee De Café B                | 2         | 1W        | 0         | 0         | 1         | 0         | 0        | 0        | 0        | 3+1W       |  |
| 23                       | XL Dy-namics                    | 0         | 0         | 0         | 0         | 0         | 0         | 0        | 0        | 0        | 0          |  |
| 24                       | Emami                           | -         | 6         | -         | 2         | -         | -         | 1        | -        | -        | 9          |  |
| 25                       | Power grid                      | -         | -         | 3+1W      | -         | -         | -         | -        | -        | -        | 3+1W       |  |
| <b>Branch-wise total</b> |                                 | <b>14</b> | <b>31</b> | <b>45</b> | <b>19</b> | <b>26</b> | <b>12</b> | <b>8</b> | <b>0</b> | <b>5</b> | <b>160</b> |  |

| 2014-15 |                            |       |    |    |     |      |     |    |     |     |       |  |
|---------|----------------------------|-------|----|----|-----|------|-----|----|-----|-----|-------|--|
| Sl      | Company                    | Civil | ME | EE | ChE | E&TE | CSE | IE | IPE | MCA | Total |  |
| 1       | TCS                        | -     | 1  | 8  | -   | 17   | 3   | 3  | -   | 2   | 34    |  |
| 2       | IBM                        | 2     | 1  | 7  | 2   | 4    | -   | -  | -   | -   | 16    |  |
| 3       | SM GROUP                   | 3     | -  | -  | -   | -    | -   | -  | -   | -   | 3     |  |
| 4       | Tata Ad-vanced Sys-tem Ltd | -     | 4  | -  | -   | -    | -   | -  | -   | -   | 4     |  |
| 5       | GODREJ & B                 | -     | 0  | -  | -   | -    | -   | -  | -   | -   | 0     |  |

| 2014-15                  |                           |           |           |           |          |           |           |          |          |           |            |  |
|--------------------------|---------------------------|-----------|-----------|-----------|----------|-----------|-----------|----------|----------|-----------|------------|--|
| Sl                       | Company                   | Civil     | ME        | EE        | ChE      | E&TE      | CSE       | IE       | IPE      | MCA       | Total      |  |
| 6                        | ZALONI                    | -         | -         | 0         | -        | 1         | 0         | 0        | -        | -         | 1          |  |
| 7                        | L & T Info.               | 0         | 0         | 1         | 0        | 2         | 0         | 0        | 0        | 0         | 3          |  |
| 8                        | WIPRO                     | -         | -         | 6         | -        | 3         | 1         | 1        | -        | 2         | 13         |  |
| 9                        | MAX CE-MENTS              | 2         | 1         | 1         | 1        | -         | -         | 0        | -        | -         | 5          |  |
| 10                       | Vodafone                  | -         | -         | -         | -        | 2         | -         | -        | -        | -         | 2          |  |
| 11                       | KEC                       | 0         | 0         | 0         | -        | -         | -         | -        | -        | -         | 0          |  |
| 12                       | Polycab                   | -         | 0         | 0         | -        | 0         | -         | 0        | 0        | -         | 0          |  |
| 13                       | ATC                       | 1         | 0         | 1         | -        | -         | -         | -        | -        | -         | 2          |  |
| 14                       | Premium Transmission Ltd. | -         | 2         | -         | -        | -         | -         | -        | -        | -         | 2          |  |
| 15                       | Ashok Leyl.               | -         | 3         | -         | -        | -         | -         | -        | -        | -         | 3          |  |
| 16                       | SSDA                      | 0         | 0         | 1         | 0        | 1         | 0         | 2        | 0        | 0         | 4          |  |
| 17                       | Genpact                   | 2         | 0         | 0         | 3        | 2         | 5         | 1        | 0        | 0         | 13         |  |
| 18                       | Patel Engg.               | 8         | -         | -         | -        | -         | -         | -        | -        | -         | 8          |  |
| 19                       | Sehwing Setter            | -         | 1         | -         | -        | -         | -         | -        | -        | -         | 1          |  |
| 20                       | Coffee Day Cafe B         | -         | 1         | 0         | -        | 2         | -         | -        | -        | -         | 3          |  |
| 21                       | INNOFIED Technologies     | -         | -         | -         | -        | -         | 0         | -        | -        | 0         | 0          |  |
| 22                       | Mobisoft Technologies     | -         | -         | -         | -        | -         | 0         | -        | -        | 2         | 2          |  |
| 23                       | Marico                    | -         | 0         | 0         | -        | -         | -         | -        | -        | -         | 0          |  |
| 24                       | XL Dynamics               | 3         | 0         | 0         | 0        | 0         | 0         | 0        | 0        | 0         | 3          |  |
| 25                       | Sling Infocom             | -         | -         | -         | -        | 0         | 0         | -        | -        | 7         | 7          |  |
| 26                       | BPCL                      | -         | 6         | 2         | -        | -         | -         | -        | -        | -         | 8          |  |
| 27                       | Signum I Technology       | -         | -         | -         | -        | -         | 1         | -        | -        | -         | 1          |  |
| 28                       | Federal Bank              | 2         | 0         | 0         | 0        | 1         | 0         | 1        | 0        | 0         | 4          |  |
| 29                       | Gannon Dunkerley          | 3         | -         | -         | -        | -         | -         | -        | -        | -         | 3          |  |
| 30                       | Brigosha Technologies     | -         | -         | -         | -        | -         | 0         | -        | -        | -         | 0          |  |
| 31                       | Future First              | -         | -         | 1         | -        | -         | -         | -        | -        | -         | 1          |  |
| 32                       | Budget Signs              | 1         | 0         | -         | -        | 1         | -         | -        | -        | -         | 2          |  |
| 33                       | Taj Cements               | -         | -         | -         | -        | -         | -         | 0        | -        | -         | 0          |  |
| <b>Branch-wise total</b> |                           | <b>27</b> | <b>20</b> | <b>27</b> | <b>6</b> | <b>36</b> | <b>10</b> | <b>8</b> | <b>0</b> | <b>13</b> | <b>147</b> |  |

## 9.6. Entrepreneurship Cell (5)

The Entrepreneurship Development Cell of Assam Engineering College was set up in the year 2009 and since then it has been working under the guidance of Dr. Damodar Agarwal, HoD, Department of Electrical Engineering.

The Entrepreneurship Development Cell (EDC) of Assam Engineering College is a non-profit student organization that aims to hone, nurture as well as sprout an entrepreneurial spirit among the students and impress upon them a subject of vital importance in the present times- 'self employ-

ment'. Keeping this agenda in mind, the cell has organized various sessions on public speaking as well as case studies, held various prestigious state level B-Plan competitions, been on many industrial tours, interacted with a lot of esteemed industrial experts and has also taken active participation in a lot of related workshops. Spurred by the continuous support of the aspirational AEC crowd, the cell now aims to bolster-up and conduct various sessions, quizzes and competitions to encourage and intrigue the like-minded people and bring them to a common platform.

### **Aims and Objectives of Entrepreneurship Cell**

- The aims and objectives of the Cell are:
- To organize B-Plan Competitions, Lecture Seminars and Start-up Showcases.
- To encourage Students in cultivating ideas and help them to master it.
- To encourage the practical knowledge of latest trends in the world dominated by entrepreneurs.
- With the origination of the EDC-AEC from 2009, it has seen both the dark nights and beautiful days. EDC-AEC during the tenure 2015-2016, 2016-2017 and 2017-18, started to work on the grass root level of the AEC's entrepreneurship environment the following are the activities done by the cell -
- EDC-AEC started conducting weekly sessions on public speaking, brainstorming, case study, BMC model. So, as to share knowledge and help in personality development of the members of the CELL. These networking sessions revived the enthusiastic minds in college premises.
- Then EDC-AEC also arranged startup talks in the college premises in weekly and monthly basis by inviting local, especially, AECian startups and well-known entrepreneurs like Pop-tales, Jaabol, Eventjugaad, TechVariable. The Alumni's success story inspires the budding minds.
- EDC-AEC, under the guidance of Dr. Damodar Agarwal, executed an industrial tour in EXPORT PROMOTION INDUSTRIAL PARK, Amingaon, Guwahati-31. (2015)
- EDC-AEC also encouraged the AECians to participate in Entrepreneurial events in the region. "Jaabol" was the winner (Best Idea) of Parivartan-2016, "Mavin" was the 2nd runner up, all from AEC.
- EDC-AEC, promotes entrepreneurship through various events throughout the academic tenure such as Creatovate (A B-plan competition), Innovation Garage etc.
- EDC-AEC, had collaborations with IIT-GHY, IIT-BOM, NE8-Startups. EDC-AEC helps in promoting entrepreneurship in other regional colleges and also encourage them for forming their own e-cell, like NERIM, GCC, AEI.
- Finally, from 1st April to 2nd April, 2017 EDC-AEC, organized Annual Entrepreneurship Summit- "ERTHNNITI 2017" which is the mega event of the session comprising talk shows by multiple personalities in Entrepreneurial field like Mr. Hironmoy Gogoi, Mr. Amlan

Jyoti Khanikar, Mr. Tanushree Hazarika, Mr. Sanjeev Sarma, Mr. Aditya Jain and many more. It included other events like CREATOVATE phase-II, Bull and Bears (Virtual stock Market), IPL Auction, Business Quiz.

- Orientation program for the newly joined students have been conducted every year to mark the beginning of the new session.
- Josh talks was organized in AEC for the first time and EDC played a vital role in organizing the event. (2018)
- A General Enterprise Tendency Test (GETT) was held to see the tilt of the students of the 6th and 8th semester students towards entrepreneurship. (2018)
- IDEATION BOOT CAMP by NRL was held in the chemical auditorium (2018)
- An awareness workshop on startup activities was held on 7th February 2018

### **Success stories**

The rate of success stories may not be quite high, but the innovative ideas of students are good in number. The two startups whose starting journey started from EDC-AEC are mentioned here-

- **Nexop** – it is the only sales Driven Marketing Agency in North East India. Based in Guwahati, Assam they provide 360-degree Marketing services which include search Engine optimization, Pay Per Click on Google Ad words, Bing etc., Social Media Marketing (facebook, Twitter etc.), Video Marketing, offline Marketing and others.
- **Smash Talk** – it is a fun and entertainment YouTube channel.

In the beginning of the year 2018 a new cell named as the Startup Cell was opened under TEQIP 3, which was merged with the EDC-AEC and a new cell Entrepreneurship Development and Startup Cell (EDSC) was formed which has been working together now under two faculties

- **Dr. Damodar Agarwal (HoD, Electrical Engineering Dept).**
- **Dr. Diganta Goswami (Associate professor, Civil Engineering Dept.)**
- Their guidance has helped a lot to prepare the plan of the upcoming year 2018-19.

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

#### **NCC**

NCC of Assam Engineering College comes under the company of 30 Assam Engineering. It is open for both boys and girls. A Caretaking officer (CTO) is allotted to college and when he undergoes training for 3 months at NCC Officers Training Academy, Kamptee he is promoted to Associate NCC Officer (ANO). Sasanka Sekhar Sarma from Electrical Engineering department is an ANO of the college.

#### **NSS**

NSS is also quite active in the college since 2010 under the leadership of Dr. Pradip Baishya, Assistant Professor, Department of Mechanical Engineering. Under the scheme of NSS, many activities have been organized such as-

- Plantation drive
- Cleanliness drive
- Health and Safety awareness Camp for the urban poor in Pandu slum locality in Guwahati.

### **Other activities-**

**SOVIC-** It is a social service organisation started off with an initiative by a group of enthusiastic and socially committed group of engineering students from Assam Engineering College Guwahati, hailing from diverse backgrounds with a common vision of "A better tomorrow for the backward & less-privileged children".

The organization is established on 28th June, 2013 with all the three districts of Barak Valley as operational areas. The core focuses are helping destitute, orphan, neglected, needy and abandoned children, empowerment of children & women, eliminating child labour and child abuse, combat effectively the exploitation, illiteracy and other evils targeting them, educational reforms etc..We do this through our unique holistic approach that tackles the areas that matters the most to the poor and deprived section of the society without any bias for sex, religion, caste, and creed.

### **Red Ribbon society**

Red ribbon society was founded in 2011 which is responsible for blood donation camps.

A blood donation camp was organized in collaboration with Social Welfare Section of the Assam Engineering College at Assam Engineering College Hospital premises. The event was flagged off by Pradip Baishya, President, Care Assam. The enthusiastic students, alumni, staff & faculty of AEC and members of Care Assam came ahead to achieve a collection of 266 units of blood, which is a record collection in a day for any educational institution. The team from Gauhati Medical College & Hospital which supported the event with the necessary technical resources held at AEC hospital thanked the AEC team & Care Assam for the noble gesture.

### **College week**

Assam Engineering College organizes its annual college week in the later half of the month of January. During the college week various competitions in various disciplines of sports, cultural and literature are held. Various outdoor sports competitions such as Cricket, Football, Tennis, Volleyball, Basketball, Badminton and Athletics are held. These competitions are monitored by the Cricket Secretary, Football Secretary, General Sports Secretary, Minor Games Secretary etc who are the members of the union body and are selected by the student community. Various indoor sports competitions such as carom, table tennis etc are also held during the college week. These competitions are monitored by Boys Common Room Secretary. Cultural events such as solo singing, Chorus, Qawali, Jikir, Borgeet, Drama, Group Dance, Bihu competition etc are held. Cultural secretary arranges these competitions. Debate competition and Quiz Competitions are also organized during college week and it is being hosted by the Debating and Publicity Secretary. Salad Dressing Competition and Flower Decoration Competition are held un-

der the aegis of Girls' Common Room Secretary. Wall magazine competition is also held under the Magazine Secretary.

These competitions showcase the talents of the students. The college week ends with a parade from each of the hostels along with a cultural rally. This marks the foundation day of the college, i.e 25th January. A week long activity thus ends and winners are awarded in a prize distribution ceremony.

### **UDBHAVANAM**

Assam Engineering College, has started organizing the annual technical festival entitled UDBHAVANAM from the year 2012. The two-day technical fest has many exciting events to attract the technical students all over India. Moreover, through this fest we at AEC try to induce young minds of the school students to new technologies and applications. There are events covering every technical department of the college namely, Civil, Mechanical, Electrical, Electronics and Telecommunication, Chemical, Computer Science, Instrumentation and Industrial Production Engineering. In addition to that the Entrepreneurship Development Cell and the Energy Club of AEC also organizes various events. The two-day technical festival promises to deliver a lot to the technical students and open new endeavors through various technologies in the betterment of the society.

### **Pyrokinesis**

The college also organizes a cultural festival called- "Pyrokinesis" in every even semester. It is an effort to enthuse the spirit of technical and cultural exuberance amongst youth. It's a common platform wherein students can showcase their talents and visions. Pyrokinesis encompasses a wide range of events covering all the areas of interest of the youth of this part of the nation, and the variety of the events is something we have always been proud of. From science and technology to entertainment, from information technology to literature pursuits, all the events at Pyrokinesis have constantly set new benchmarks of excellence in organization and participation.

### **Robotics Club**

The Robotics Club of Assam Engineering College is a fraternity, of students whose passions dwell in beholding wires and metal beget a machine that has a brain of its own. The Club offers indispensable guidance, workshops and tutorials along with tools, equipments, components and workspace. It welcomes anyone, with or without prior knowledge, who wishes to be a part of this fraternity. There are no pre-requisites to join because its members believe in the transfer of knowledge, especially that which concerns our precious interest in Robotics. It organizes its annual set of competitions during UDBHAVANAM, the annual technical festival of the institution.

### **Energy Club**

Energy Club is formed with an aim to create awareness about sustainable energy. It is run by the department of Electrical Engineering. Energy club was formed in the year 2012. It orga-

nized a seminar during UDBHAVANAM'2012 in which invited speakers highlighted the various aspects of present scenario of energy in the state.

### **Annual Magazine**

Assam Engineering College also publishes an annual magazine called "AECIAN". It was first published in the year of 1964 and since then every year the students, faculty members and other members of the AEC fraternity is helping in making the magazine a great success.

### **Sports**

Assam Engineering College has as many as 5 grounds for playing various kinds of sports like cricket, football, hockey and other outdoor sports. It has a hard court for basketball and also a hard court for tennis. Courts for volleyball and badminton are also there within the campus. Table Tennis board is available in the common room and in all the hostels for the students. There is a gymnasium hall in the campus which is well equipped with all the modern equipments. Overall it has good sports facility for the students. AEC has always performed well in all the inter college championships.

### **Some other clubs that come under Students' Activity Centre (SAC) are-**

- Art Artist Artworks-Painting club
- AEC Coding club
- AEC Bihu club
- AEC JAM club-Music club
- AEC Literary club
- AEC Media cell-Publicity & Information wing
- AEC Riders' club
- AEC Quiz club
- AEC Drama club
- Flash Point-Photography club
- The best house-Dance club
- The Aspire Community
- SCOPE (Skill Development Cell)
- AEC Science club

|                     |  |            |
|---------------------|--|------------|
| <b>CRITERION 10</b> | <b>GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES</b> | <b>120</b> |
|---------------------|--|------------|

## **10. GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES (120)**

### **10.1. Organization, Governance and Transparency (40)**

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

##### **Vision**

To be an institution for promoting and supporting sustainable development

##### **Mission**

- To prepare technical manpower with knowledge skills and values of sustainability.
- To take up relevant problems of society & industry as projects, research themes for study and to provide technological solutions.

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

Assam Engineering College (AEC) is a state government college and Assam government is its 100% stake holder. AEC is governed by Department of Higher Education (Technical) under the Director of Technical Education, Kahilipara. College activities and policy decisions regarding academic matters are taken by the Academic Council of the college. Members of the Academic Council are Principal (Chairman), Heads of all Departments and Senior Professors.

##### **Functions of Key Administrative Positions**

The functions of various key positions are depicted in Table below-

| <b>Position</b> | <b>Functions</b>  |
|-----------------|---|
| Principal       | <ul style="list-style-type: none"> <li>• Design &amp; define organization structure</li> <li>• Define &amp; delegate responsibilities of various positions in the organization</li> <li>• Ensure periodic monitoring &amp; evaluation, of various processes &amp; sub-processes</li> <li>• Ensure effective purchase procedure</li> <li>• Define quality policy and objectives</li> <li>• Prepare annual budget</li> <li>• Conduct periodic meeting of various bodies such as LMC,</li> </ul> |

| <b>Position</b>               | <b>Functions</b>   |
|-------------------------------|--|
|                               | <p>Standing Committee and Grievances Redressal Committee etc</p> <ul style="list-style-type: none"> <li>• Manage accounts and finance</li> <li>• Office Administration</li> <li>• Compliance with AICTE, DTE &amp; University</li> <li>• Admission</li> </ul>  |
| Administrative Officer        | <ul style="list-style-type: none"> <li>• Liasoning with AICTE, DTE and University</li> <li>• College roster</li> <li>• Service Books</li> <li>• Faculty personal files</li> <li>• Maintain minutes of meeting (all)</li> <li>• Co – ordinate day to day activities of office</li> <li>• Purchase process</li> <li>• AICTE, DTE, SU committee preparation</li> <li>• Annual College budget</li> </ul>   |
| Head of Departments           | <ul style="list-style-type: none"> <li>• Plan and execute academic activities of the department</li> <li>• Maintain discipline and culture in the department</li> <li>• Responsibility for the department cleanliness</li> <li>• Pick and promote strengths of students / faculty / staff</li> <li>• Monitor academic activities of the department</li> <li>• Propose Department Budget</li> <li>• Adhere to QMS Procedures</li> <li>• Maintain records of departmental activities and achievements</li> </ul> |
| I/C Alumni Association        | <ul style="list-style-type: none"> <li>• Formation of student council (SC)</li> <li>• Arrange periodic meetings of SC</li> <li>• Ensure alumni registration</li> <li>• Prepare alumni news letter</li> <li>• Proposing annual budget</li> </ul>  |
| I/C Workshop                  | <ul style="list-style-type: none"> <li>• Smooth running of college workshop</li> <li>• Preparing Material Requirement</li> <li>• Oversee the routine work</li> </ul>   |
| I/C Employee Development cell | <ul style="list-style-type: none"> <li>• Identifying training needs of employees</li> </ul>  |
| Training and                  | <ul style="list-style-type: none"> <li>• Notify the employees about various Employee Develop-</li> </ul>   |

| Position                            | Functions   |
|-------------------------------------|---|
| Placement Officer                   | <p>ment programmes</p> <ul style="list-style-type: none"> <li>• Arrange Employee Development Programmes</li> <li>• Maintain training records</li> <li>• Liaison with industry</li> <li>• Student Training and Placement</li> <li>• Identify and provide for training needs of students</li> <li>• Arrange campus interviews</li> <li>• Proposing annual T &amp; P budget</li> </ul>   |
| I/C Library                         | <ul style="list-style-type: none"> <li>• Plan and execute modus operandi of routine activity of the library</li> <li>• Plan and propose expansion / development</li> <li>• Maintain library discipline and culture</li> <li>• Prepare annual budget for library</li> </ul>  |
| I/C Student Professional Activities | <ul style="list-style-type: none"> <li>• Organize events through students professional societies / chapters</li> <li>• Organize different contests</li> <li>• Encourage student participation</li> <li>• Publication of technical magazine and news letters</li> <li>• Record of student participation and achievements in Co-curricular and extra – curricular activities</li> <li>• Maintain record of such events</li> </ul> |
| I/C Gymnasium/Sports                | <ul style="list-style-type: none"> <li>• Ensure smooth conduct of sports</li> <li>• Ensure proper use of gym</li> <li>• Purchasing of sport items</li> <li>• Encourage students to participate in zonal tournaments</li> <li>• Creation and upkeep of sports facilities</li> <li>• Proposing annual budget</li> </ul>   |
| I/C Counseling Cell                 | <ul style="list-style-type: none"> <li>• Facilitate career guidance to students</li> <li>• Assist students suffering from psychological disorders</li> <li>• Arrange for professional counselors</li> <li>• Maintain record of counseling activities</li> <li>• Student academic counseling</li> <li>• Provide slow-pace programme for weaker students</li> <li>• Arrange remedial classes for weaker students</li> </ul>       |

| Position                            | Name  | Contact Details  |
|-------------------------------------|---|--|
| Principal                           | Dr. Atul Bora   | Phone: +913612570550 ,<br>03612572521(R)<br>Email: principal@aec.ac.in |
| Administrative Officer              | <i>The post is vacant now, the tasks are taken care of by the principal</i> | Phone: +913612570550 ,<br>03612572521(R)<br>Email: principal@aec.ac.in |
| Head of Departments                 | Chemical Engineering  | Prof. Ashok Baruah<br>ashok_baruah@yahoo.com                           |
|                                     | Civil Engineering   | Dr. Palash Jyoti Hazarika<br>pjhaz@rediffmail.com                      |
|                                     | Mechanical Engineering  | Dr. Ranjit Kumar Dutta<br>hellorkdutta@gmail.com                       |
|                                     | Electrical Engineering  | Dr. Damodar Agarwal<br>agarwal_d.ele@aec.ac                            |
|                                     | Computer Science and Engineering  | Mr. Apurba kumar kalita<br>a_kalita@rediffmail.com                     |
|                                     | Electronics and Tele-communications   | Mr. Apurba kumar kalita<br>a_kalita@rediffmail.com                     |
|                                     | Industrial and production Engineering                                       | Dr. Ranjit Kumar Dutta<br>hellorkdutta@gmail.com                       |
|                                     | Instrumentation Engineering   | Dr. Damodar Agarwal<br>agarwal_d.ele@aec.ac                            |
| I/C Alumni Association              | Dr. Pradip Baishya  | baishyapk@gmail.com  |
| I/C Workshop                        | Mr. Binoy Sarma   | besbinoy@gmail.com   |
| Training and Placement Officer      | Dr. Navajit Saikia<br>Dr. Amrita Ganguly                                    | placement@aec.ac.in, training@aec.ac.in                                |
| I/C Library                         | Dr. Jyotika Devi  | d_jyotika@yahoo.co.in  |
| I/C Student Professional Activities | Dr. Amrita Ganguly  | aganguly.ele@aec.ac.in   |
| I/C Gymnasium /Sports               | Prof. Deba Kr. Mahanta  | debamahanta@gmail.com  |
| I/C Counselling Cell                | Dr. Maushumi Barooah  | maushu@gmail.com   |

## **RULES, PROCEDURES, RECRUITMENT AND PROMOTIONAL POLICIES**

The rules and policies regarding recruitment and promotion are as per AICTE and Assam government. The recruitment procedure is conducted by APSC and DTE.

The following committees have been created for smooth functioning of the institution and also to provide quick and efficient solution to various problems that may arise.

**HOSTEL SUPERINTENDENTS (2015-18)**

| Name                      | Designation         | Position                   |
|---------------------------|---------------------|----------------------------|
| Mr. B. Dekaraja           | Asst. Professor     | Superintendent of Hostel 1 |
| Dr. Aroop Bardalai        | Professor           | Superintendent of Hostel 2 |
| Mr. Bhaskar Jyoti Das     | Associate Professor | Superintendent of Hostel 3 |
| Mr. Sasanka Shekhar Sarma | Asst. Professor     | Superintendent of Hostel 4 |
| Dr. Sasanka Borah         | Asst. Professor     | Superintendent of Hostel 5 |
| Mr. Prasanta Choudhury    | Asst. Professor     | Superintendent of Hostel 6 |
| Mr. Madhurjya Baruah      | Asst. Professor     | Superintendent of Hostel 7 |
| Ms. Barnali Gogoi         | Asst. Professor     | Superintendent of Hostel 8 |

**LIBRARY COMMITTEE (2015-2018)**

| Sl. No. | Name of the Member   | Position         | Designation         |
|---------|----------------------|------------------|---------------------|
| 1.      | Dr. Atul Bora        | Chairman         | Principal           |
| 2.      | Dr. Sudip Kumar Deb  | Vice Chairman    | Professor           |
| 3.      | Ms. Jyotika Devi     | Member Secretary | Librarian           |
| 4.      | Dr. Jayanta Pathak   | Member           | Professor           |
| 5.      | Dr. Kalyan Kalita    | Member           | Associate Professor |
| 6.      | Dr. Aroop Bardoloi   | Member           | Associate Professor |
| 7.      | Prof. Runjun Das     | Member           | Associate Professor |
| 8.      | Dr. Navajit Saikia   | Member           | Associate Professor |
| 9.      | Prof. Reeta Goswami  | Member           | Associate Professor |
| 10.     | Dr. Utpal Nath       | Member           | Associate Professor |
| 11.     | Dr. J. K. Nath       | Member           | Associate Professor |
| 12.     | Dr. Farhana Parveen  | Member           | Associate Professor |
| 13.     | Dr. Maushumi Barooah | Member           | Associate Professor |

**MEMBERS OF THE STUDENTS UNION OF ASSAM ENGINEERING COLLEGE, GUWAHATI (2017-18)**

| <b>S. No</b> | <b>Portfolio</b>                          | <b>Name</b>            | <b>Phone No</b> |
|--------------|---|------------------------|-----------------|
| 1.           | GENERAL SECRETARY                         | Abinash Medhi          | 9678115894      |
| 2.           | ASSISTANT GENARAL SECRETARY               | Udipta P. Goswami      | 7086692798      |
| 3.           | SOCIAL WELFARE SECRETARY                  | Shahrukh Zaman Siddiki | 9706350222      |
| 4.           | TRAINING AND PLACEMENT SECRETARY          | Subham Kumar Daftery   | 9401794056      |
| 5.           | CULTURAL SECRETARY                        | Bedanta Bikram Borah   | 9435081073      |
| 6.           | MAGAZINE SECRETARY                        | Debatosh Bhowmik       | 8473007137      |
| 7.           | MINOR GAMES SECRETARY                     | Keshab Sharma          | 8761885099      |
| 8.           | CRICKET SECRETARY                         | Bijit Roy              | 9706481701      |
| 9.           | FOOTBALL SECRETARY                        | K. Newton Rongmei      | 7576897394      |
| 10.          | GENERAL SPORTS SECRETARY                  | Rahul Kumar            | 9401981073      |
| 11.          | BOY'S COMMON ROOM SECRETARY               | Gourab Hazarika        | 8255022271      |
| 12.          | DEBATING AND PUBLICITY SECRETARY          | Bishal Pratim Nath     | 7035913337      |
| 13.          | TENNIS SECRETARY                          | Udipta Bharali         | 8822418699      |
| 14.          | GYMNASIUM & KABADI SECRETARY              | Prandeep Saikia        | 7663096092      |
| 15.          | GIRLS' COMMON ROOM SECRETARY(uncontested) | Resham Narzary         | 8486674629      |

**MEMBERS OF THE STUDENTS UNION OF ASSAM ENGINEERING COLLEGE, GUWAHATI (2016-17)**

| <b>S. No</b> | <b>Portfolio</b>         | <b>Name</b>         | <b>Phone No</b> |
|--------------|--------------------------|---------------------|-----------------|
| 1.           | GENERAL SECRETARY        | DEEP JYOTI KALITA   | 8011265257      |
| 2.           | CULTURAL SECRETARY       | JEWELL DEV SARMAH   | 8723819530      |
| 3.           | SOCIAL WELFARE SECRETARY | PRANJAL KR,SAIKIA   | 8876371354      |
| 4.           | MAGAZINE SECRETARY       | PALLAV PRATIM GAYAN | 8486581816      |
| 5.           | MINOR GAMES SECRETARY    | RIDIP DUTTA         | 887664004<br>2  |
| 6.           | CRICKET SECRETARY        | BIKASH RANJAN DAS   | 7086238755      |
| 7.           | FOOTBALL SECRETARY       | AKASH JYOTI DUTTA   | 7896594881      |

| S. No | Portfolio                         | Name               | Phone No   |
|-------|-----------------------------------|--------------------|------------|
| 8.    | TRAINING AND PLACE-MENT SECRETARY | SUDARSHAN SAIKIA   | 9707845119 |
| 9.    | ASSISTANT GENARAL SECRETARY       | NABADEEP KALITA    | 8403087575 |
| 10.   | GENERAL SPORTS SECRETARY          | AJOY DOLEY         | 8011999117 |
| 11.   | BOY'S COMMON ROOM SECRETARY       | SACHANKA SAIKIA    | 9678240379 |
| 12.   | DEBATING AND PUBLICITY SECRETARY  | BHARAT GOGOI       | 9706223634 |
| 13.   | TENNIS SECRETARY                  | DAVID PRATIM GOGOI | 9613005399 |
| 14.   | GYMNASIUM & KABADI SECRETARY      | JADOB KRO          | 8486760867 |
| 15.   | GIRLS'COMMON ROOM SECRETARY       | HIMASHREE DEKA     | 9859042648 |

**PROFESSOR IN CHARGE OF AECSU (2017-18)**

| Sl. No. | Position                | Name of the Member                              | Designation   |
|---------|-------------------------|---|---|
| 1       | President               | Dr Atul Bora                                    | Principal, AEC  |
| 2       | Vice President          | Dr. Aroop Kr. Bardalai                          | Professor EE  |
| 3       | Treasurer               | Dr. Utpal Nath                                  | Asstt. Prof. Chemistry, AEC                           |
| 4       | Magazine Section AECIAN | Dr. Satyajit Bhuyan                             | Associate Prof. EE, AEC                               |
| 5       | Social Welfare Section  | Prof. Sasanka Shekhar Sarma                     | Asstt. Professor EE, AEC                              |
| 6       | Music Cultural Section  | 1)Dr. Jayanta Pathak<br>2) Dr. Moushumi Barooah | Professor CE, AEC<br>Professor MCA, AEC               |
| 7       | Minor Games Section     | Dr. B.K. Talukdar                               | Associate Prof. EE, AEC                               |
| 8       | Cricket Section         | Prof. Bhaskar Jyoti das                         | Associate Prof. CE, AEC                               |
| 9       | Training & Placement    | 1)Dr. Navajit Saikia<br>2)Dr. Amrita Ganguli    | Asstt. Professor E&TC, AEC<br>Associate Prof. EE, AEC |

| <b>Sl. No.</b> | <b>Position</b>              | <b>Name of the Member</b> | <b>Designation</b>              |
|----------------|------------------------------|---------------------------|---------------------------------|
| 10             | Football Section             | Prof. Madhurjya Boruah    | Asstt. Professor ME, AEC        |
| 11             | Boy's Common Room Section    | Prof. Biswanath Dekaraja  | Asstt. Professor EE, AEC        |
| 12             | Debating & Publicity Section | Dr. S.K. Deb              | Professor ME, AEC               |
| 13             | Gymnasium Section            | Prof. Deba Kr. Mahanta    | Asstt. Professor EE, AEC        |
| 14             | Tennis Section               | Dr. Jutika Goswami        | Asstt. Professor Chemistry, AEC |
| 15             | General Sports Section       | Prof. Sasanka Borah       | Asstt. Professor CE, AEC        |
| 16             | Girls Common Room            | Prof. Barnali Gogoi       | Asstt. Professor MCA, AEC       |

### **COMMITTEE OF COUNSELORS FOR STUDENTS (2015-18)**

| <b>Sl. No.</b> | <b>Position</b>        | <b>Name of the Member</b>            | <b>Designation</b> |
|----------------|------------------------|--------------------------------------|--------------------|
| 1              | Prof. Maushumi Barooah | Professor, MCA, AEC                  | Chair Person       |
| 2              | Dr. Sangeeta Goswami   | Clinical counseling Psychologist     | Expert             |
| 3              | Dr. S.K. Deb           | Professor, AEC                       | Member             |
| 4              | Dr. Runumi Sarma       | Professor, EE, AEC                   | Member             |
| 5              | Prof. Runjun Das       | Associate Professor, Chem. Engg, AEC | Member             |

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

A well decentralized pattern of working is followed at AEC. Though the Principal is the academic head of the institution, many of his powers are delegated to Heads of Departments and other officers for efficient functioning. The Heads of Departments are in charge of their departments. The delegation of power among various officers is as given below.

- HOD, CE - In charge of Department of Civil Engineering
- HOD, ME - In charge of Department of Mechanical Engineering
- HOD, EE - In charge of Department of Electrical Engineering
- HOD, CSE – In charge of Department of Computer Science & Engineering
- HOD, CHE - In charge of Department of Chemical Engineering
- HOD, E&T – In charge of Department of Electronics and Telecommunication

## Engineering

- HOD, IE- In charge of Department of Instrumentation Engineering
- HOD, IPE - In charge of Department of Industrial & Production Engineering
- HOD, MCA - In charge of Department of Master of Computer Application
- HOD, Physics - In charge of Department of Physics
- HOD, Chemistry – In charge of Department of Chemistry
- HOD, Mathematics – In charge of Department of Mathematics
- HOD, Humanities - In charge of Department of Humanities
- Placement officer – Placement, Soft Skill Development, Public Relations

Departments are provided with 'Department Fund' and 'Petty Cash a/c' which can be utilized for student welfare, facility maintenance and minor purchases.

Grievances can be directed to the Staff Secretary who will bring it to the notice of the Academic council wherein it is discussed and suitable solutions arrived at. Complaints regarding infrastructure can be registered through an online complaint register. Suggestion box is kept outside the office of the Principal, in which staff and students can deposit their grievances / suggestions.

List of faculty members who are administrators/decision makers for various assigned jobs

| Sl No | Name                      | Position  |
|-------|---------------------------|---|
| 1     | Dr. Atul Bora             | PRINCIPAL                                       |
| 2     | Dr. Ranjit Kumar Dutta    | HOD ME & IPE                                    |
| 3     | Dr. Damodar Agarwal       | HOD EE & INS                                    |
| 4     | Prof. Ashok Baruah        | HOD CHE   |
| 5     | Prof. Apurba Kumar Kalita | HOD E&T & CSE                                   |
| 6     | Dr. Palash Jyoti Hazarika | HOD CE  |
| 7     | Dr. Maushumi Barooah      | HOD MCA   |
| 8     | Prof Reeta Goswami        | HOD Physics                                     |
| 9     | Dr. Tapas Barman          | HOD Chemistry                                   |
| 10    | Prof Pranab Kumar Sarma   | HOD Mathematics                                 |
| 11    | Dr. Afazuddin Ahmed       | HOD Humanities                                  |
| 12    | Dr. Pradip Baishya        | In-Charge, Alumni Association                   |
| 13    | Mr. Binoy Sarma           | In-Charge, Workshop                             |
| 14    | Dr. Maushumi Barooah      | In-Charge, Counselling Cell                     |
| 15    | Dr. Amrita Ganguly        | In-Charge, Student Professional Activities Cell |

|    |                  |           |
|----|------------------|-----------|
| 16 | Dr. Jyotika Devi | Librarian |
|----|------------------|-----------|

### **GRIEVANCE REDRESSAL CELL (GRC)**

For the wellbeing of the students the institution has a Grievance Redressal cell to rectify grievance faced by the student during the course of study. GRC Committee effectively addresses various issues such as general grievances, ragging issues, women issues etc. on the campus, as per guidelines of AICTE. GRC consist of Principal, HOD's, Senior faculty members, student representatives.

### **ANTI RAGGING MECHANISM**

In pursuance of the directive of the Hon'ble Supreme Court of India, Govt. of Assam and AICTE etc. an Anti-ragging squad is formed for the college. The squad will be mobile alert at any time and would make periodic yet random/surprise visits or raids at the hostels and other places of potential ragging. An Anti-ragging Committee will give necessary support/shared vision /action/intervention as sought by the Anti-ragging squad of this college.

The anti-ragging bodies shall adopt the various strategies to eliminate/prevent ragging at AEC. Awareness among the students and other stake holders about the implications/range of judiciary actions that may invite to anyone indulging in ragging may be generated. Anti-ragging banners are installed at different locations inside college premises. Steps to engage the students in cultural and intellectual activities such as seminars/lectures series of social relevance may also be undertaken. The squad will continuously monitor, review the situation and report to the Principal/Anti-ragging Committee for necessary support/shared vision/action/intervention.

### **ANTI RAGGING SQUAD (2015-17)**

| <b>Sl No.</b> | <b>Name</b>        | <b>Designation</b> | <b>Position</b> | <b>Contact Number</b> |
|---------------|--------------------|--------------------|-----------------|-----------------------|
| 1             | Dr. Arup Bardalai  | Professor          | Chairman        | 9854206603            |
| 2             | Bhaskar Jyoti Das  | Assoc. Professor   | Member          | 9864093762            |
| 3             | Ms. Barnali Gogoi  | Asst. Professor    | Member          | 9864067264            |
| 4             | Prasanta Choudhury | Asst. Professor    | Member          | 9954279327            |
| 5             | Dr. Sasanka Borah  | Asst. Professor    | Member          | 9435536598            |

| Sl No. | Name                  | Designation     | Position | Contact Number |
|--------|-----------------------|-----------------|----------|----------------|
| 6      | Biswanath Dekaraja    | Asst. Professor | Member   | 9401320341     |
| 7      | Sasanka Shekhar Sarma | Asst. Professor | Member   | 9401363269     |
| 8      | Mr. Madhurjya Baruah  | Asst. Professor | Member   | 9435708424     |

**ANTI-RAGGING COMMITTEE (2015-17)**

| Sl No. | Name                           | Designation     | Position          | Contact Number |
|--------|--------------------------------|-----------------|-------------------|----------------|
| 1      | Dr. Atul Bora                  | Principal       | Chairman          |                |
| 2      | Dr. Sudip Kr. Deb              | Professor       | Vice Chairman     | 9435105142     |
| 3      | Dr. Aroop Bardalai             | Professor       | Chief Coordinator | 9854206603     |
| 4      | Dr. Palash Jyoti Hazarika      | Professor       | Member            | 9864023851     |
| 5      | Dr. Ranjit Kumar Dutta         | Professor       | Member            | 8011397494     |
| 6      | Dr. Damodar Agarwalla          | Professor       | Member            | 9954048758     |
| 7      | Prof. Ashok Baruah             | Professor       | Member            | 9864044510     |
| 8      | Prof. Apurba Kr Kalita         | Professor       | Member            | 9706074262     |
| 9      | Dr. M. Baruah                  | Professor       | Member            | 9864036044     |
| 10     | Prof. Bhaskarjyoti Das         | Asst. Professor | Member            | 9864093762     |
| 11     | Dr. Sasanka Borrah             | Asst. Professor | Member            | 9435536598     |
| 12     | Prof. Prasanta Kumar Choudhury | Asst. Professor | Member            | 9954279327     |
| 13     | Prof Biswanath Dekaraja        | Asst. Professor | Member            | 9401320341     |
| 14     | Prof. Sasanka Sekhar Sharma    | Asst. Professor | Member            | 9401363269     |

| Sl No. | Name                   | Designation     | Position | Contact Number |
|--------|------------------------|-----------------|----------|----------------|
| 15     | Prof. Barnali Gogoi    | Asst. Professor | Member   | 9864067264     |
| 16     | Prof. Madhurjya Baruah | Asst. Professor | Member   | 9435708424     |
| 17     | Dr. Utpal Nath         | Asst. Professor | Member   | 9435408459     |

### SEXUAL HARASSMENT PREVENTION MECHANISM

In pursuance of the Govt. instructions on the act “The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (Sexual Harassment Act)”, the internal complaint committee constituted to examine the probable matter relating to the sexual harassment on women at workplaces in Assam Engineering College, Jalukbari, Guwahati is hereby constituted with the following members.

#### SEXUAL HARASSMENT COMMITTEE FOR THE ACADEMIC YEAR 2017-18

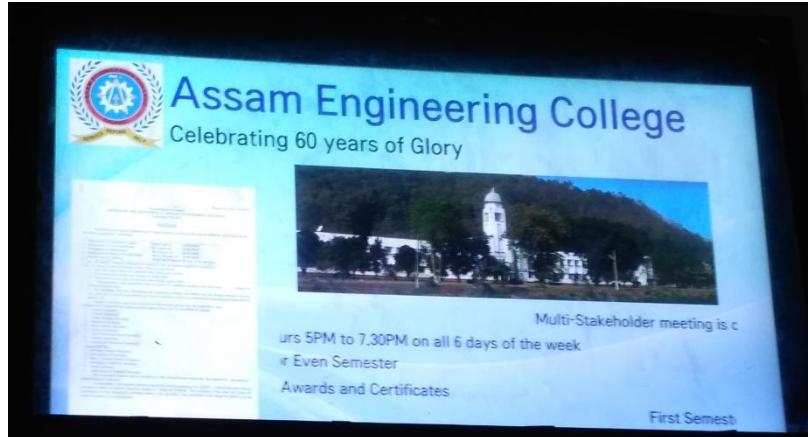
| Sl No. | Name                      | Designation                  |
|--------|---------------------------|------------------------------|
| 1      | Dr. Atul Bora             | Principal                    |
| 2      | Dr. Maushumi Barooah      | Professor, MCA               |
| 3      | Dr. Runumi Sarma Bordoloi | Professor, EE                |
| 4      | Prof. Runjun Das          | Associate Professor, CHE     |
| 5      | Prof. Purabi Patowary     | Associate Professor, EE      |
| 6      | Prof. Rashi Borgohain     | Assistant Professor, E&T     |
| 7      | Mrs. Nilima Boro          | Junior Assistant, AEC office |
| 8      | Dr. Sudip Kumar Deb       | Professor, ME                |
| 9      | Dr. Jayanta Pathak        | Professor, CE                |

#### 10.1.4. Delegation of financial powers (10)

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

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

The college maintains transparency in all its operation and working. Information such as Internal marks scored by students, Shortage of attendance, if any, Availability of scholarships, Opportunities for students etc. are promptly displayed on Notice Boards as well as on LCD which are installed at Main building and Canteen.



**Fig. 10.1.5 LCD display screen at Main Building Entrance**

Criteria for student scholarships, faculty awards etc. are informed well in advance so that equal opportunity is given to all individuals concerned.

At the beginning of every academic year the college brings out a calendar, which contains all the information, including contact numbers of all the faculty members and Head of the Departments. Information about every activity in the college is sent to all staff and students through e-mail as well as departmental notice board.

All the required information about the college is made available, as per directions of AICTE, in the college website: [www.aec.ac.in](http://www.aec.ac.in).

Information sought under RTI act is promptly furnished by the Principal.

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

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

For 2017-18

| Total Income (in Rs.) |              |             |               | Actual Expenditure (in Rs.)  |                |                            | Total No. of students<br><b>1901</b> |
|-----------------------|--------------|-------------|---------------|------------------------------|----------------|----------------------------|--------------------------------------|
| Fee                   | Govt.        | Grant(s)    | Other Sources | Recurring including salaries | Non-recurring  | Special Projects/Any Other | Expenditure per student              |
| 34,28,65-             | 26,41,55,21- | 1,77,84,16- | 1,63,75,80-   | 26,56,57,894.00              | 1,57,25,332.00 |                            | 1,48,019.00                          |

For 2016-17

| Total Income (in Rs.) |              |                |                | Actual Expenditure (in Rs.)  |                |                            | Total No. of students<br><b>1919</b> |
|-----------------------|--------------|----------------|----------------|------------------------------|----------------|----------------------------|--------------------------------------|
| Fee                   | Govt.        | Grant(s)       | Other Sources  | Recurring including salaries | Non-recurring  | Special Projects/Any Other | Expenditure per student              |
| 34,65,95-             | 27,21,67,87- | 3,14,48,637.00 | 1,70,22,248.00 | 26,04,26,538.00              | 3,55,29,201.00 |                            | 1,54,224.00                          |

**For 2015-16**

| Total Income (in Rs.) |              |             |                | Actual Expenditure (in Rs.)  |                |                                | Total No. of students<br><b>1963</b> |
|-----------------------|--------------|-------------|----------------|------------------------------|----------------|--------------------------------|--------------------------------------|
| Fee                   | Govt.        | Grant(s)    | Other Sources  | Recurring including salaries | Non-recurring  | Special Projects/An<br>y Other | Expenditure per student              |
| 35,48,35-             | 24,90,68,00- | 1,87,86,35- | 1,66,30,391.00 | 24,11,12,01-                 | 2,50,77,683.00 |                                | 1,35,604.00                          |

**For 2014-15**

| Total Income (in Rs.) |              |             |                | Actual Expenditure (in Rs.)  |               |                                | Total No. of students<br><b>1999</b> |
|-----------------------|--------------|-------------|----------------|------------------------------|---------------|--------------------------------|--------------------------------------|
| Fee                   | Govt.        | Grant(s)    | Other Sources  | Recurring including salaries | Non-recurring | Special Projects/An<br>y Other | Expenditure per student              |
| 36,11,25-             | 22,67,25,00- | 1,75,00,00- | 1,74,21,578.00 | 21,77,39,602.00              | 18016941.00   |                                | 1,17,937.00                          |

**Table  
B.10.2a**

**Table  
B.10.2b**

| Items  | Budg-<br>eted in<br>2017-18 | Actual<br>ex-<br>penses<br>in<br>2017-18 | Budg-<br>eted in<br>2016-<br>17 | Actual<br>ex-<br>penses<br>in<br>2016-17 | Budg-<br>eted in<br>2015-16 | Actual<br>ex-<br>penses<br>in 2015-<br>16 | Budg-<br>eted in<br>2014-15 | Actual<br>ex-<br>penses<br>in<br>2014-<br>15 |
|--|-----------------------------|--|---------------------------------|--|-----------------------------|---|-----------------------------|--|
| Infra-<br>struc-<br>ture<br>Built-<br>Up                 | 86,50,0<br>00               | 46,00,0<br>00                            | 3,14,48,<br>687                 | 3,32,28,<br>378                          | 1,87,86,<br>350             | 2,15,29,3<br>33                           | 1,75,00,<br>000             | 1,27,94,<br>310                              |
| Library  | -                           | -  | -                               | -  | 9,000                       | 9,000                                     | -                           | -  |
| Labora-<br>tory<br>Equip-<br>ment                        | 2,45,00<br>0                | 2,00,961                                 | -                               | -  | 80,000                      | 80,000                                    | 71,000                      | 67,936                                       |
| Labora-<br>tory<br>Con-<br>sumables                      | 45,72,50<br>0               | 45,72,50<br>0                            | 46,17,50<br>0                   | 4617500                                  | 47,27,50<br>0               | 47,27,50<br>0                             | 48,17,50<br>0               | 48,17,50<br>0                                |
| Teach-<br>ing and<br>Non-<br>teaching<br>Staff<br>salary | 25,14,87,<br>106            | 24,19,46<br>,954                         | 26,32,2<br>0,000                | 23,62,75<br>.376                         | 24,01,76<br>,000            | 21,63,94,<br>318                          | 21,91,24,<br>000            | 19,66,84<br>,877                             |
| Mainte-<br>nance<br>And<br>spares                        | -                           | -  | 19,95,87<br>0                   | 19,95,87<br>0                            | 2,43,00<br>0                | 2,43,000                                  | 3,60,00<br>0                | 3,44,921                                     |
| R & D  | 1,00,00<br>0                | 1,05,856                                 | -                               | -  | -                           | -   | -                           | -  |
| Train-<br>ing and<br>Travel                              | 1,39,82,<br>554             | 82,07,13<br>1                            | 84,08,5<br>00                   | 83,70,33<br>6                            | 85,89,50<br>0               | 85,89,50<br>0                             | 87,41,50<br>0               | 87,37,72<br>5                                |
| Miscel-<br>laneous<br>expens-<br>es                      | 2,00,00<br>0                | 8,548                                    | 1,55,00<br>0                    | 85,000                                   | -                           | -   | 5,00,00<br>0                | 5,00,00<br>0                                 |
| Others   | 2,25,06,<br>660             | 2,17,41,2<br>76                          | 1,43,29,<br>198                 | 1,13,82,3<br>93                          | 1,54,06,7<br>41             | 1,24,34,2<br>24                           | 1,41,43,8<br>28             | 1,18,09,<br>274                              |
| <b>Total</b>   | <b>30,17,4<br/>3,820</b>    | <b>28,13,8<br/>3,226</b>                 | <b>32,41,7<br/>4,755</b>        | <b>29,59,5<br/>4,853</b>                 | <b>28,80,1<br/>8,091</b>    | <b>26,40,0<br/>6,875</b>                  | <b>26,52,5<br/>7,828</b>    | <b>23,57,5<br/>6,543</b>                     |

#### **10.2.1. Adequacy of budget allocation (10)**

Budget requirements under 'recurring' and 'non-recurring' heads are collected from every departments and sections before the commencement of the financial year. Allocations are made as per the availability of funds. Spending is monitored by the accounts section. Supplementary allocations are made in special cases. The institution carefully monitors the expenses so that the necessities are met without affecting the smooth working of the institution. The management has been very efficiently doing this over the past several years that the institution never had any serious budget crunch that affected the functioning of the college.

#### **10.2.2. Utilization of allocated funds (15)**

Funds are allocated by the Principal of the College. Department Heads are intimated of the extent of funds allocated against their budget proposals.

Major works like construction, up-gradation of existing infrastructure, procurement and maintenance of common utilities, house-keeping, procurement of furniture etc. are controlled directly by the Principal.

Actions for procurement of lab equipment, up-gradation of existing lab facilities, purchase of consumables etc. are initiated from the respective departments and the funds are released on a case by case basis from the accounts office of the college on approval by the Principal.

During the last three years, the budget was utilized to meet expenses such as staff salary, infrastructure development, purchase of equipment, expenses towards consumables and contingencies, travel etc. Every year almost 75% of the budget is spent on staff salary, 10% on infrastructure development, about 8% on purchase of equipment, about 5 % on library development and the rest 2% on other expenses. This has been the general pattern of utilization of budget for the last 5 years.

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

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

College website- [www.aec.ac.in](http://www.aec.ac.in)

**10.3. Program Specific Budget Allocation, Utilization (30)****Table B.10.3a**  
**For 2017-18**

| Total Budget  |             | Actual expenditure |             | Total no of students: <b>1901</b> |
|---------------|-------------|--------------------|-------------|-----------------------------------|
| Non-recurring | Recurring   | Non-recurring      | Recurring   | Expenditure per student           |
| 17,95,000     | 1,87,54,554 | 17,46,417          | 1,27,87,679 | 7,646                             |

**For 2016-17**

| Total Budget  |             | Actual expenditure |             | Total no of students: <b>1919</b> |
|---------------|-------------|--------------------|-------------|-----------------------------------|
| Non-recurring | Recurring   | Non-recurring      | Recurring   | Expenditure per student           |
| -             | 1,51,76,870 | -                  | 1,50,68,706 | 7,852                             |

**For 2015-16**

| Total Budget  |             | Actual expenditure |             | Total no of students: <b>1,963</b> |
|---------------|-------------|--------------------|-------------|------------------------------------|
| Non-recurring | Recurring   | Non-recurring      | Recurring   | Expenditure per student            |
| 80,000        | 1,35,60,000 | 80,000             | 1,35,60,000 | 6,949                              |

**For 2014-15**

| Total Budget  |             | Actual expenditure |             | Total no of students: <b>1,963</b> |
|---------------|-------------|--------------------|-------------|------------------------------------|
| Non-recurring | Recurring   | Non-recurring      | Recurring   | Expenditure per student            |
| 71,000        | 1,44,19,000 | 67,936             | 1,44,00,146 | 7,238                              |

**Table B.10.3b**

| Items                             | Budg-<br>eted in<br>2017-18 | Actual<br>ex-<br>penses<br>in<br>2017-<br>18 | Budg-<br>eted in<br>2016-<br>17 | Actual<br>ex-<br>penses<br>in<br>2016-<br>17 | Budg-<br>eted in<br>2015-16 | Actual<br>ex-<br>penses<br>in<br>2015-16 | Budg-<br>eted in<br>2014-15 | Actual<br>ex-<br>penses<br>in<br>2014-<br>15 |
|-----------------------------------|-----------------------------|--|---------------------------------|--|-----------------------------|--|-----------------------------|--|
| Laborato-<br>ry Equip-<br>ment    | 2,45,00<br>0                | 2,00,96<br>1                                 | -                               | -  | 80,000                      | 80,000                                   | 71,000                      | 67,936                                       |
| Software                          | 14,50,00<br>0               | 14,39,6<br>00                                | -                               | -  | -                           | -  | -                           | -  |
| Laborato-<br>ry Consumables       | 45,72,50<br>0               | 45,72,5<br>00                                | 461750<br>0                     | 4617500                                      | 47,27,50<br>0               | 47,27,50<br>0                            | 48,17,50<br>0               | 48,17,50<br>0                                |
| Mainte-<br>nance<br>And<br>spares | -                           | -  | 19,95,8<br>70                   | 19,95,87<br>0                                | 2,43,00<br>0                | 2,43,00<br>0                             | 3,60,00<br>0                | 3,44,921                                     |
| R & D                             | 1,00,00<br>0                | 1,05,85<br>6                                 | -                               | -  | -                           | -  | -                           | -  |
| Training<br>and Trav-<br>el       | 1,39,82,<br>554             | 82,07,1<br>31                                | 840850<br>0                     | 837033<br>6                                  | 85,89,50<br>0               | 85,89,50<br>0                            | 87,41,50<br>0               | 87,37,72<br>5                                |
| Miscella-<br>neous ex-<br>penses  | 2,00,00<br>0                | 8,548  | 1,55,00<br>0                    | 85,000                                       | -                           | -  | 5,00,00<br>0                | 5,00,00<br>0                                 |
| <b>Total</b>                      | <b>2,05,50,<br/>054</b>     | <b>1,45,34,<br/>596</b>                      | <b>1,51,76,<br/>870</b>         | <b>1,50,68,<br/>706</b>                      | <b>1,36,40,<br/>000</b>     | <b>1,36,40,<br/>000</b>                  | <b>1,44,90,<br/>000</b>     | <b>1,44,68,<br/>082</b>                      |

\* Items to be mentioned.

### Budget for Department of Mechanical Engineering

The petty cash expenses for the department are met from the “Development Fund” (previously called ‘Lab Fund’) under the custody of the sole financial authority of the college, the Principal of AEC.

For such expenses, the HOD writes to the Principal for some amount of fund and the Principal delivers a cheque in the name of the department. The HOD maintains the accounts against vouchers of expenses provided by the faculties under their seal and signature overleaf, so that all faculties become responsible for expenses of fund and maintenance of their labs etc.

The approximate average yearly expense is about 1.6 lakh p.a. For larger expense, the department puts further requisition and money is made available depending on fund availability.

#### **10.3.1. Adequacy of budget allocation (10)**

Budget requirements under 'recurring' and 'non-recurring' heads are collected from every departments and sections before the commencement of the financial year. Allocations are made as per the availability of funds. Spending is monitored by the accounts section. Supplementary allocations are made in special cases. The institution carefully monitors the expenses so that the necessities are met without affecting the smooth working of the institution. The management has been very efficiently doing this over the past several years that the institution never had any serious budget crunch that affected the functioning of the college.

#### **10.3.2. Utilization of allocated funds (20)**

Funds are allocated by the Principal of the College. Department Heads are intimated of the extent of funds allocated against their budget proposals.

Major works like construction, up-gradation of existing infrastructure, procurement and maintenance of common utilities, house-keeping, procurement of furniture etc. are controlled directly by the Principal.

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During the last three years, the budget was utilized to meet expenses such as staff salary, infrastructure development, purchase of equipment, expenses towards consumables and contingencies, travel etc. Every year almost 75% of the budget is spent on staff salary, 10% on infrastructure development, about 8% on purchase of equipment, about 5 % on library development and the rest 2% on other expenses. This has been the general pattern of utilization of budget for the last 5 years.

### **10.4. Library and Internet (20)**

(Indicate whether zero deficiency report was received by the Institution for all the assessment years. Effective availability/purchase records and utilization of facilities/equipment etc. to be documented and demonstrated)

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

- Relevance of available learning resources including e-resources
- Accessibility to students
- Support to students for self-learning activities

| <b>ABOUT THE COLELGE LIBRARY</b>  |                                     |
|---|-------------------------------------|
| Carpet area of library (in m <sup>2</sup> )                                       | 616                                 |
| Reading space (in m <sup>2</sup> )  | 309                                 |
| Number of seats in reading space  | 80                                  |
| Number of users (issue book) per day  | 40                                  |
| Number of users (reading space) per day   | 10                                  |
| Timings: During working day, weekend, and Vacation                                | 9.30am-5.00pm in every working days |
| Number of library staff   | 7                                   |
| Number of library staff with a degree in Library                                  | 2                                   |
| Library Management  | Yes                                 |
| Computerization for search, indexing  | Available                           |
| Issue/return records bar coding used  | On process                          |
| Library services on Internet/Intranet INDEST or other similar membership archives | Not Available                       |

#### **TITLES AND VOLUMES PER TITLE**

Number of titles: **15485**

Number of volumes: **63000**

| <b>Year</b> | <b>Number of new titles added</b> | <b>Number of new editions added</b> | <b>Number of new volumes added</b> |
|-------------|-----------------------------------|-------------------------------------|------------------------------------|
| 2017-18     | 75                                | 97                                  | 2251                               |
| 2016-17     | 135                               | 250                                 | 1835                               |
| 2015-16     | 3                                 | 10                                  | 115                                |

**SCHOLARLY JOURNAL**

| <b>Details</b>    |              | <b>2017-18</b>      | <b>2016-17</b>      | <b>2015-16</b>      |
|-------------------|--------------|---------------------|---------------------|---------------------|
| Engg.<br>And Tech | Soft Copy    | IEEE & ASCE Journal | IEEE & ASCE Journal | IEEE & ASCE Journal |
|                   | Hard<br>Copy | Nil                 | Nil                 | Nil                 |

**DIGITAL LIBRARY**

|  |               |
|--|---------------|
| Availability of digital library content                          | : Yes         |
| If available, mention number of courses, number of e-books, etc. | : e-books-165 |
| Availability of an exclusive server                              | : Yes         |
| Availability over Intranet/Internet                              | : Intranet    |
| Availability of exclusive space/room                             | : Yes         |
| Number of users per day  | : 10          |

**LIBRARY EXPENDITURE ON BOOKS, MAGAZINES/JOURNALS, AND MISCELLANEOUS CONTENT**

| <b>Year</b> | <b>Expenditure</b> |   |   |                                | <b>Comments if any</b>                             |
|-------------|--------------------|---|---|--------------------------------|--|
|             | <b>Books</b>       | <b>Magazines/journals<br/>(for hard copy sub-<br/>scriptions)</b> | <b>Magazines/journals<br/>(for soft copy sub-<br/>scriptions)</b> | <b>Misc.<br/>Con-<br/>tent</b> |  |
| 2017-18     | 9,93.184.00        | Nil   | Nil   | Nil                            |  |
| 2016-17     | 7,69,103.00        | Nil   | Nil   | Nil                            | IEEE & ASCE Journal subscription provided by MHRD. |
| 2015-16     | Nil                | Nil   | Nil   | Nil                            | New volumes and books provided by Government       |

**10.4.2. Internet (10)****INTERNET**

| Name of the Internet provider                     | National Informatics Centre |
|---|-----------------------------|
| Available bandwidth                               | 1 Gbps                      |
| Availability of Internet in an exclusive lab      | Yes                         |
| Availability in most computing lab                | Yes                         |
| Availability in Departments and other units       | Yes                         |
| Availability in Faculty rooms                     | Yes                         |
| Institute own e-mail facility to faculty/students | Yes                         |
| Security/privacy of e-mail/internet users         | Yes                         |

Internet is provided to the institute by Government of India under the scheme of National Knowledge Network (NKN). The Central Computer Centre (CCC) then distributes the internet connection among various departments, offices, canteen, library and hostels. However, every department has its own computer center too.

**Name of the Internet Provider:** National Knowledge Network (NKN) under Government of India

**Available bandwidth:**

The Central Computer Centre receives a bandwidth of 1 Gbps at its doorstep. The Civil Engineering department maximizes the bandwidth at the receiving end by using a suitable converter. Hence, the department also gets **1 Gbps bandwidth speed**.

**Access Speed:**

It varies from 150-300 Mbps across all the departments.

**Wi Fi availability:**

Wi Fi is available 24x7 in the academic buildings as well in the hostels.

**Internet access in labs, classrooms, library and offices of all Departments:**

Wi Fi routers are there in classrooms, library and other strategic positions in such a way that Wi Fi signal comes anywhere in the institute. There are more than 40 access points in the entire academic complex of the institute. 22 nos. are there in the main building, 16 nos. are there in the academic building and 4 nos. in the Canteen building.

Civil Engineering Department has three Wi Fi access points viz. at Departmental office, at Hydraulics Laboratory and Strength of Materials Laboratory.

All the 8 hostels are connected with LAN network with 1 Gbps speed and are managed centrally.

**Security arrangements:** The Wi Fi facility is secured with user ID authentication and passwords. Separate passwords are set for faculties, staff and students. Firewall server is there at the doorstep of the Central Computer Centre and the internet connectivity is filtered before sending to the departments or hostels.

Self Assessment Report, Department of Mechanical Engineering, AEC

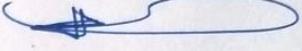
**Declaration**

(The head of the institution needs to make a declaration as per the format given)

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: 30/05/2018  
Place: Guwahati

  
**Signature & Name  
Head of the Institution with seal**

Principal  
Assam Engineering College  
Guwahati-781013

