



NATIONAL BOARD OF ACCREDITATION

SELF ASSESSMENT REPORT (SAR) FORMAT

UNDERGRADUATE ENGINEERING PROGRAMS (TIER-II)

FIRST TIME ACCREDITATION

(Applicable for all the programs, except those granted full accreditation for 5 years as per Jan 2013 Manual)

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(June, 2015)**

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PART A

Institution Information

Assam Engineering College

Jalukbari, Guwahati, Assam

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, Jalukbari, 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:

Name of the Institution(s)	Year of Establishment	Programs of Study	Location
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Table A.6

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

Sl No.	Program Name	Name of the Department	Year of Start	Intake	Increase in intake	Year of increase	AICTE Approval	Accreditation Status*
Bachelors in Engineering/Undergraduate programs								
1	B.E. in Civil Engineering	Civil Engineering	1955	60	30	2009	90	Applying first time

SI No.	Program Name	Name of the Department	Year of Start	Intake	Increase in intake	Year of increase	AICTE Approval	Accreditation Status*
2	B.E. in Mechanical Engineering	Mechanical Engineering	1957	30	30	1962	60	Applying first time
3	B.E. in Electrical Engineering	Electrical Engineering	1957	30	Phase I- 30 nos. Phase II- 30 nos.	Phase I- 1962 Phase II- 2009 30 nos.	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 Telecommunication Engineering	Electronics and Telecommunication Engineering	1984	15	Phase I- 15 nos. Phase II- 30 nos.	Phase I- 1996 Phase II- 2007	60	Applying first time
6	B.E. in Instrumentation Engineering	Instrumentation Engineering	1998	20	-	-	20	Eligible but not applied
7	B.E. in Industrial and Production Engineering	Industrial and Production Engineering	1998	20	-	-	20	Eligible but not applied -
8	B.E. in Computer Science Engineering	Computer Science Engineering	1998	20	-	-	20	Eligible but not applied -
Masters in Engineering/Postgraduate programs								
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

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

Sl. No.	Program Name
1.	B.E. in Civil Engineering
2.	B.E. in Mechanical Engineering
3.	B.E. in Electrical Engineering
4.	B.E. in Chemical Engineering
5.	B.E. in Electronics and Telecommunication Engineering

Table A.8

9. Total number of employees in the institution:

A. Regular Employees (Faculty and Staff):

Items		CAY (2017-18)		CAYm1 (2016-17)		CAYm2 (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

Table A.9a

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

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

Table A.9b

10. Total number of Engineering Students:

Bachelors in Engineering/Undergraduate programs			
Item	CAY (2017-18)	CAYm1 (2016-17)	CAYm2 (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 (2017-18)	CAYm1 (2016-17)	CAYm2 (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 (2017-18)	CAYm1 (2016-17)	CAYm2 (2015-16)
Total no. of boys	23	17	21
Total no. of girls	6	10	8
Total no. of students	29	27	29

Table A.10

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

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

PART B: CRITERIA SUMMARY

Criteria No.	Criteria	Total Marks
1	VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES	60
2	PROGRAM CURRICULAM AND TEACHING – LEARNING PROCESS	120
3	COURSE OUTCOMES AND PROGRAM OUTCOMES	120
4	STUDENTS' PERFORMANCE	150
5	FACULTY INFORMATION AND CONTRIBUTIONS	200
6	FACILITIES AND TECHNICAL SUPPORT	80
7	CONTINUOUS IMPROVEMENT	50
8	FIRST YEAR ACADEMICS	50
9	STUDENT SUPPORT SYSTEMS	50
10	GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES	120
	Total	1000

PART B

Criteria 1 to Criteria 10

Department of Electrical Engineering

CRITERION 1	Vision, Mission and Program Educational Objectives	60
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State the Vision and Mission of the Department and Institute (5)

Institute's Vision:

To be an institution for promoting and supporting sustainable development.

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 vision:

To emerge as a centre of excellence in electrical engineering education and research in promoting sustainable development.

Department's Mission:

- M1. To impart quality education in electrical engineering with focus on continual improvement.
- M2. To promote research and innovation in the field of electrical engineering
- M3. To nurture scientific temperament, professional ethics and entrepreneurship among students
- M4. To inspire the students to actively engage in solving societal and environmental problems by applying their technical knowledge

State the Program Educational Objectives (PEOs) (5)

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

Program Educational Objectives (PEO)

PEO1: To build a strong foundation so that the students can pursue higher studies and research.

PEO2: To develop problem solving skills among students so that they can tackle problems in their professional life and imbibe life-long learning.

PEO3: To impart technological knowledge and enhance soft skills so that the students can adapt to the dynamic job scenario.

PEO4: To develop life skills and overall personality of students by instilling values such as, discipline, ethics, sense of responsibility and respect to the law.

PEO5: To inculcate among students the spirit of entrepreneurship by collaborating with industries.

PEO6: To engage students in projects and activities relevant to solving societal and environmental problems.

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

Internal Stake Holders

1. Department Advisory Board
2. Faculty members
3. Non-Teaching Staff
4. Students

External Stake Holders

1. Parents
2. Employers
3. Industry
4. Alumni

Vision and Mission Statements are published

Particulars	Internal Stake Holders	External Stake Holders
College website	✓	✓
Department brochure	✓	✓

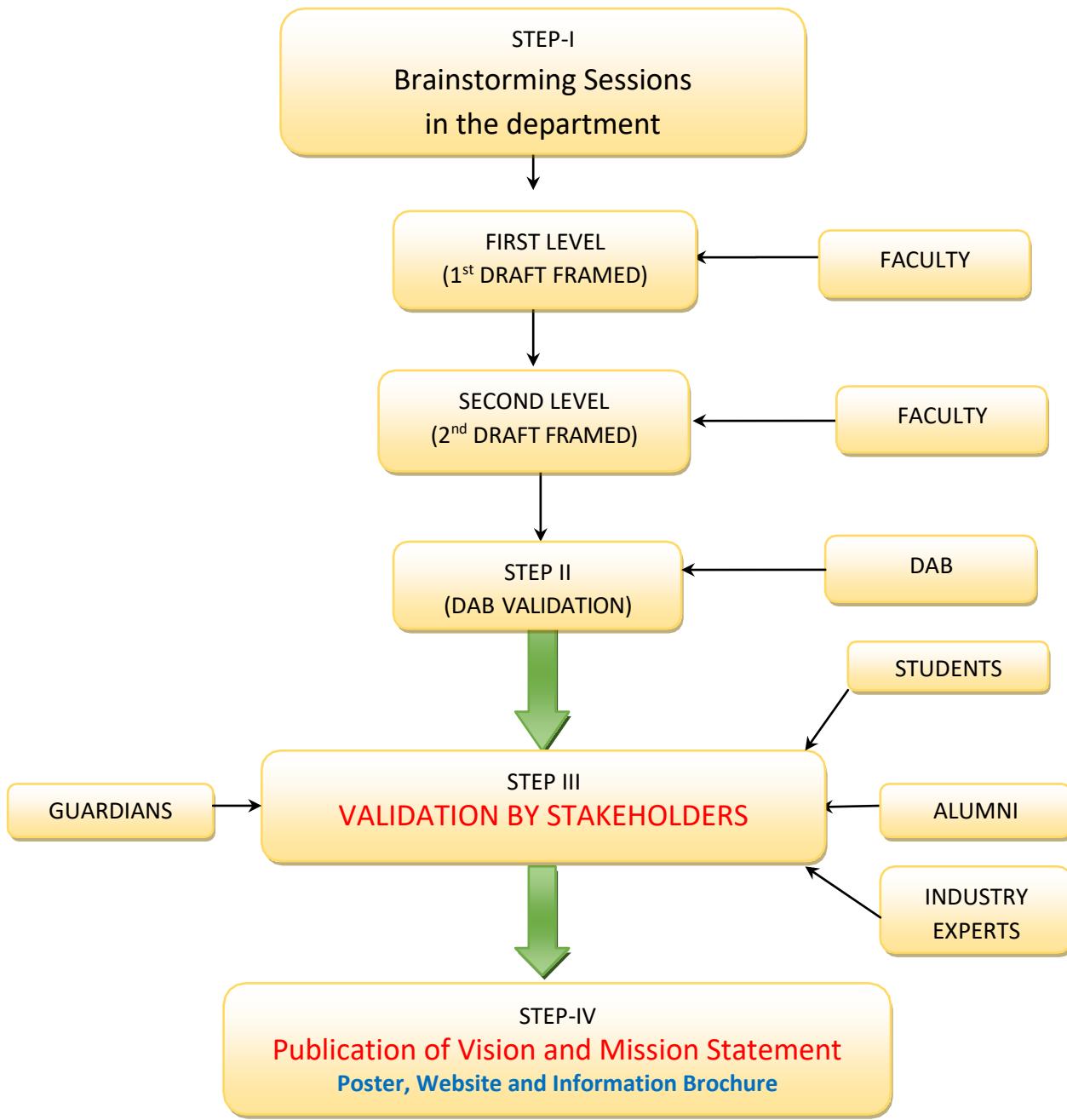
The Vision and Mission Statements are disseminated

Particulars	Internal Stake Holders	External Stake Holders
Faculty rooms	✓	
Class rooms	✓	
Departmental notice boards	✓	✓
Laboratories	✓	
Corridors of the department building	✓	✓

State the process for defining the Vision and Mission of the Department, and PEOs of the program:

The Vision and Mission statements are framed keeping in mind the ambition of the department, needs of industry, requirements of academia, aspirations of the student community and expectations of the society. The program educational objectives focus on learner centric education, encourages creative thinking, and inculcates the virtues of honesty, empathy, compassion, respect and responsibility.

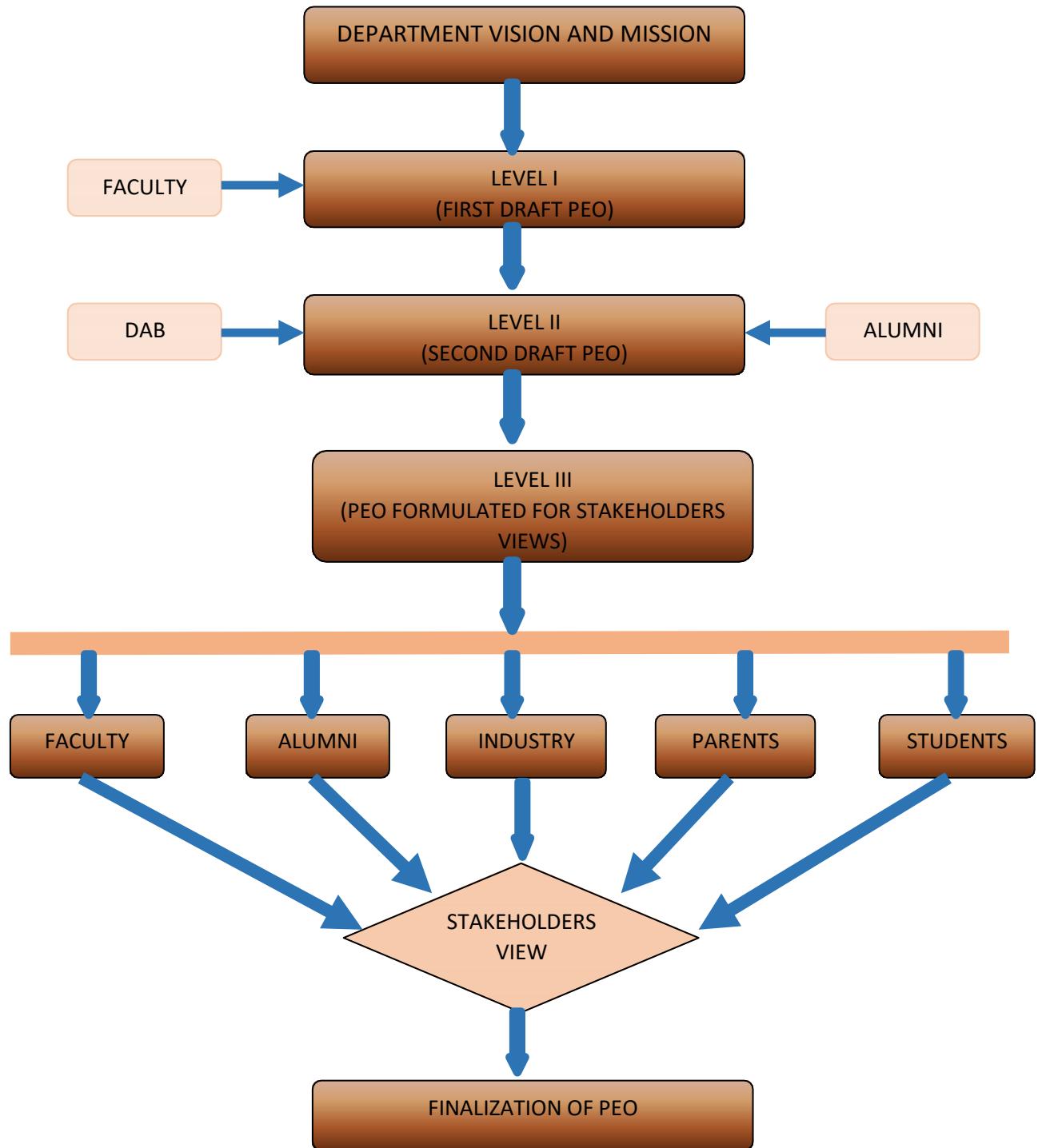
The Vision and Mission statements were formulated after a series of discussions among the faculties of the department. The draft was then placed before the DAB and the stakeholders, namely parents, students, faculties, alumni and industry. After consultation with all the stakeholders, the final Vision and Mission statement were established.



Process for Defining Vision and Mission of the Department

Process for defining the PEOs of the program

A series of discussions were conducted among the faculty members of the Electrical Engineering department, and the draft PEOs were formulated. The same was placed before some alumni in a Alumni-student interaction program. The revised draft was discussed in the meeting of the DAB, and minor changes were made. The final PEOs were established after consultation with faculty, alumni representatives, industry experts, guardians and students.



Process for Defining PEOS of the Department

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

Mapping of PEO with Mission of the Department

PEO	M1	M2	M3	M4
1	3	3	1	1
2	3	2	3	2
3	3	1	3	1
4	1	1	3	3
5	2	1	3	3
6	1	1	3	3

Table B.1.5.a

Justification and rationale of the mapping:

Mapping	Justification
PEO1 with M1	The undergraduate programme ensures competent and high quality electrical engineering graduates suited for higher studies and research.
PEO1 with M2	In depth and high quality learning resulting from the undergraduate programme will lead to quality and innovative research.
PEO1 with M3	Competency gained and quality research will have moderate influence in building scientific temperament, professional ethics and entrepreneurship among the students.
PEO1 with M4	In depth domain knowledge and research will encourage the students for taking up further research towards solving societal and environmental problems.
PEO2 with M1	The problem solving attitude developed among students will encourage them to do quality research in the field of electrical engineering.
PEO2 with M2	The problem solving attitude developed will influence in taking up research and innovation.
PEO2 with M3	The high quality learning achieved through problem solving will lay a strong foundation for scientific temperament, professional ethics and entrepreneurship among the students.
PEO2 with M4	The problem solving skills developed during the undergraduate programme will motivate them in solving societal and environmental problems.
PEO3 with M1	Technical knowledge and skills gained in the programme will develop employable electrical engineers with professional expertise.
PEO3 with M2	Technical knowledge and skills may lead to developing intellectual capability towards research.
PEO3 with M3	Sound domain knowledge will highly influence innovative thinking leading to scientific temperament and entrepreneurship.
PEO3 with M4	Knowledge and skills gained through the programme may inspire the students towards solving societal and environmental problems.
PEO4 with M1	The values imbibed will help the graduates to obtain professional excellence.
PEO4 with M2	Skill development may lead to research activities.

PEO4 with M3	Overall personality development will have high influence in building professional ethics and developing scientific temperament and entrepreneurship.
PEO4 with M4	Values of life gained in the process of personality development will inspire them in solving core societal and environmental issues.
PEO5 with M1	Entrepreneurship development will have moderate influence in developing quality electrical engineers with an attitude towards sustainable development.
PEO5 with M2	Entrepreneurship development inculcates an aptitude towards research.
PEO5 with M3	Entrepreneurship development will highly influence professional ethics building as well as leading to the development of scientific temperament.
PEO5 with M4	Innovative thinking developed in the process of entrepreneurship development will help in achieving solutions of the core issues of society as well as of environment.
PEO6 with M1	With societal problems related project and activities it may be possible to develop skilled and competent electrical engineers with excellence.
PEO6 with M2	Social problem solving related activity may many a times help in promoting research activities.
PEO6 with M3	Program related to solution of societal problems will highly influence in generating professional ethics and sound scientific temperament.
PEO6 with M4	Encouragement to engage in societal problem related projects and activities will highly inspire the students towards solving issues related to society and environment.

Table B.1.5.b

Program Curriculum (20)

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)

The curriculum of Electrical Engineering Department of Assam Engineering College is affiliated to Gauhati University, Guwahati, Assam. The curriculum comprises of General, Basic Sciences and Professional Subjects related to Electrical Engineering. The curriculum structure for the program is given in Annexure II. Each faculty after studying the twelve POs determines the attainment of their courses. Mapping of the subjects with Programme Outcomes and Program Specific Outcomes is done keeping in terms with the Bloom's level of cognitive domain. The weak areas and the gaps in the curriculum are identified.

The methodology for the gap analysis is done as per figure 2.1

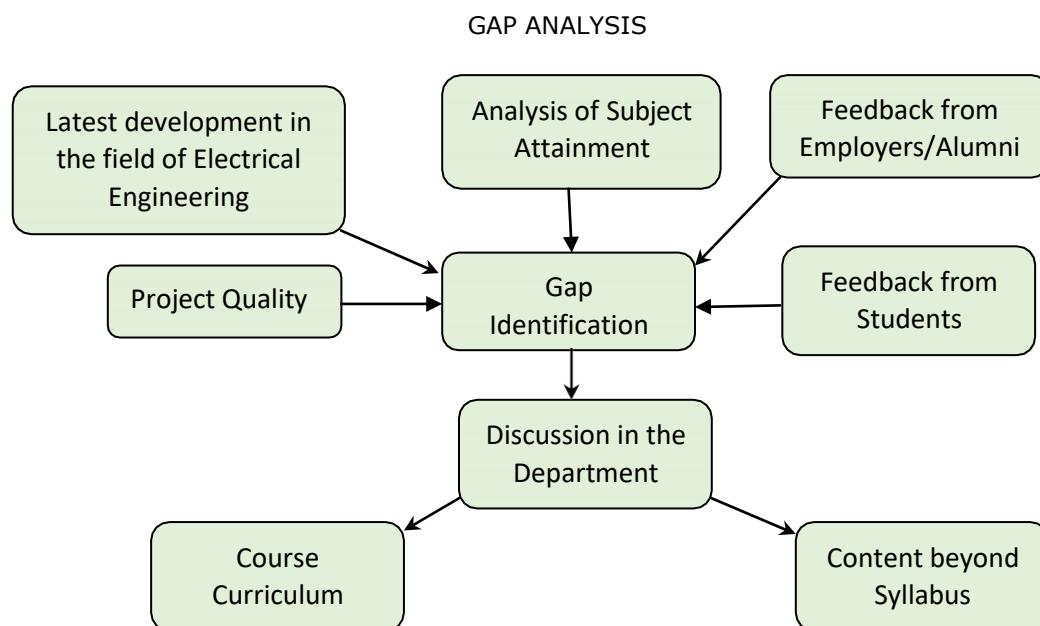


Fig. 2.1 Gap Analysis

- The overall academic performance of the student at the end of the program is given the highest priority in analysing the extent of attainment of the POs.
- Feedback from the students and alumni are considered in deciding the extent to which the program has been successful for the students
- The quality of the mini projects, major projects the students undertake in the course of their study is taken into consideration for the assessment of the POs and the PSOs.
- The future activities of the student in terms of higher studies, successful career choices and other similar avenues directly reflect upon the compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes

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

- Identification of Course Outcomes (CO) for each subject.
- Mapping of each CO with POs and PSOs.
- A Table is thus prepared and is reviewed by faculty members to categorize the entire Curriculum into Core Courses, Science & Humanities, Programming, Inter Disciplinary, Projects and laboratory works.
- Mapping each category with POs and PSOs.
- On the basis of the CO attainment of individual courses the GAP is analyzed.
- Discussion focusing on the Gap is held in the Departmental Faculty meeting and decisions on the subsequent action to address the gap are taken.
- Decisions are also taken as to whether the department develop more beyond syllabus topics; introduce additional electives, laboratory experiments, etc. to improve the level.

The courses taught in the program are grouped as follows:

Program Curriculum Grouping based on Course Component	Number of subjects	POs
Professional Core Subjects	27	PO1, PO2, PO3,
Science & Humanities	16	PO1, PO2, PO10, PO11
Programming	6	PO5
Interdisciplinary and Electives	8	PO1, PO2
Project, Seminar & Lab Practices	23	PO5, PO6, PO7, PO9, PO9

Table B.2.2

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

The extent of compliance of the University curriculum for attaining the Program Outcomes is achieved through the following means and methods:

- (i) Class room instructions (Black Board)
- (ii) Tutorials
- (iii) Remedial Class
- (iv) Presentation (Still and Video)
- (vi) Course materials
- (vii) Group tasks (Projects, Presentation by students)

After analyzing the process as described in 2.1.1, the gaps (i.e topics not covered within the syllabus) identified and the actions taken are tabulated below:

2017-2018

SI No	Gap	Action taken	Date- Month- Year	Resource Person with designation	No. Of students present	Relevance to POs, PSOs
1.	Transformer Testing	Lecture on Construction and Testing of Power	18/08/17	Er. Karuna Sarma	7 th Sem	PO1, PO2,

		Transformer				
2.	Transformer Maintenance	Lecture on Transformer Repairing and Maintenance	22/08/17	Er. Gopal Baruah	7 th Sem	PO1,PO2,
3.	Power System Data Acquisition	Lecture on Supervisory Control and Data Acquisition	06/09/17	Er. Anuj Goswami	7 th Sem	PO5,PO12
4.	Power Generation	Lecture on Overview of Gas based Thermal Power Station	08/09/17	Er. Arindam Chowdhury	7 th Sem	PO1,PO2,
5.	Power Regulation	Lecture on Power Business with reference to Assam	14/09/17	Er. Binoy Saikia and Er. Binita Das	7 th Sem	PO7,PO11,
6.	Career Counselling	Lecture on Career Prospects of Electrical Engineers in Indian Railways	8/11/17	Er. Situ Singh Hajong	7 th Sem	PO10, PO11,PO12
7.	Motivational Talk	Talk on "ENTREPRENEURIAL MOTIVATION"	11/11/17	Er. Sanjib Sabhapandit Entrepreneur	6 th Sem	PO8, PO11
8.	Power System	Lecture on "SCADA"	28/02/18	Er. Jatindra Baishya	6 th Sem	PO5
9.	Switchgear and protection	One Day Seminar on Switchgear and protection	17/03/18	Er. Paban Kumar Medhi,GM, AEGCL Er. Tanuj Barua AGM, AEGCL Er. Ujjal Sarma H-BUS Equipment Manufacturing Company	6 th sem and 4 th Sem	PO1,PO2, PO12
10.	Motivational Interaction	Alumni Meeting/Interaction with students	24/03/18	Alumni from Different Areas of Expertise	6 th sem and 8 th Sem	PO6,PO7,PO8,PO10,PO11,PO12

Table B.2.1.2a

2016-2017

S.No.	Gap	Action taken	Date-Month-Year	Resource Person with designation	No. of students present	Relevance to POs, PSOs
1	Transformer Testing	Lecture on Construction and Testing of Power Transformer	26/08/16	Er. Geetartha Sharma	7 th Sem	PO1,PO2,
2	Transformer Maintenance	Visit to Transformer Repairing Centre	24/09/16	Er. Geetartha Sharma	7 th Sem	PO1,PO2,
3	Renewable Energy	Talk On "Reliability Assessment of Renewable Energy Sources"	05/11/16	Er. Bipul Kumar Talukdar, Assistant Prof. GIMT, Guwahati	7 th Sem	PO1,PO2
4	Career Counselling	Talk on "Black and White of Entrepreneurship"	10/02/17	Er. Tanmay Goswami	8 th Sem	PO6,PO8,PO11

Table B.2.1.2b

SI No	Gap	Action Taken	Date/ Month/ Year	Resource person/ Designation	No of Students	Relevance to POs, PSOs
1	Power Generation Technology	NPTI Training	Nov-Dec 2015	Resource Persons from NPTI	7 th Semester Batch of 2012-16	PO1, PO2, PO12

Table B.2.1.2c

Teaching – Learning Processes (100)

2.2.1 Describe Processes followed to improve quality of Teaching & Learning

The Department of Electrical Engineering is committed to ensure high quality academics and guidance to the students. It is the endeavor of the department to continuously improve the teaching and learning process. To achieve this goal, the department takes some initiatives at the beginning and during the semester.

Before the commencement of the classes the following actions are taken:

- An academic calendar is prepared showing the details of the classes, various educational programs, tentative dates for the class tests, mid-semester examination, end-semester examination etc.
 - Each theory class is of 55 minutes duration.
 - The allotment of the courses based on the competency of the faculty is done well in advance to give ample time to the faculty for preparation.
 - The department displays the details of class allotment including laboratory classes and routines for every semester for the knowledge of the students.
 - The laboratories to be performed during the semester are notified to the students along with the division of the batches. The soft copy of the laboratory manual is distributed to the students.
- During the semester classes the following actions are taken

Pedagogical Initiatives:

Open Ended Instruction: Active discussions in the class room is encouraged to argue a point and arrive at acceptable solutions

Inquiry Learning: More interactive sessions to motivate the students in the classroom

Experimental Learning: Practical applications are discussed for better understanding of theoretical concepts.

Peer Learning: Students are encouraged to share, discuss and learn among themselves.

Class Room Teaching:

- The faculties are encouraged to develop a cordial relation with the students.
- Students are encouraged to interact with the faculty in the classroom
- Faculty will inform the class at the beginning the expected outcome of the course, the methodology of assessment and dates for assessment exams, etc.
- Periodic notification of the attendance record and overall performance of the class is done so as to ensure that the students can make a self assessment and improve accordingly.
- The students can meet the faculty members in the department during and after working hours.
- Chalk and talk method of teaching is generally adopted by the teachers for teaching the students. However, for some classes, power point presentations and videos are used for better understanding.
- Assignments are given to students on topics related to the topics taught in the class.

- Faculty is required to maintain attendance registers, course files and work dairies.

Improving Quality of Laboratory Experiments

- The laboratory classes are of 150 to 180 minutes duration.
- Several laboratory classes are conducted for every semester to provide students with first-hand experience of the course concepts.
- Laboratory classes on basic computer programming, advanced computer programming, basic electrical engineering, analog electronics, electrical machines, electrical measurements, power electronics, control system, digital electronics, microprocessor/ microcontroller, embedded system, etc are conducted on regular basis followed by their assessments through examinations.
- Laboratory Manuals for all laboratory courses are distributed among students.
- Orientation class for the laboratories is held before the commencement of the laboratory.
- Safety precautions are explained to the students to avoid any untoward incidents.
- Every Laboratory class is conducted by two faculty members and technical assistants.
- Students are encouraged to perform the experiments on their own under the supervision of the faculty.

Additional initiatives taken to improve the teaching learning process:

There are several activities that have been initiated for improving overall Teaching Learning Process.

- One technical quiz is conducted in the department for overall assessment of the students understanding of the subjects taught up to that semester.
- Invited talks and seminars on the current trends are held regularly with resource persons from the industry and academia.
- Students are guided and motivated for higher studies by internal and external resource persons.
- Industrial visits are conducted at least once a year to facilitate practical exposure.
- Workshops/training programs are organized from the department for the students to understand concepts beyond curriculum.
- Group discussion and seminars are held for enhancing the process of teaching-learning.
- At the end of each session, feedback is taken from students on the course instructor. The teacher uses this feedback accordingly to improve his/her performance.
- Weak students are counseled soon after the announcement of internal assessment tests.
- The department gives top priority for personality development with the help of communication skill, ethical values, practical exposure etc.

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

Process to ensure quality (5)

In each semester, the internal assessments are done at least three times. In general, at least two assignments are given for each course. The assignments are designed in such a manner that it helps the students to understand the difficult parts of the course. In some course, where there are more numerical problems, the assignments are designed in such a way that, students need to do numerical problems of different complexity levels.

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

The end semester question papers are generally set by faculty appointed by Gauhati University. But some common criteria are followed for the question paper.

- In general, the end semester question paper for a course covers the whole syllabus for that course.
- The guidelines are set by the university as the college is affiliated to the university.

- The question papers for the class test/quiz are set with an aim to fulfil various course outcomes of a particular course.
- The question papers are set keeping in mind the different difficulty levels of the Bloom's Taxonomy.
- Choices are given for some questions. The question paper is set in such a way that there are questions that are straight, some with an aim that the student will require deep understanding and the last category are questions which need critical thinking and analysis. A sample question paper is given an Annexure III

Assignments:

- Assignment issue and submission dates are announced by the respective faculty members.
- Assignment questions are usually on the topics covered in the syllabus. Assignment also is given on topics not covered in the syllabus ensuring self study among the students.
- The assignments are evaluated, and students are given feedback so that there is continuous improvement in the way they present the assignments.

Evaluation

- The faculty will assess the performance of the students after every internal assessment. The question paper is then discussed in the class which will enable them to perform well in the final examination.
- Usually best two out of three tests are chosen for the award of internal assessment marks. For any genuine reasons, if a student is unable to perform satisfactorily in a particular test, he/she can improve in the other tests.
- The overall final assessment for the internal and end semester examination is done according to the Gauhati University regulation.

Quality of student projects (25)

Identification of projects and allocation methodology (3)

The projects for students are selected in line with the department mission, vision and program outcomes.

- The students are to work on project for 7th& 8th Semester. A student can take one project (one problem), and work on it for two semesters, or work on two small projects (problems) in the two semesters.
- A list of areas for project work is displayed on the notice board which ensures that students can select the appropriate field of interest for the projects.
- Projects are generally allotted to students based on their choice of field of interest. The students are divided in groups of 3/4 students/group with one faculty member assigned as project guide for each group. The project works are based on shared ideas of the student-group and the project guide.

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

- The project works mostly involve theoretical analysis, testing & validation, prototype design, circuit assembling, control circuit design, etc. Various mathematical tools, such as (evaluation version) MATLAB, PowerWorld Simulator, EMTDC etc are used by the students for their project works. This directly contributes to the POs and PSOs
- The project works are aimed at improving the analytical, computational and practical skills as well as hands-on experience in making models, prototypes etc. It also leads to alternatives to achieve economy, better efficiency and effectiveness.

- While selecting a project, it is kept in mind that issues such as environment, safety and cost are looked into. The basic idea behind these project works is to make the students learn the usage of modern tools and techniques, problem analysis capability and skill, design and development of systems and solutions, the habit of developing team work.

Process for monitoring and evaluation (5)

- Project coordinators, usually two faculties, are appointed by the Head of the department who are responsible for planning, scheduling and execution of all the activities related to the student project work.
- For each group of students a Project Review Committee (PRC) is formed comprising a few faculty members to review the progress of the group at regular intervals.
- Each project group consults the respective guide at least once in a week to apprise the guide about the progress of their work.
- The timeline usually followed by the Department for project related activities is given below:

Time Line	Task	Particulars
SEVENTH SEMESTER		
1 ST Week	Display of project areas on the notice board	Students are notified about forming groups and the same is intimated to the Project Coordinators.
2 nd Week	Proposal Seminar	Each group after consultation with their guides will give a brief presentation of the project proposed to be undertaken.
6 th Week	First Progress Seminar	Progress in the project work is reviewed by the Project Review Committee and advised accordingly.
10 th Week	Second Progress Seminar	Students will present work done after the first progress seminar. This usually includes actual results from the project. PRC will again analyze and give appropriate suggestions.
Semester End	Report Submission	At the end of the semester, the students will submit a report and will appear for demonstration of the hardware and software projects as well as viva-voce

EIGHTH SEMESTER		
1 st Week	Proposal Seminar	Applicable for those groups which would like to take on a new project.
6 th Week	First Progress Seminar	Students here demonstrate their project and are expected to complete 70 % of their work. PRC monitors it.
10 th Week	Second Progress Seminar	Students should complete 90% of the project work. The models should be in working condition and results and analysis of results should be done.
12 th week	Report Draft Submission	Project groups are to submit the first draft of the report to the respective guides
Semester End	Final Submission	Students are to submit a working model of the project and the PRC verifies it. Final presentation on the work should be done and a viva-voce organized for the project.

Table B.2.2.3a

Evaluation Scheme for Project:

The evaluation scheme for project is done based on an assessment rubric. The main performance indicators for the progress seminar are as listed below. The final rubric is also given below.

First Progress Seminar

Sl. No	Performance Indicator	POs mapped
1.	Literature Survey/ Presentation Report	PO4,PO9
2.	Presentation	PO9,PO10
3.	Questions and answers	

Table B.2.2.3b

Second Progress Seminar

Sl. No	Performance Indicator	POs mapped
1.	% of work completed/ Presentation Report	PO4,PO5,PO6,PO7,PO8 PO9
2.	Presentation	PO10
3.	Questions and answers	

Table B.2.2.3c

Final Submission

Sl. No	Performance Indicator	POs mapped
1.	Output of Working Model (Demo)	PO4,PO5,PO6,PO7,PO8 PO9
2.	Presentation and quality of final report	PO10
3.	Innovation and creativity in the project	PO12
4.	Questions and Answer	

Table B.2.2.3d

Assessment Rubric

Criteria for evaluation	Characteristics	Unacceptable (0 to 30 %)	Acceptable (31 to 60 %)	Commendable (61 to 100 %)	Score
Project Work (30)	Background information (10)	Insufficient literature survey is provided.	Background information based on literature survey is provided but not sufficient.	Thorough and relevant background information based on literature survey is given.	
	Design approach/ Simulation, results and Analysis (10)	Approach to the problem is weak. Results are disappointing or incomplete.	Approach to the problem is satisfactory. But results are not remarkable	Approach to the problem is innovative and results are acceptable and usable.	
	Information conveyed about results and Analysis (10)	Information is either missing or not sufficient	Information is given but not sufficient.	Information is thorough and relevant to the project .	
Report (10)	Content (5)	The writing is poorly arranged and lacks focus on the work.	The writing is acceptable but moderately focused on the work.	The writing properly arranged and it is clearly focused on the project work.	
	Report organization and writing (5)	Organization of the report is poor. Results/ conclusions etc. are erroneous.	Organization of the report is not very satisfactory. Results/ conclusions etc. have minor errors.	Organization of the report is well arranged. Results/ conclusions etc. have no error.	
Progress Seminar (20)	Progress of the work (10)	Not satisfactory	Good	Very good	
	Presentation (5)	Poor	Satisfactory	Excellent	
	Interaction (5)	Could not answer Any question.	Answered some of the questions	Answered almost all the questions asked.	

Evaluation by the Supervisor (40)	Objective , target and time frame(30)	Objectives, target and time frame are not taken care of.	Objectives, target and time frame are moderately maintained	Objectives, target and time frame are properly taken care of.	
	Punctuality, regularity, team Spirit (10)	Poor	Satisfactory	Good	
Final Presentation and Viva (50)	Visual aids (10)	Poor quality of visual aids.	Appropriate visual aids.	Excellent visual aids.	
	Oral Quality (15)	Poor	Satisfactory	Excellent	
	Viva (25)	Could not answer Any question.	Answered some of the questions	Answered almost all the questions asked.	

Table B.2.2.3e

Process to assess individual and team performance (5)

- The project guide continuously monitors the working of the concerned project group and assesses each student's contribution to the project.
- Individual student and group performance in a project are finally evaluated through a poster presentation/ viva-voce
- Viva voce examination conducted by an expert panel consisting of an external examiner and few internal examiners.
- Group performance is evaluated by assessing each member of the group regarding demonstration of a particular part of their project work

Quality of completed projects/working prototype

Each quality of the completed project is analyzed in the following manner:

- Background literature survey and related studies about the project
- Innovation and creativity of the project
- Development of a working prototype
- Environmental impact of the project
- Quality of the Final report
- Publication from the work if any

Best Project 2011-2015

Sl.No	Title of the Project	Name of the Students	Guide
1	Performance Improvement of Primary and Secondary Distribution System	(i) Mohit Muraka(11/193) (ii) Anuj Agarwa(11/200) (iii) Ankur Agarwal (11/202) (iv)Bijay Sutradhar (11/208)	Dr.Satyajit Bhuyan
2	Impact of Embedded Generation on Power System	(i) Barun Kalita (11/162) (ii)Dhritiman Bharadwaj (11/154) (iii) Suleman Haque (11/194) (iv) Imran Hussain (11/152)	Dr.Bimal Chandra Deka

Table B.2.2.3f

Best Project 2012-2016

Sl.No	Title of the Project	Name of the Students	Guide
1	Performance Improvement of Distribution System using Distribution Generation	(i) Shreyas Bhattacharya (12/163) (ii) Deepjyoti Saha (12/165) (iii) Anirban Sarma (12/182) (iv) Debraj Bhattacharjee (12/196)	Dr.Satyajit Bhuyan
2	Characterization of railway track vibration for determination of distance of a running train	(i) Dipayan Singha (12/157) (ii) Kumar Shantanu Basak (12/175) (iii) Sumit Sarkar (12/162) (iv) Nani Yampi(12/438)	Dr.Durlav Hazarika

Table B.2.2.3g

Best Project 2013-2017

Sl.No	Title of the Project	Name of the Students	Guide
1	Power quality improvement using shunt filters	Sabbir Zaman (13/304) Rishavi Borthakur (13/165) Nayan Jyoti Talukdar (13/190) Gurdeep Singh (13/263)	Dr.Satyajit Bhuyan
2	Electronic guiding stick using IR sensor	Siddhartha Barman (13/231) Pranjal Das (13/232) Subhom Saha (13/238) Sajud Abil (13/424)	Prof. Deba Kumar Mahanta

Table B.2.2.3h

The University Guidelines for the allocation of marks is as follows:

7 th Semester:	Final Presentation and viva:	30%
	Internal assessment:	70%
8 th Semester:	Final seminar and viva:	33.33%
	Guide's assessment:	66.67%

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

Dhiman Kalita, Dipankar Sarkar, Sishir Dutta, Sourav Das, Performance Analysis of Different Controllers with Energy Storage System, "National conference on Non Conventional Energy: Harvesting Technology and Its Challenges", Assam Engineering College, November 2017. Adjudged the Best Paper.

Initiatives related to industry interaction (15)

Industry supported laboratories (5)

NIL

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

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

Type of Industries, type of labs, objectives, utilization and effectiveness

Impact analysis

Documentary evidence

Initiatives related to industry internship/summer training (15)

Industrial Training/Tour

In every Academic session, student batches are taken for industrial tour to various industries. The students usually visit hydel power stations, thermal power stations, Sub-stations, Machine manufacturing units etc. Hands-on training is also sometimes imparted to increase the knowledge of the students.

Industrial Internship:

Initiatives:

- The industry internship/training is compulsory for the students after the 6th semester examinations.
- The training and placement cell of the college contact the companies and forwards the applications of the students to industries where the students desire to take the training. Normally the students undergo training for a period of one month. Some students are offered training outside the state and also sometimes abroad, when such opportunities are available.
- The students are briefed about the outcomes of the internship in an induction class organized especially for the students. The assessment rubric for the summer training is conveyed to the students.
- Students are to collect feedback form from the department and submit to the Training section of the industry where they undergo training.
- The Training section of concerned industry provides a feedback on the performance of the students in a sealed envelope to the faculty coordinator of the Department.

Post training Assessment (4)

After the completion of training, the students are to submit report and present before a panel of internal examiners for assessment of their learning outcome. The assessment is done based on the assessment rubric as well as the feedback received from the industry.

Summer Training Data for 2016-17

Roll No.	Name	Place of Training	Duration
EE/13/202	Mayur Krishna Kalita	AEGCL, Kahilipara	30 days
EE/13/175	Sujit Gupta	AEGCL, Kahilipara, Guwahati	20 days
EE/13/188	Nabanita Roy	AEGCL, Kahilipara, Guwahati	30 days
EE/13/199	Rajinul Haque Choudhury	AEGCL, Kahilipara, Guwahati	19 days
EE/13/222	Ghanashyam Sonowal	AEGCL, Kahilipara, Guwahati	18 days
EE/13/228	Pratyasa Bora	AEGCL, Kahilipara, Guwahati	18 days
EE/13/429	Scutar Phawa	AEGCL, Kahilipara, Guwahati	20 days
EE/14/523	Raju Sah	AEGCL, Kahilipara, Guwahati	18 days
EE/13/153	Dipankar Haloi	AEGCL, Mirza, Assam	30 days
EE/13/158	Girin Chutia	AEGCL, Mirza, Assam	30 days
EE/13/160	Jayanta Ranjan Konwar	AEGCL, Mirza, Assam	30 days
EE/13/169	Ankur Debnath	AEGCL, Mirza, Assam	30 days
EE/13/183	Ridip Dutta	AEGCL, Mirza, Assam	20 days
EE/13/184	Bikash Ranjan Das	AEGCL, Mirza, Assam	17 days
EE/13/204	Bishal Das	AEGCL, Mirza, Assam	30 days
EE/13/205	Bishal Jyoti Das	AEGCL, Mirza, Assam	13 days
EE/13/227	Sanidhya Barua	AEGCL, Mirza, Assam	30 days
EE/14/519	Hrishikesh Singh	AEGCL, Mirza, Assam	18 days
EE/14/521	Nilutpal Bora	AEGCL, Mirza, Assam	20 days
EE/13/208	Kangkan Baishya	AEGCL, Narengi, Guwahati	26 days
EE/13/212	Longbini Taro	AEGCL, Narengi, Guwahati	26 days
EE/13/217	Shishir Khungur Brahma	AEGCL, Narengi, Guwahati	26 days
EE/13/219	Sanjib Deori	AEGCL, Narengi, Guwahati	26 days
EE/13/223	Topan Konwar	AEGCL, Sarusajai, Guwahati	13 days
EE/13/226	Satyajit Mohan	AEGCL, Sarusajai, Guwahati	13 days
EE/13/229	Pragati Pratim Handique	AEGCL, Sarusajai, Guwahati	13 days
EE/13/230	Palakh Gogoi	AEGCL, Sarusajai, Guwahati	13 days
EE/13/235	Pulak Gogoi	AEGCL, Sarusajai, Guwahati	13 days
EE/13/407	Hirak Choudhury	AEGCL, Sarusajai, Guwahati	13 days
EE/13/432	Yumnam Haridas Singh	AEGCL, Sarusajai, Guwahati	13 days
EE/13/115	Shanti Sharma	BHEL, Bhopal	24 days
EE/13/187	Sourav Paul	BHEL, Bhopal	24 days
EE/13/191	Dipankar Gupta	BHEL, Bhopal	24 days
EE/13/192	Debahuti Khound	BHEL, Bhopal	24 days
EE/13/401	Sanika Podder	BHEL, Bhopal	24 days
EE/13/304	Sabbir Zaman	CDAC, Pune	36 days
EE/13/224	Chitradeep Rajkumar	Goshala Power Station, Guwahati	24 days
EE/13/232	Pranjal Das	Goshala Power Station, Guwahati	24 days
EE/13/236	Mridul Barman	Goshala Power Station, Guwahati	24 days

EE/13/263	Gurdeep Singh	IOCL, Bongaigaon, Assam	28 days
EE/13/162	Manas Jyoti Das	IOCL, Bongaigoan, Assam	28 days
EE/13/155	Dhrubajyoti Choudhury	IOCL, Noonmati, Guwahati	24 days
EE/13/163	Bidyut Ranjan Deka	IOCL, Noonmati, Guwahati	25 days
EE/13/165	Rishavi Borthakur	IOCL, Noonmati, Guwahati	24 days
EE/13/182	Manish Agarwala	IOCL, Noonmati, Guwahati	25 days
EE/13/190	Nayan Jyoti Talukdar	IOCL, Noonmati, Guwahati	25 days
EE/13/193	Jyotirmay Kalita	IOCL, Noonmati, Guwahati	25 days
EE/13/260	Chayanika Das	IOCL, Noonmati, Guwahati	25 days
EE/13/310	Debarpita Roy	IOCL, Noonmati, Guwahati	23 days
EE/13/334	Upasana Lahkar	IOCL, Noonmati, Guwahati	25 days
EE/13/195	Fateh Al Jawed Huda	LTPS, APGCL, Lakwa	24 days
EE/13/196	Ekram Ahmed	LTPS, APGCL, Lakwa	24 days
EE/13/198	Rahul Roy	LTPS, APGCL, Lakwa	24 days
EE/13/200	Rahul Tarafdar	LTPS, APGCL, Lakwa	24 days
EE/13/201	Tikharjyoti Barman	LTPS, APGCL, Lakwa	24 days
EE/13/203	Subham Das	LTPS, APGCL, Lakwa	24 days
EE/13/207	Debashish Baidya	LTPS, APGCL, Lakwa	24 days
EE/13/166	Dhiraj Kumar Sharma	NEEPCO, Bokuloni	15 days
EE/13/168	Bhaskarjyoti Paul	NEEPCO, Bokuloni	24 days
EE/13/179	Anurag Dutta	NEEPCO, Bokuloni, Assam	24 days
EE/13/185	Gautam Sarmah	NHPC, Kullu, Himachal Pradesh	25 days
EE/13/186	Kuldeep Lochan Hazarika	NRL, Golaghat, Assam	17 days
EE/13/189	Kaushik Barman	NRL, Golaghat, Assam	27 days
EE/13/197	Uddipta Narayan Kalita	NRL, Golaghat, Assam	12 days
EE/13/221	Srimanta Madhab Pegu	NRL, Golaghat, Assam	20 days
EE/13/225	Sumeet Kundu	NRL, Golaghat, Assam	27 days
EE/13/231	Siddhartha Barman	NRL, Golaghat, Assam	17 days
EE/13/238	Subham Sahu	NRL, Golaghat, Assam	27 days
EE/13/424	Sajid Abil	NRL, Golaghat, Assam	18 days
EE/13/156	Nitish Kumar Jain	NTPC, Bongaigaon, Assam	30 days
EE/13/167	Akshat Jain	NTPC, Bongaigaon, Assam	30 days
EE/13/216	Bijan Brahma	NTPC, Bongaigaon, Assam	30 days
EE/13/170	Debapriyo Dey	NTPS, Namrup, Assam	30 days
EE/13/172	Arnab Paul	NTPS, Namrup, Assam	30 days
EE/13/176	Akash Kashyap	NTPS, Namrup, Assam	30 days
EE/13/181	Rajiv Mazumdar	NTPS, Namrup, Assam	30 days
EE/13/220	Souvik Basumatary	NTPS, Namrup, Assam	30 days
EE/13/240	Robin Sharma	NTPS, Namrup, Assam	30 days
EE/13/180	Himan Kashyap Thakuria	OIL Pipeline HQ, Narengi	15 days
EE/13/157	Prantik Sarma	OIL Pipeline HQ, Narengi, Ghy	15 days
EE/13/206	Pritam Kumar Roy	OIL, Narengi, Guwahati	13 days

EE/13/214	Prachi Rabha	OIL, Narengi, Guwahati	13 days
EE/13/154	Amitabha Bhattacharjee	Power Grid, Srikona	30days
EE/13/164	Ankita Deb	Power Grid, Srikona	30 days
EE/13/171	Arnob Chakraborty	Power Grid, Srikona	30 days
EE/13/173	Debojyoti Kar	Power Grid, Srikona	30 days
EE/13/209	Priskila Lalsang Kim Buhril	RHEP NEEPCO, Ranganadi,Aru. P	25 days
EE/13/211	Asish Thausen	RHEP NEEPCO, Ranganadi, Aru. P	25 days
EE/13/213	Dhin Sarpo Rongpi	RHEP NEEPCO, Ranganadi, Aru. P	25 days
EE/13/421	Rinchin Droma Bapu	RHEP NEEPCO, Ranganadi, Aru. P	25 days
EE/13/422	Miktawa Mantaw	RHEP NEEPCO, Ranganadi, Aru. P	25 days
EE/13/423	Dubom Lego	RHEP NEEPCO, Ranganadi, Aru. P	25 days
EE/13/430	Elicia Tera Ch Marak	RHEP NEEPCO, Ranganadi, Aru. P	25 days
EE/13/177	Abhinava Barthakur	Stone India Ltd, Kolkata	30 days

Table B.2.2.5

CRITERION 3	Course Outcomes and Program Outcomes	120
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3. COURSE OUTCOMES AND PROGRAM OUTCOMES (120)

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

PROGRAM OUTCOMES

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

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

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

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

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

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

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

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

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

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOME

The graduates of Electrical Engineering will:

PSO1: Demonstrate the capability to comprehend the technical advancements related to electric engineering as well as in multidisciplinary areas.

PSO2: Be professional with leadership qualities, good communication skills, and ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.

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: [EE 341] Network Analysis; Year of study-2014-15

At the end of the course, students will be able:

EE 341.1	Apply appropriate laws of various circuit elements to develop mathematical models, detailing their constructional features and their applications.
EE 341.2	Analyze given electric circuits for their transient response.
EE 341.3	Model given electrical networks using elementary graph theory and matrix representation amenable to various types of network analysis.
EE 341.4	Apply appropriate network theorems and concept of two-port network for evaluating various networks
EE 341.5	Synthesize networks from various admittance and impedance functions.

Course Name: [EE442]: Electrical Machines I, Year of study—2014-15

At the end of the course, students will be able to:

EE 442.1	Apply principles of electromagnetic induction and energy conversion for a given electromagnetic system
EE 442.2	Explain construction of DC machines and analyze their performance
EE 442.3	Predict the performance of DC motors and choose a appropriate one for a given application
EE 442.4	Analyze the performance of single phase and three phase transformers and select a appropriate three phase connection for a given application
EE 442.5	Analyze the characteristics of three phase induction motors and evaluate their performance for a given application

Course Name: [EE541] Digital Systems; Year of study—2015-16

At the end of the course, students will be able to:

EE541.1	Perform conversion of n-bit codes from one form to another form.
EE541.2	Design a logical circuit using the minimum number of gates for a given logical expression.
EE541.3	Use and demonstrate a given digital combinational circuit.
EE541.4	Use different types of flip-flops and design a sequential logic circuit.
EE541.5	Design ROM, RAM and PLA for a given application.

Course Name: [EE 645] Control System II;**Year of Study—2015-16**

At the end of the course, students will be able to:

EE 645.1	Design an appropriate feedback controller and compensator for a given system.
EE 645.2	Apply the knowledge of state and state variable analysis to a given system.
EE 645.3	Analyze a given linear and non-linear control system.
EE 645.4	Analyze and evaluate the stability of a given discrete control system.
EE 645.5	Evaluate stability of a given linear and non-linear control system

Course Name:[EE741] Computer Aided Power System Analysis; Year of Study-2016-17

At the end of the course, students will be able to:

EE 741.1	Develop an appropriate mathematical model for analysis of an interconnected power system.
EE 741.2	Analyze a given power system for a symmetrical/unsymmetrical faults using symmetrical components.
EE 741.3	Carry out contingency analysis in power system operation and planning.
EE 741.4	Apply and analyze load flow for a given power system operation and planning.
EE 741.5	Evaluate the stability of a power system by using different stability analysis tools

Course Name: [EE 843] Industrial Drives and Control;**Year of study—2016-17**

At the end of the course, students will be able to:

EE 843.1	Differentiate among various types of electric drives, their dynamics and apply them for industrial applications
EE 843.2	Find an appropriate value of resistance for starting of motors and braking of electric motors
EE 843.3	Apply the relations of heating and rating of a motor for choosing type and size of motor and enclosures suitable for different applications
EE 843.4	Choose an appropriate power electronic convertor for control of dc and ac drives
EE 843.5	Analyse different kind of processes involved in drives used in industries

Table B: 3.1.1 Course Outcomes**CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)****Course Name: [EE 341]****Network Analysis;****Year of study-2014-15**

CO	PROGRAM OUTCOME											
	1	2	3	4	5	6	7	8	9	10	11	12
EE341.1	3	3	--	--	--	--	--	--	--	--	--	--
EE341.2	3	3	--	--	--	--	--	--	--	--	--	--
EE341.3	3	3	--	--	--	--	--	--	--	--	--	--
EE341.4	3	3	--	--	--	--	--	--	--	--	--	--
EE341.5	3	3	--	--	--	--	--	--	--	--	--	--

Course Name: [EE-442]: Electrical Machines I, Year of study—2014-15

CO	PROGRAM OUTCOME											
	1	2	3	4	5	6	7	8	9	10	11	12
EE442.1	2	1	2	--	--	--	--	--	--	--	--	--
EE442.2	2	1	2	--	--	--	--	--	--	--	--	--
EE442.3	2	3	2	--	--	--	--	--	--	--	--	--
EE442.4	2	2	2	--	--	--	--	--	--	--	--	--
EE442.5	2	1	2	--	--	--	--	--	--	--	--	--

Course Name: [EE541] Digital Systems; Year of study—2015-16

CO	PROGRAM OUTCOME											
	1	2	3	4	5	6	7	8	9	10	11	12
EE541.1	3	3	--	--	--	--	--	--	--	--	--	--
EE541.2	3	3	--	--	--	--	--	--	--	--	--	--
EE541.3	3	3	--	--	--	--	--	--	--	--	--	--
EE541.4	3	3	--	--	--	--	--	--	--	--	--	--
EE541.5	3	3	--	--	--	--	--	--	--	--	--	--

Course Name: [EE 645] Control System II; Year of Study—2015-16

CO	PROGRAM OUTCOME											
	1	2	3	4	5	6	7	8	9	10	11	12
EE645.1	3	--	--	--	--	--	--	--	--	--	--	--
EE645.2	3	3	--	--	--	--	--	--	--	--	--	--
EE645.3	3	3	--	--	--	--	--	--	--	--	--	--
EE645.4	3	3	--	--	--	--	--	--	--	--	--	--
EE645.5	3	3	3	--	--	--	--	--	--	--	--	--

Course Name:EE741] Computer Aided Power System Analysis; Year of Study—2016-17

CO	PROGRAM OUTCOME											
	1	2	3	4	5	6	7	8	9	10	11	12
EE741.1	3	3	--	--	--	--	--	--	--	--	--	--
EE741.2	3	3	2	--	--	--	--	--	--	--	--	--
EE741.3	3	2	1	--	--	--	--	--	--	--	--	--
EE741.4	3	3	2	--	--	--	--	--	--	--	--	--
EE741.5	2	3	--	--	--	--	--	--	--	--	--	--

Course Name: [EE 843] Industrial Drives and Control; Year of study—2016-17

CO	PROGRAM OUTCOME											
	1	2	3	4	5	6	7	8	9	10	11	12
EE843.1	3	2	--	--	--	--	--	--	--	--	--	--
EE843.2	3	3	--	--	--	--	--	--	--	--	--	--
EE843.3	3	3	--	--	--	--	--	--	--	--	--	--
EE843.4	2	2	--	--	--	--	--	--	--	--	--	--
EE843.5	2	2	--	--	--	--	--	--	--	--	--	--

Table B : 3.1.2a CO-PO Matrices

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

Course Name: [EE 341]

Network Analysis

Year of study-2014-15

Course Outcomes	PSO1	PSO2
EE341.1		
EE341.2		
EE341.3	1	
EE341.4		
EE341.5	1	

Course Name: [EE-442]

Electrical Machines I

Year of study—2014-15

Course Outcomes	PSO1	PSO2
EE442.1		
EE442.2		
EE442.3		
EE442.4		
EE442.5	3	

Course Name: [EE541]

Digital Systems

Year of study—2015-16

Course Outcomes	PSO1	PSO2
EE541.1		
EE541.2	1	
EE541.3		
EE541.4		
EE541.5	1	

Course Name: [EE 645]

Control System II

Year of Study—2015-16

Course Outcomes	PSO1	PSO2
EE645.1		
EE645.2		
EE645.3	1	
EE645.4		
EE645.5	2	

Course Name: [EE741] Computer Aided Power System Analysis; Year of Study—2016-17

Course Outcomes	PSO1	PSO2
EE741.1		

EE741.2		
EE741.3	1	
EE741.4		
EE741.5	1	

Course Name: [EE 843] Industrial Drives and Control Year of study—2016-17

Course Outcomes	PSO1	PSO2
EE843.1		
EE843.2	1	
EE843.3		
EE843.4		2
EE843.5	1	

Table B : 3.1.2b CO-PSO Matrices

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

Course Code		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1.1 TS	PH101	Physics-I	2.5	2										
1.1 P	PH101L	Physics-I Lab	2											
1.2 TS	CY102	Chemistry-I	2.6	1.6					1	1.5				1
1.2 P	CY102L	Chemistry-I Lab	2.5	1.8		1						1		
1.3 TS	MA103	Mathematics-I	3	3	1.2	1						1		2
1.4 TS	CE104	Elements of Civil Engineering	2.6	2.2	0.2	0.8	0.6							
1.5 TS	HU105	English Communication and Technical Report Writing			1		1		1	1	1.3	3	2.25	3
1.6 TS	CE106	Engineering Graphics-I	3	3	2.4	2.6	2.1	2.6	0.7					
1.7 PS	CS107	Introduction to Computing	2		3	2.7	2							
1.8 S	ME108	Workshop-I	1.8	1.4						1.2	1.8			
2.1 TS	PH201	Physics-II	2.5	2										
2.1 P	PH201L	Physics-II Lab	2											
2.2 TS	CY202	Chemistry-II	2.8	2.2	1.3				1	1		1	1	1
2.2P	CY202L	Chemistry-II Lab	2	2	-	1.3	-	1	1.3	-	-	1	-	-
2.3 TS	MA203	Mathematics-II	3	3	2									2
2.4 TS	ME204 CE205	Engineering Mechanics and Strength of Materials	3	3	2	1								
2.4 P	ME204L CE205L	Engineering Mechanics and Strength of Materials Lab	3	2		3	3							
2.5 TS	EE206	Basic Electrical Engg.-I	3	3										
2.5 Lab	EE206L	Basic Electrical Engg.-I Lab				3					2			

2.6 TS	ME207	Engineering Graphics-II	3	3	1.7		2	3						1
2.7 S	ME208	Workshop Practice	1.6	2						1	1.6			
3.1TS	MA301	Mathematics -III	3	3										
3.3TS	EE341	Network Analysis	3	3										1.2
3.6TS	EE342	Electrical Engineering Materials & Devices	2.2	2.4										1.75
3.5TS	EE343	Advanced Computer Programming	2.8	3										2
3.4TS	ME302	Engineering Mechanics -II	3	2										
3.2TS	ME305	Basic Thermodynamics	3	2.8										
3.7P	EE345	Electrical Engineering Drawing	3	1.7										
3.5P	EE343	Advanced Computer Programming				3								
3.4P	ME302	Engineering Mechanics -II				1.8								
3.2P	ME305	Basic Thermodynamics			2									
3.8T	EE344	General Proficiency									3	2		
4.1TS	MA401	Mathematics -IV	3	2.4	1.6	1	1				1			1.4
4.2TS	HU402	Sociology and Accountancy		1				1.3	1	1.3	1.2	1	1	3
4.3TS	HU403	Communication Skill		1.8		1.5		2.2	1.2	1.8	2	3		3
4.7TS	EE441	Analog Electronics	3	3	3									
4.6TS	EE442	Electrical Machines-I	2	1.6	2									
4.4TS	EE443	Electrical Measurements and Measuring Instruments	3	2.8	1									
4.5TS	EE444	Data Structure	2.2	2.2										
4.9T	EE445	General Proficiency									3	2		
4.7P	EE441L	Analog Electronics Lab				2								
4.4P	EE443L	Electrical Measurements and Measuring Instruments Lab												
4.5P	EE444L	Data Structure Lab				3								
5.1TS	HU501	Economics & Principles of Management.		1				2	1	1	2	1	1	2.66
5.2TS	EE541	Digital Systems	3	3										
5.3TS	EE542	Control System-I	3	2.8										
5.4TS	EE543	Power Electronics	2.4	2.6	2.4									
5.5TS	EE544	Electric Power System-I	3	2.7										
5.6TS	EE545	Electrical Machines-II	2.8	2.4	2.2									
5.8T	EE546	General Proficiency									3	2		
5.2P	EE541L	Digital Systems Lab				2								
5.3P	EE542L	Control System-I Lab				2								
5.4P	EE543L	Power Electronics Lab				1								
5.6P	EE547	Electrical Machines-I Lab				2								
6.1T	EE641	Electromagnetic Fields	3	3	1.4									

6.2TS	EE642	Computer Oriented Numerical Methods	2.2	2.2										
6.3TS	EE643	Microprocessors & Applications	2.8	2.8	2.4									
6.4TS	EE644	Electric Power System-II	2.8	2.6	1.2									
6.5TS	EE645	Control System -II	3	3	3									
6.6TS	EE646	Signals and Systems	2.6	2.6										
6.7T	EE647	General Proficiency									3	2		
6.2P	EE642L	Computer Oriented Numerical Methods Lab				2								
6.3P	EE643L	Microprocessors & Applications Lab				2.2								
6.5P	EE645L	Control System -II Lab				3								
6.8P	EE648	Electrical Machines-II Lab				2								
7.1TS	EE741	Computer Aided Power System Analysis	2.8	2.8	1.7									
7.2TS	EE742	Communication Engineering	3	3	1									
7.3TS	EE743	Operations Research	2.8	2.8										
7.4TS	EE744	Instrumentation Engineering	3	1.6	2									
7.5TS	EE745(1)	Elective -I(CN)	3	1.6										
7.5TS	EE745(2)	Elective -I(NCES)	3	2.4										
7.6TS	EE746(1)	Elective-II(MBI)	2.8	3										
7.6TS	EE746(2)	Elective-II(DSD)	3	3										
7.7P	EE747	Training				2.7	1	2	2	2			1.67	
7.8P	EE748	Project -I				2	1	1	1	3			3	
8.1TS	EE841	Power System Interconnection & Control.	3	3										
8.2TS	EE842	HVE	3	1.8										
8.3TS	EE843	Industrial Drives & Control	2.6	2.4										
8.4TS	EE845(1)	Elective -I(DSP)	2.6	2.6										
8.4TS	EE845(2)	Elective -I(DIP)	1.8	1.2										
8.5TS	EE844(1)	Elective-II(RE)	2.6	2.5										
8.5TS	EE844(2)	Elective-II(UCEE)	2.2	1.6										
8.7P	EE846	Project -II				2	1	1	1.5	3			3	
8.6P	EE847	Viva-Voce	3	3						3			3	
		Average	2.69	2.4	1.8	1.9	1.9	1.5	1.2	1.4	2	2.02	1.67	2.1

Table B: 3.1.3a Program Level CO-PO Matrix

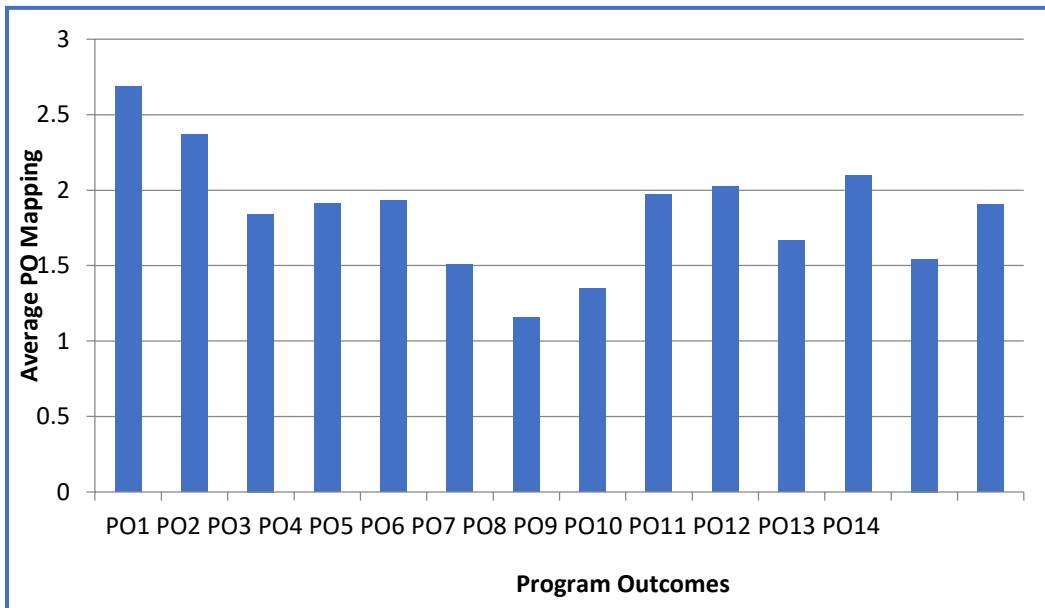


Fig : 3.1.3 Program Level CO-PO Mapping

Program level Course-PSO matrix of all courses INCLUDING first year courses

Course Code	Course	PSO1	PSO2
1.1 TS	PH101 Physics-I		
1.1 P	PH101L Physics-I Lab		
1.2 TS	CY102 Chemistry-I		
1.2 P	CY102L Chemistry-I Lab		
1.3 TS	MA103 Mathematics-I		
1.4 TS	CE104 Elements of Civil Engineering		
1.5 TS	HU105 English Communication and Technical Report Writing		
1.6 TS	CE106 Engineering Graphics-I		
1.7 PS	CS107 Introduction to Computing		
1.8 S	ME108 Workshop-I		
2.1 TS	PH201 Physics-II		
2.1 P	PH201L Physics-II Lab		
2.2 TS	CY202 Chemistry-II		
2.2P	CY202L Chemistry-II Lab		
2.3 TS	MA203 Mathematics-II		
2.4 TS	ME204 Engineering Mechanics and Strength of Materials		
2.4 P	CE205 ME204L Engineering Mechanics and Strength of Materials Lab		
2.5 TS	EE206 Basic Electrical Engg.-I	2	1
2.5 Lab	EE206L Basic Electrical Engg.-I Lab		
2.6 TS	ME207 Engineering Graphics-II		
2.7 S	ME208 Workshop Practice		
3.1TS	MA301 Mathematics -III	1	
3.3TS	EE341 Network Analysis	1	
3.6TS	EE342 Electrical Engineering Materials & Devices	2	1
3.5TS	EE343 Advanced Computer Programming	1	1
3.4TS	ME302 Engineering Mechanics -II		
3.2TS	ME305 Basic Thermodynamics		
3.7P	EE345 Electrical Engineering Drawing	2	

3.5P	EE343	Advanced Computer Programming		
3.4P	ME302	Engineering Mechanics -II		
3.2P	ME305	Basic Thermodynamics		
3.8T	EE344	General Proficiency	2.5	
4.1TS	MA401	Mathematics -IV	1	
4.2TS	HU402	Sociology and Accountancy	2	
4.3TS	HU403	Communication Skill	3	
4.7TS	EE441	Analog Electronics	2	1
4.6TS	EE442	Electrical Machines-I	3	
4.4TS	EE443	Electrical Measurements and Measuring Instruments	1	1
4.5TS	EE444	Data Structure	1	
4.9T	EE445	General Proficiency	2	
4.7P	EE441L	Analog Electronics Lab		
4.4P	EE443L	Electrical Measurements and Measuring Instruments Lab		
4.5P	EE444L	Data Structure Lab		
5.1TS	HU501	Economics & Principles of Management.	2	
5.2TS	EE541	Digital Systems	1	
5.3TS	EE542	Control System-I	1.5	
5.4TS	EE543	Power Electronics	2	
5.5TS	EE544	Electric Power System-I	2	
5.6TS	EE545	Electrical Machines-II		
5.8T	EE546	General Proficiency		3
5.2P	EE541L	Digital Systems Lab		
5.3P	EE542L	Control System-I Lab		
5.4P	EE543L	Power Electronics Lab		
5.6P	EE547	Electrical Machines-I Lab		
6.1T	EE641	Electromagnetic Fields	1.5	
6.2TS	EE642	Computer Oriented Numerical Methods	2	
6.3TS	EE643	Microprocessors & Applications	1	2
6.4TS	EE644	Electric Power System-II	2	2
6.5TS	EE645	Control System -II	1.5	
6.6TS	EE646	Signals and Systems	1.5	
6.7T	EE647	General Proficiency		3
6.2P	EE642L	Computer Oriented Numerical Methods Lab		
6.3P	EE643L	Microprocessors & Applications Lab		
6.5P	EE645L	Control System -II Lab		
6.8P	EE648	Electrical Machines-II Lab		
7.1TS	EE741	Computer Aided Power System Analysis	1	
7.2TS	EE742	Communication Engineering	1.5	
7.3TS	EE743	Operations Research	1	
7.4TS	EE744	Instrumentation Engineering	1.5	
7.5TS	EE745(1)	Elective -I(CN)	2	
7.5TS	EE745(2)	Elective -I(NCES)	1	2
7.6TS	EE746(1)	Elective-II(MBI)	2	
7.6TS	EE746(2)	Elective-II(DSD)	1	
7.7P	EE747	Training	1	1
7.8P	EE748	Project -I	3	1
8.1TS	EE841	Power System Interconnection & Control.	2	
8.2TS	EE842	HVE	3	
8.3TS	EE843	Industrial Drives & Control	1	2
8.4TS	EE845(1)	Elective -I(DSP)	1	
8.4TS	EE845(2)	Elective -I(DIP)	2	1
8.5TS	EE844(1)	Elective-II(RE)	1.5	
8.5TS	EE844(2)	Elective-II(UCEE)	1.5	

8.7P	EE846	Project -II	3	1
8.6P	EE847	Viva-Voce		2
		Average		1.62 1.74

Table B: 3.1.3b Program Level CO-PSO Matrix

Attainment of Course Outcomes (50)

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

Course outcomes are assessed using either direct method or indirect method:

- In direct method, the performance of students are continuously evaluated on the basis of class tests, home works, class room assignments, power-point presentation on selected topics, quiz and finally the end semester examination. It also includes laboratory experiments for which separate tests are conducted for assessment.

Assam Engineering College is affiliated to Gauhati University. The program adheres to the regulations as laid down by the University. The end semester exam is conducted by the University and the evaluated answer script are returned back to the University. A faculty, taking a particular course, does not necessarily set the question paper or evaluate the answer script. Since the college cannot retain the answer scripts, question wise distribution of marks scored by the candidates are not available. Hence calculation of 'CO Wise attainment' for the end semester examination could not be carried out. Also, evaluated answer scripts of class tests, assignments and other such documents have already been returned to the students till 2017. Hence for the calculation of the course attainment, 50% of the weightage is considered from the continuous assessment (sessional) and 50 % weightage from the end semester university examination.

For the evaluation of sessional marks, the University Guidelines are as follows:

Attendance: 30 % of the total marks

Class Test: 40 % of the total marks

Assignments: 10 % of the total marks

Impression: 20 % of the total marks (this includes but not limited to viva-voce, seminar, laboratory performance, skill, creativity, confidence etc. as decided by the concerned faculty).

From the current assessment year, the individual CO attainment will be carried out based on the assessment methods as given below:

Direct Assessment Methods (CAY)		
Sl.no	Direct Assessment	Method Description
1.	Internal Assessment Test	Three tests will be conducted for every theory subject at during a semester. An additional test may also be conducted for betterment of those students having poor performance. Average of the best two class test Internal Assessment Marks for the relevant subject.
2.	Lab Assignments	Laboratory experiments are to be performed by the students to bridge the gap between theory and practical knowledge of a particular subject. The laboratory assignment is one of the measuring criteria to mainly assess students' practical knowledge. The internal marks for practical shall be based on the laboratory records and lab examination either in the form of hand-on experiment or viva-voce at the end of semester.

3.	End Semester Examination	Performance in the semester examination (theory or practical) is the main criteria to assess whether the course objectives are met and all the course outcomes are attained. The end semester examinations are more focused on attainment of course outcomes.
4.	Project	The internal assessment marks for projects in the final year shall be based on (i) the continuous evaluation of the project by the concerned supervisor/guide and by conducting progress seminars at equal intervals during the semester (ii) the end semester evaluation will be done by a committee consisting of internal experts (faculty from the department) and invited external experts preferably from other reputed academic institutes and industries.
5.	Grand Viva-voce	A separate assessment in the form of viva-voce is made at the end of final semester by a panel of examiners consisting of internal experts (faculty from the department) and invited external experts preferably from other reputed academic institutes and industries. This helps to assess the depth of theoretical as well as practical knowledge of the students

Table B: 3.2.1a Direct Assessment Tool

- Indirect method involves all the inputs from the students, alumni and employers. Various methods such as survey, questionnaire and feedback are designed to collect information from the stakeholders and assessments are made to know the satisfaction levels of programmes and adequacy of facilities. The collective opinions or thoughts of all the stakeholders about the graduate's knowledge or skills will immensely help for continual improvement of programmes.

Indirect assessment Methods		
Sl no	Indirect Assessment Method	Method Description
1.	ALUMNI SURVEY	Collect information to know program satisfaction level.
2.	EXIT FEEDBACK	Collect information to know program satisfaction level from the final year students.
3.	EMPLOYER'S FEEDBACK	Collect information to know the program satisfaction level relating to graduates' skills, capabilities and prospects

Table B: 3.2.1b Indirect Assessment Tool

Record the attainment of Course Outcomes of all courses with respect to set attainment levels:

Measuring Course Outcomes attained through University Examinations

Attainment Level 3: Students scoring more than 70 % marks in the final examination.
Attainment Level 2: Students scoring between (50 -70) % marks in the final examination.
Attainment Level 1: Students scoring between (35-50) % marks in the final examination.
Attainment Level 0: Students scoring less than 35 % marks in the final examination.

Measuring Course Outcome attained through Internal Assessments:

Attainment Level 3: Students scoring more than 70 % marks in the final examination.
Attainment Level 2: Students scoring between (50 -70) % marks in the final examination.
Attainment Level 1: Students scoring between (35-50) % marks in the final examination.
Attainment Level 0: Students scoring less than 35 % marks in the final examination.

Course Outcome and Program Outcome Attainment for EE341

EE 341	Direct Assessm ent	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	Total
CO1	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO2	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO3	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO4	Final	76.7	76.7											85
	Internal	93.3	93.3											
CO5	Final	76.7	76.7											85
	Internal	93.3	93.3											

Table B: 3.2.2a Attainment of Course Outcome of NA EE341

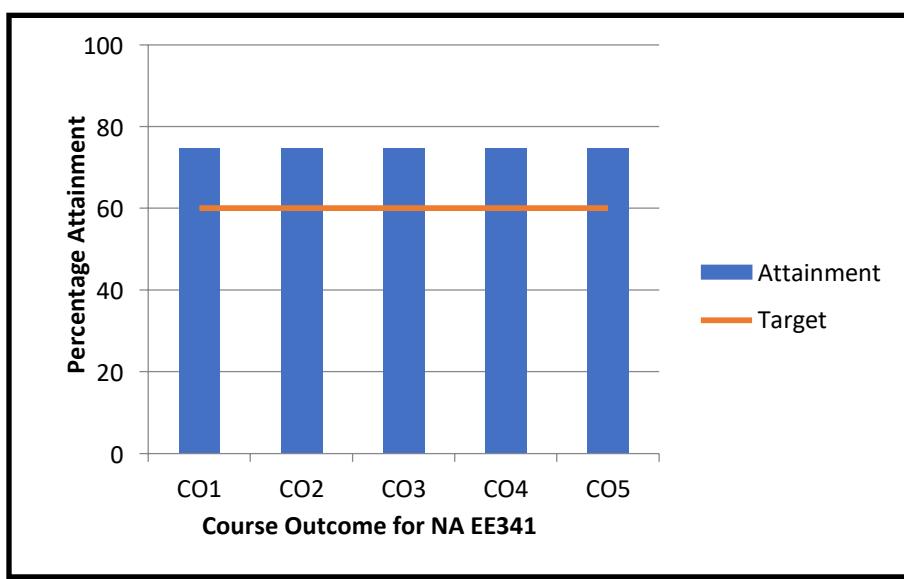


Fig: 3.2.2a Attainment of Course Outcome of NA EE341

Course Outcome and Program Outcome Attainment for EE442

EE 442	Direct Assess ment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	Total
CO1	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO2	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO3	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO4	Final	40	40	40										56
	Internal	71.3	71.3	71.3										
CO5	Final	40	40	40										56
	Internal	71.3	71.3	71.3										

Table B: 3.2.2b Attainment of Course Outcome of EMI EE442

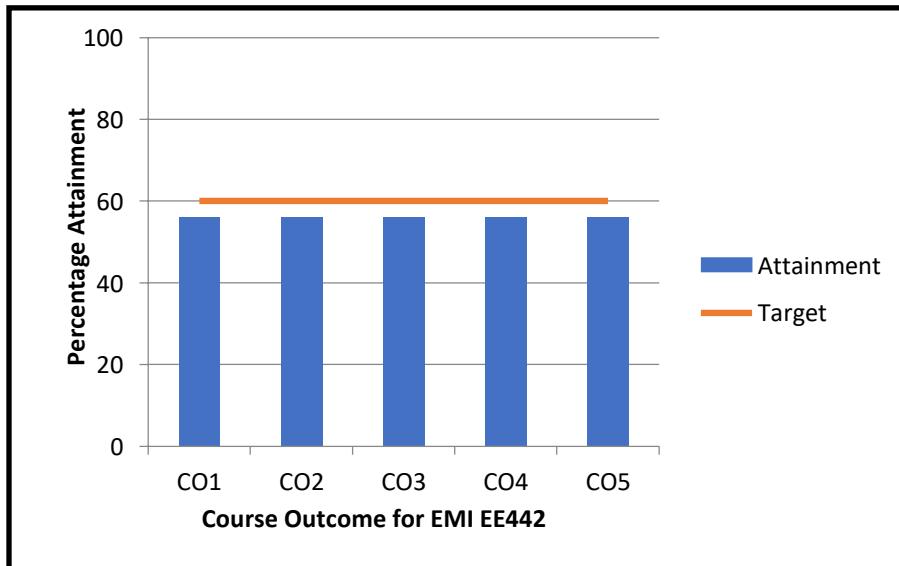


Fig : 3.2.2b Attainment of Course Outcome of EMI EE442

Course Outcome and Program Outcome Attainment for EE541

EE 541	Direct Assess ment	Course Outcome and Program Outcome Attainment													Total
		PO1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2		
CO1	Final	69	69												81.5
	Internal	94	94												
CO2	Final	69	69												81.5
	Internal	94	94												
CO3	Final	69	69												81.5
	Internal	94	94												
CO4	Final	69	69												81.5
	Internal	94	94												
CO5	Final	69	69												81.5
	Internal	94	94												

Table B: 3.2.2c Attainment of Course Outcome of DS EE541

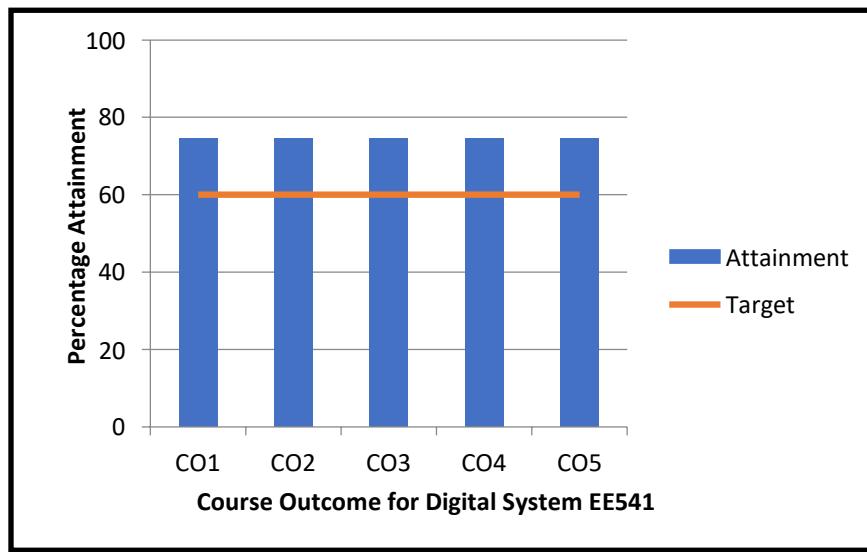


Fig: 3.2.2c Attainment of Course Outcome of DS EE541

Course Outcome and Program Outcome Attainment for EE645

EE 341	Direct Assess ment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	Total
CO1	Final	66.7												71.7
	Internal	76.7												
CO2	Final	66.7	66.7											71.7
	Internal	76.7	76.7											
CO3	Final	66.7	66.7											71.7
	Internal	76.7	76.7											
CO4	Final	66.7	66.7											71.7
	Internal	76.7	76.7											
CO5	Final	66.7	66.7	66.7										71.7
	Internal	76.7	76.7	76.7										

Table B: 3.2.2d Attainment of Course Outcome of CSII EE645

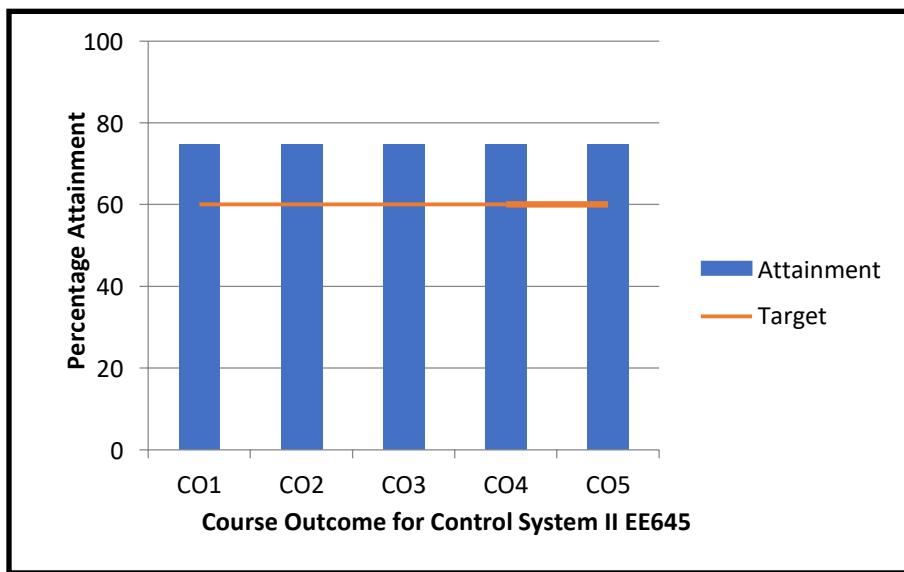


Fig: 3.2.2d Attainment of Course Outcome of CSII EE645

Course Outcome and Program Outcome Attainment for EE741

EE 341	Direct Assess ment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	Total
CO1	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO2	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO3	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO4	Final	64.3	64.3											70.3
	Internal	76.3	76.3											
CO5	Final	64.3	64.3											70.3
	Internal	76.3	76.3											

Table B: 3.2.2e Attainment of Course Outcome of CAPSA EE741

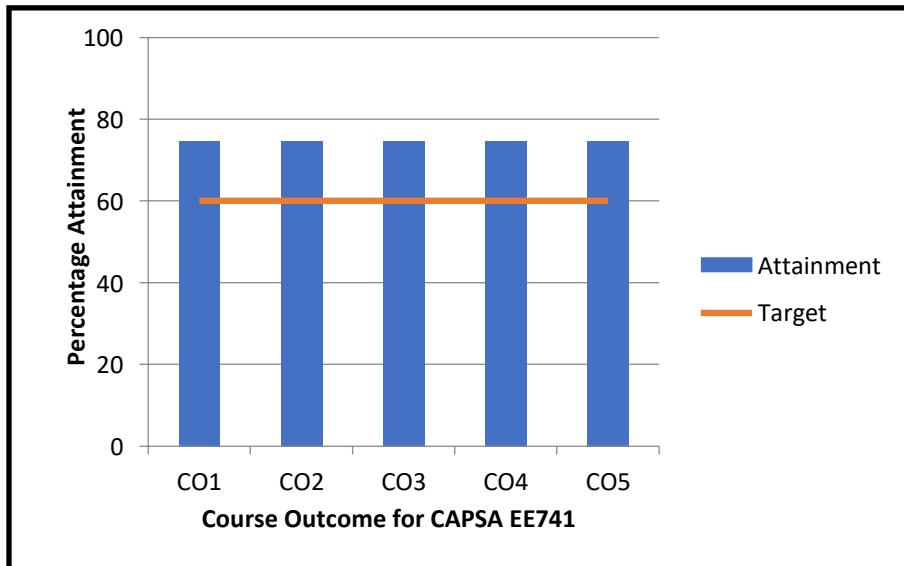


Fig: 3.2.2e Attainment of Course Outcome of CAPSA EE741

Course Outcome and Program Outcome Attainment for EE843

EE 341	Direct Assess ment	Course Outcome and Program Outcome Attainment												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	Total
CO1	Final	56.3	56.3											74.6
	Internal	93	93											
CO2	Final	56.3	56.3											74.6
	Internal	93	93											
CO3	Final	56.3	56.3											74.6
	Internal	93	93											
CO4	Final	56.3	56.3											74.6
	Internal	93	93											
CO5	Final	56.3	56.3											74.6
	Internal	93	93											

Table B: 3.2.2f Attainment of Course Outcome of IDC EE843

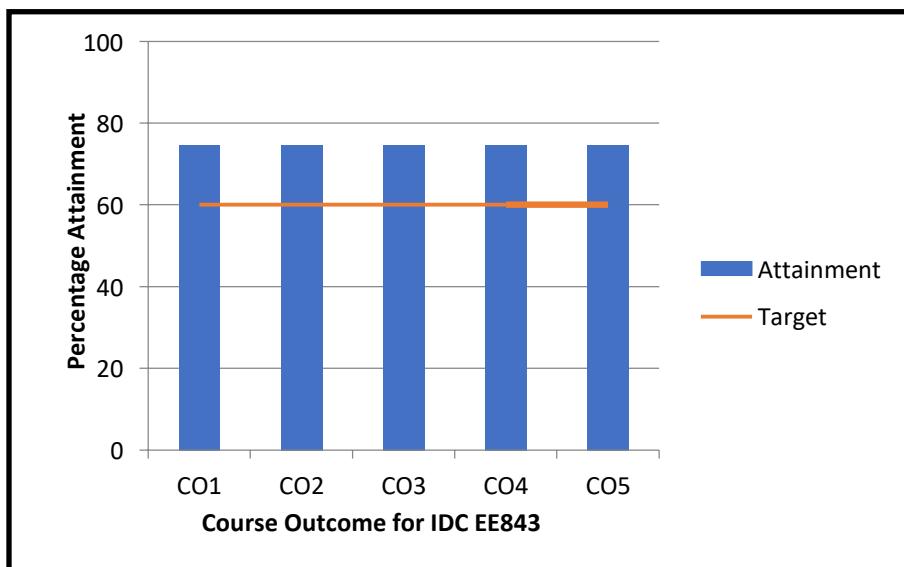


Fig: 3.2.2f Attainment of Course Outcome of IDC EE843

CONSOLIDATED COURSE OUTCOME FOR THE PROGRAM

Course Code	Course	Attainment (2011-2015)	Attainment (2012-2016)	Attainment (2013-2017)	Target Level
3.1TS	Mathematics -III	2.09	1.94	2.11	1.5
3.3TS	Network Analysis	2.46	2.38	2.55	1.5
3.6TS	Electrical Engineering Materials & Devices	2.24	1.82	1.94	1.5
3.5TS	Advanced Computer Programming	2.19	2.17	2.05	1.5
3.4TS	Engineering Mechanics -II	2.26	2.34	2.22	1.5
3.2TS	Basic Thermodynamics	2.34	2.2	2.23	1.5
3.7P	Electrical Engineering Drawing	2.81	2.08	2.57	1.5
3.5P	Advanced Computer Programming	2.44	2.7	2.9	1.5
3.4P	Engineering Mechanics -II	2.99	2.99	2.96	1.5
3.2P	Basic Thermodynamics	2.99	2.96	2.95	1.5
3.8T	General Proficiency	2.64	1.84	2.33	1.5
4.1TS	Mathematics -IV	1.88	1.48	1.86	1.5
4.2TS	Sociology and Accountancy	2.44	2.09	2.13	1.5
4.3TS	Communication Skill	1.71	2.02	1.82	1.5
4.7TS	Analog Electronics	1.64	1.66	2.04	1.5
4.6TS	Electrical Machines-I	1.57	1.28	1.56	1.5
4.4TS	Electrical Measurements and Measuring Instruments	2.26	2.1	1.55	1.5
4.5TS	Data Structure	2.26	2.32	2.29	1.5
4.9T	General Proficiency	2.68	2.32	2.05	1.5
4.7P	Analog Electronics Lab	2.88	2.9	2.91	1.5
4.4P	Electrical Measurements and Measuring Instruments Lab	2.48	2.31	2.57	1.5
4.5P	Data Structure Lab	2.86	2.63	2.19	1.5
5.1TS	Economics & Principles of Management.	2.21	2.22	2.26	1.5
5.2TS	Digital Systems	2.69	2.57	2.45	1.5
5.3TS	Control System-I	2.23	2.41	2.22	1.5
5.4TS	Power Electronics	2.15	2.33	2.3	1.5
5.5TS	Electric Power System-I	2.4	2.07	1.83	1.5
5.6TS	Electrical Machines-II	2.18	2.17	2.04	1.5
5.8T	General Proficiency	2.97	2.95	2.99	1.5
5.2P	Digital Systems Lab	2.99	2.84	2.73	1.5
5.3P	Control System-I Lab	2.95	2.94	2.85	1.5
5.4P	Power Electronics Lab	2.45	2.73	2.68	1.5
5.6P	Electrical Machines-I Lab	2.76	2.57	2.78	1.5
6.1T	Electromagnetic Fields	2.15	2.11	2.02	1.5
6.2TS	Computer Oriented Numerical Methods	2.35	2.31	2.47	1.5

6.3TS	Microprocessors & Applications	2.14	1.89	1.88	1.5
6.4TS	Electric Power System-II	2	2.12	1.88	1.5
6.5TS	Control System -II	1.82	2.29	2.15	1.5
6.6TS	Signals and Systems	2.38	2.14	2.01	1.5
6.7T	General Proficiency	2.95	2.97	2.84	1.5
6.2P	Computer Oriented Numerical Methods Lab	2.88	2.83	2.67	1.5
6.3P	Microprocessors & Applications Lab	2.77	2.92	2.36	1.5
6.5P	Control System -II Lab	2.93	2.73	2.45	1.5
6.8P	Electrical Machines-II Lab	2.52	2.85	2.12	1.5
7.1TS	Computer Aided Power System Analysis	2.35	2.09	2.11	1.5
7.2TS	Communication Engineering	2.74	2.53	2.5	1.5
7.3TS	Operations Research	1.94	1.8	1.76	1.5
7.4TS	Instrumentation Engineering	2.49	2.08	1.79	1.5
7.5TS	Elective -I(NCES)	2.23	2.35	2.12	1.5
7.5TS	Elective -I(CN)	2.26	2.18	2.41	1.5
7.6TS	Elective-II(MBI)	2.25	2.75	2.66	1.5
7.6TS	Elective-II(DSD)	2.56	2.26	2.13	1.5
7.7P	Training	2.94	2.27	2.62	1.5
7.8P	Project -I	2.61	2.78	2.42	1.5
8.1TS	Power System Interconnection & Control.	2.54	2.57	2.54	1.5
8.2TS	HVE	2.47	1.43	2.31	1.5
8.3TS	Industrial Drives & Control	2.4	2.16	2.24	1.5
8.4TS	Elective -I(DSP)	2.45	2.27	2.63	1.5
8.4TS	Elective -I(DIP)	2.73	2.75	2.75	1.5
8.5TS	Elective-II(UCEE)	2.72	2.55	2.66	1.5
8.5TS	Elective-II(RE)	2.7	2.46	2.46	1.5
8.7P	Project -II	2.97	2.89	2.86	1.5
8.6P	Viva-Voce	2.84	2.52	2.76	1.5

Table B: 3.2.2g Consolidated Course Outcome

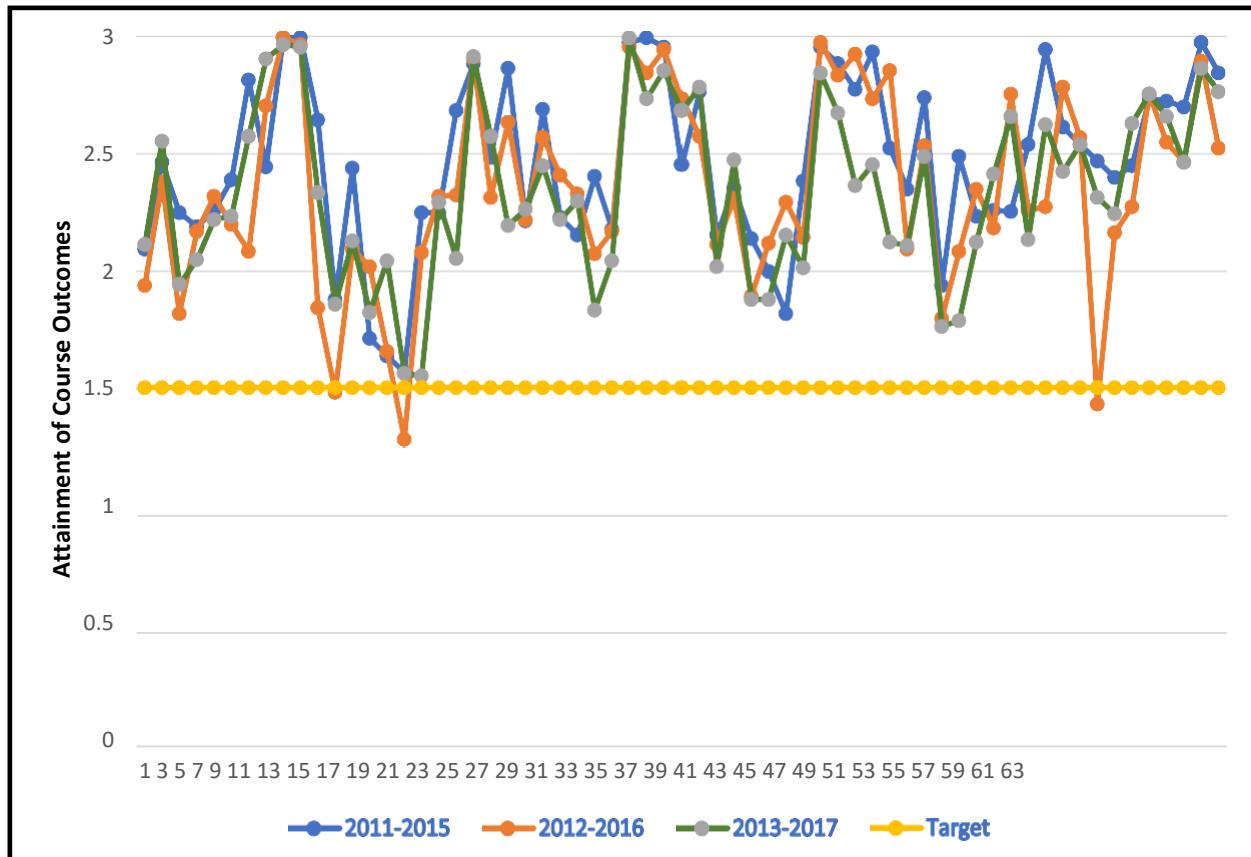


Fig: 3.2.2g Consolidated Course Outcome for the Program

3.3 Attainment of Program Outcomes and Program Specific Outcomes (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)

The expected level of attainment for each of the Program Outcomes:

The program outcomes are assessed with the help of course outcomes of the relevant Courses through direct and indirect methods. The evaluation PSOs is carried out with respect to student performance and surveys in both the terms of direct and indirect assessment methods for the contributing courses mapped to the PSO.

Direct Assessment Method:

Direct measures are provided through end semester examinations and continuous assessment. This is done by the observations of student knowledge or skills against measurable course outcomes. The course outcomes are mapped to specific problems in internal exams and the students are assessed continuously from exams, assignments, seminars, projects etc.

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

Indirect Assessment Method:

Indirect assessment strategies are implemented by embedding them in the course end survey, Exit survey and Alumni Survey (Annexure IV). The methodology of assessment is as given below:

Exit Survey: The exit survey attainment for the students at the end of the program is mapped to different POs as given below:

Attainment Levels:

Attainment Level 3: If 85 % or more students have answered as "Strongly Agree" and "Agree"

Attainment Level 2: 75 % or more students have answered as "Strongly Agree" and "Agree"

Attainment Level 1: If 60% students have answered as "Strongly Agree" and "Agree"

Attainment Level 0: If more than 50 % students have answered as "Disagree"

Alumni Survey: Attainment Levels:

Attainment Level 3: If 85 % or more students have answered as "Completely satisfied" and "Satisfied"

Attainment Level 2: 75 % or more students have answered as "Completely satisfied" and "Satisfied"

Attainment Level 1: If 60% students have answered as "Completely satisfied" and "Satisfied"

Attainment Level 0: If more than 50 % students have answered as "Dissatisfied"

Total Attainment= 80% from direct attainment+ 20% from indirect attainment

The attainment from the surveys is given below:

Program Outcome Attainment from Exit Survey												
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
2	3	2	2	1	2	2	2	3	2	1	2	
Program Outcome Attainment from Alumni Survey												
PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
3	2	2	2	1	3	3	3	3	3	2	3	

Table B: 3.3.1 Attainment through Indirect Assessment

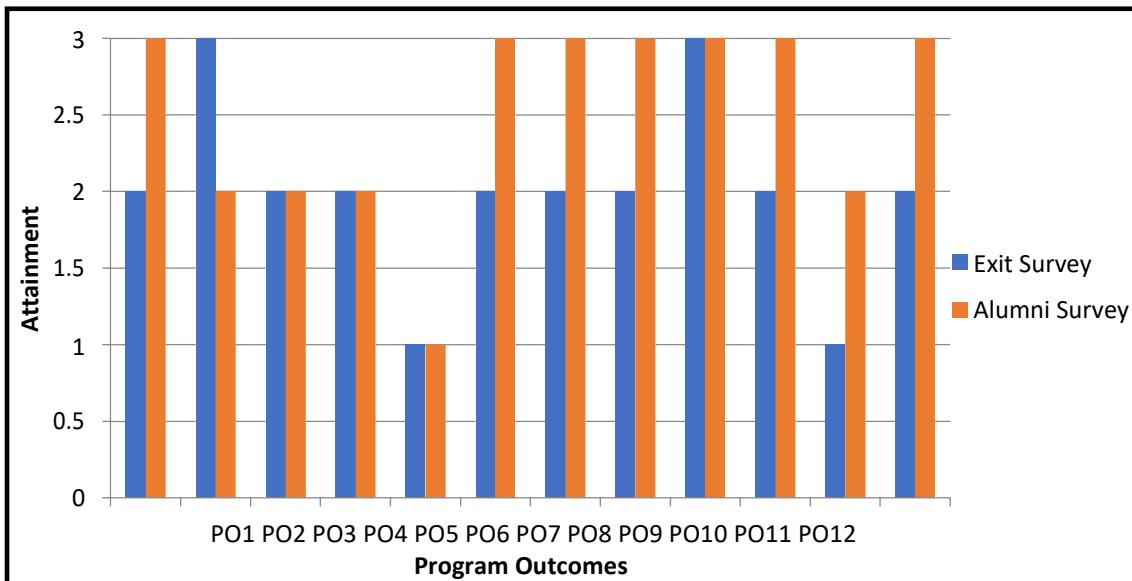


Fig 3.3.1: Attainment through Indirect Assessment

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

Program Outcome Attainment

Course Code		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1.1 TS	PH101	Physics-I	1.83											
1.1 P	PH101 L	Physics-I Lab		1.12										
1.2 TS	CY102	Chemistry-I	2.12	1.31				0.8	1.23					0.82
1.2 P	CY102 L	Chemistry-I Lab		2.45	1.72		0.98					0.98		
1.3 TS	MA103	Mathematics-I	2.18	2.18	0.87	0.73					0.7			1.45
1.4 TS	CE104	Elements of Civil Engineering		1.57	1.33	0.12	0.48	0.4						
1.5 TS	HU105	English Communication and Technical Report Writing			0.33		0.33		0.3	0.33	0.44	1	0.75	1
1.6 TS	CE106	Engineering Graphics-I	1.64	1.64	1.32	1.4	1.2	1.4	0.39					
1.7 PS	CS107	Introduction to Computing		1.17		1.75	1.56	1.2						
1.8 S	ME108	Workshop-I	1.37	1.07							0.92	1.4		
2.1 TS	PH201	Physics-II	1.63	1.3										
2.1 P	PH201 L	Physics-II Lab		1.33										
2.2 TS	CY202	Chemistry-II	1.8	1.42	0.86			0.6	0.64		0.6	0.64		0.64
2.2P	CY202 L	Chemistry-II Lab		1.78	1.78		1.16		0.9	1.16		0.89		
2.3 TS	MA203	Mathematics-II	1.64	1.64	1.09									1.09
2.4 TS	ME204 CE205	Engineering Mechanics and Strength of Materials		2.15	2.15	1.43	0.72							
2.4 P	ME204 L CE205 L	Engineering Mechanics and Strength of Materials Lab		2.86	1.91		2.86	2.9						
2.5 TS	EE206	Basic Electrical Engg.-I		2.21	2.21									
2.5 P	EE206 L	Basic Electrical Engg.-I Lab					1.73							
2.6 TS	ME207	Engineering Graphics-II	2.39	2.39	1.33			1.6	2.4					0.8
2.7 S	ME208	Workshop Practice	1.16	1.45							0.73	1.2		
3.1TS	MA301	Mathematics -III	2.11	2.11										
3.3TS	EE341	Network Analysis	2.55	2.55										
3.6TS	EE342	Electrical Engineering Materials & Devices		1.42	1.55									
3.5TS	EE343	Advanced Computer Programming		1.91	2.05									
3.4TS	ME302	Engineering Mechanics -II		2.22	1.48									
3.2TS	ME305	Basic Thermodynamics	2.23	2.08										

3.7P	EE345	Electrical Engineering Drawing	2.57	1.43								
3.5P	EE343	Advanced Computer Programming			2.9							
3.4P	ME302	Engineering Mechanics -II			1.73							
3.2P	ME305	Basic Thermodynamics			1.97							
3.8T	EE344	General Proficiency								2.33	1.55	
4.1TS	MA401	Mathematics -IV	1.73	1.73								
4.2TS	HU402	Sociology and Accountancy								0.71		
4.3TS	HU403	Communication Skill								1.7		
4.7TS	EE441	Analog Electronics	2.13	2.13	2.13							
4.6TS	EE442	Electrical Machines-I	1.04	0.83	1.04							
4.4TS	EE443	Electrical Measurements and Measuring Instruments	1.55	1.45	0.52							
4.5TS	EE444	Data Structure	1.68	1.68								
4.9T	EE445	General Proficiency								2.05	1.37	
4.7P	EE441 L	Analog Electronics Lab			1.94							
4.4P	EE443 L	Electrical Measurements and Measuring Instruments Lab			1.71							
4.5P	EE444 L	Data Structure Lab			2.19							
5.1TS	HU501	Economics & Principles of Management.								0.75		
5.2TS	EE541	Digital Systems	2.45	2.45								
5.3TS	EE542	Control System-I	2.22	2.07								
5.4TS	EE543	Power Electronics	1.84	1.99	1.84							
5.5TS	EE544	Electric Power System-I	1.83	1.63								
5.6TS	EE545	Electrical Machines-II	1.9	1.63	1.5							
5.8T	EE546	General Proficiency								2.99	1.99	
5.2P	EE541 L	Digital Systems Lab			1.82							
5.3P	EE542 L	Control System-I Lab			1.9							
5.4P	EE543 L	Power Electronics Lab			0.89							
5.6P	EE547	Electrical Machines-I Lab			1.85							
6.1T	EE641	Electromagnetic Fields	2.02	2.02	0.94							
6.2TS	EE642	Computer Oriented Numerical Methods	1.81	1.81								
6.3TS	EE643	Microprocessors & Applications	1.75	1.75	1.5							
6.4TS	EE644	Electric Power System-II	1.75	1.63	0.75							
6.5TS	EE645	Control System -II	2.15	2.15	2.15							
6.6TS	EE646	Signals and Systems	1.74	1.74								
6.7T	EE647	General Proficiency								2.84	1.89	

6.2P	EE642 L	Computer Oriented Numerical Methods Lab				1.78								
6.3P	EE643 L	Microprocessors & Applications Lab				1.73								
6.5P	EE645 L	Control System -II Lab				2.45								
6.8P	EE648	Electrical Machines-II Lab				1.41								
7.1TS	EE741	Computer Aided Power System Analysis	1.96	1.96	1.17									
7.2TS	EE742	Communication Engineering	2.49	2.49	0.83									
7.3TS	EE743	Operations Research	1.64	1.64										
7.4TS	EE744	Instrumentation Engineering	1.79	0.95	1.19									
7.5TS	EE745 (1)	Elective -I(CN)	2.41	1.29										
7.5TS	EE745 (2)	Elective -I(NCES)	2.12	1.7										
7.6TS	EE746 (1)	Elective-II(MBI)	2.48	2.66										
7.6TS	EE746 (2)	Elective-II(DSD)	2.13	2.13										
7.7P	EE747	Training				2.3	0.9	1.75	1.75	1.8		1.46		
7.8P	EE748	Project -I				1.6	0.8	0.81	0.81	2.4		2.42		
8.1TS	EE841	Power System Interconnection & Control.	2.54	2.54										
8.2TS	EE842	HVE	2.31	1.39										
8.3TS	EE843	Industrial Drives & Control	1.94	1.79										
8.4TS	EE845 (1)	Elective -I(DSP)	2.28	2.28										
8.4TS	EE845 (2)	Elective -I(DIP)	1.65	1.1										
8.5TS	EE844 (1)	Elective-II(RE)	2.13	2.05										
8.5TS	EE844 (2)	Elective-II(UCEE)	1.94	1.41										
8.7P	EE846	Project -II				1.9	1	0.95	1.43	2.9		2.86		
8.6P	EE847	Viva-Voce	2.76	2.76						2.8		2.76		
		Direct Attainment	1.96	1.78	1.22	1.59	1.6	1	0.91	1.01	1.6	1.51	1.7	1.53
		Indirect Attainment	2.5	2.5	2	2	1	2.5	2.5	2.5	3	2.5	1.5	2.5
		Total Attainment	2.07	1.92	1.38	1.67	1.48	1.3	1.23	1.31	1.88	1.71	1.66	1.72

Table B: 3.3.2a Attainment of Program Outcome

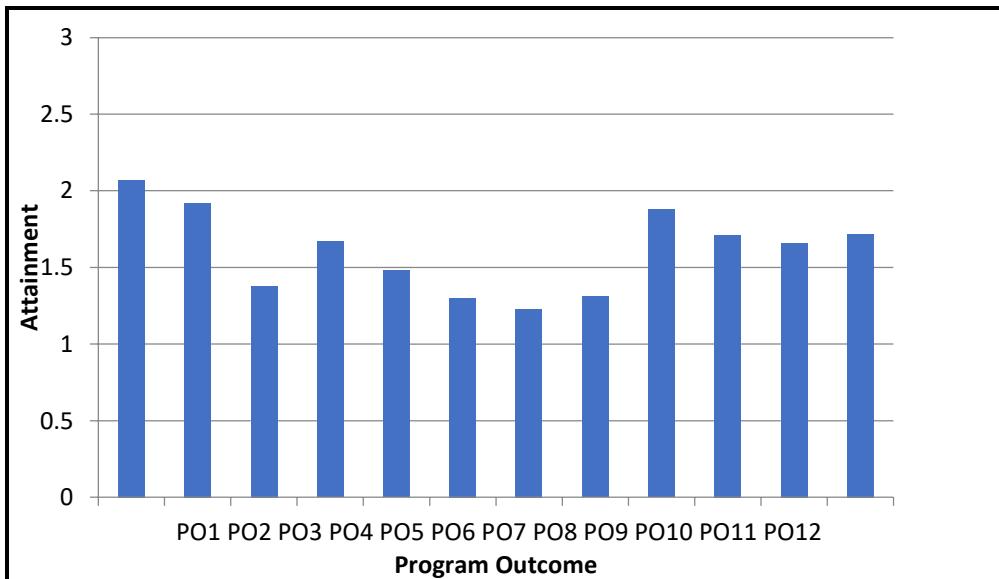


Fig: 3.3.2a Attainment of Program Outcome

Attainment of Program Specific Outcomes (PSO)

Course Code		Course	PSO1	PSO2
1.1 TS	PH101	Physics-I		
1.1 P	PH101L	Physics-I Lab		
1.2 TS	CY102	Chemistry-I		
1.2 P	CY102L	Chemistry-I Lab		
1.3 TS	MA103	Mathematics-I		
1.4 TS	CE104	Elements of Civil Engineering		
1.5 TS	HU105	English Communication and Technical Report Writing		
1.6 TS	CE106	Engineering Graphics-I		
1.7 PS	CS107	Introduction to Computing		
1.8 S	ME108	Workshop-I		
2.1 TS	PH201	Physics-II		
2.1 P	PH201L	Physics-II Lab		
2.2 TS	CY202	Chemistry-II		
2.2 P	CY202L	Chemistry-II Lab		
2.3 TS	MA203	Mathematics-II		
2.4 TS	ME204 CE205	Engineering Mechanics and Strength of Materials		
2.4 P	ME204L CE205L	Engineering Mechanics and Strength of Materials Lab		
2.5 TS	EE206	Basic Electrical Engg.-I	1.47	0.74

2.5 Lab	EE206L	Basic Electrical Engg.-I Lab		
2.6 TS	ME207	Engineering Graphics-II		
2.7 S	ME208	Workshop Practice		
3.1TS	MA301	Mathematics -III	0.7	
3.3TS	EE341	Network Analysis	0.85	
3.6TS	EE342	Electrical Engineering Materials & Devices	1.29	0.65
3.5TS	EE343	Advanced Computer Programming	0.68	0.68
3.4TS	ME302	Engineering Mechanics -II		
3.2TS	ME305	Basic Thermodynamics		
3.7P	EE345	Electrical Engineering Drawing	1.71	
3.5P	EE343	Advanced Computer Programming		
3.4P	ME302	Engineering Mechanics -II		
3.2P	ME305	Basic Thermodynamics		
3.8T	EE344	General Proficiency		1.94
4.1TS	MA401	Mathematics -IV	0.62	
4.2TS	HU402	Sociology and Accountancy		1.42
4.3TS	HU403	Communication Skill		1.82
4.7TS	EE441	Analog Electronics	1.42	0.71
4.6TS	EE442	Electrical Machines-I	1.56	
4.4TS	EE443	Electrical Measurements and Measuring Instruments	0.52	0.52
4.5TS	EE444	Data Structure	0.76	
4.9T	EE445	General Proficiency		1.37
4.7P	EE441L	Analog Electronics Lab		
4.4P	EE443L	Electrical Measurements and Measuring Instruments Lab		
4.5P	EE444L	Data Structure Lab		
5.1TS	HU501	Economics & Principles of Management.		1.51
5.2TS	EE541	Digital Systems	0.82	
5.3TS	EE542	Control System-I	1.11	
5.4TS	EE543	Power Electronics	1.53	
5.5TS	EE544	Electric Power System-I	1.22	
5.6TS	EE545	Electrical Machines-II	0.68	

5.8T	EE546	General Proficiency		2.99
5.2P	EE541L	Digital Systems Lab		
5.3P	EE542L	Control System-I Lab		
5.4P	EE543L	Power Electronics Lab		
5.6P	EE547	Electrical Machines-I Lab		
6.1T	EE641	Electromagnetic Fields	1.01	
6.2TS	EE642	Computer Oriented Numerical Methods	1.65	
6.3TS	EE643	Microprocessors & Applications	0.62	1.25
6.4TS	EE644	Electric Power System-II	1.25	1.25
6.5TS	EE645	Control System -II	1.08	
6.6TS	EE646	Signals and Systems	1.01	
6.7T	EE647	General Proficiency		2.84
6.2P	EE642L	Computer Oriented Numerical Methods Lab		
6.3P	EE643L	Microprocessors & Applications Lab		
6.5P	EE645L	Control System -II Lab		
6.8P	EE648	Electrical Machines-II Lab		
7.1TS	EE741	Computer Aided Power System Analysis	0.7	
7.2TS	EE742	Communication Engineering	1.24	
7.3TS	EE743	Operations Research	0.59	
7.4TS	EE744	Instrumentation Engineering	0.89	
7.5TS	EE745(1)	Elective -I(CN)	1.61	
7.5TS	EE745(2)	Elective -I(NCES)	0.71	1.41
7.6TS	EE746(1)	Elective-II(MBI)	1.77	
7.6TS	EE746(2)	Elective-II(DSD)	0.71	
7.7P	EE747	Training	0.87	0.87
7.8P	EE748	Project -I	2.42	0.81
8.1TS	EE841	Power System Interconnection & Control.	1.69	
8.2TS	EE842	HVE	2.31	
8.3TS	EE843	Industrial Drives & Control	0.75	1.49
8.4TS	EE845(1)	Elective -I(DSP)	1.75	0.88
8.4TS	EE845(2)	Elective -I(DIP)	1.83	0.92
8.5TS	EE844(1)	Elective-II(RE)	1.23	

8.5TS	EE844(2)	Elective-II(UCEE)	1.33	
8.7P	EE846	Project -II	2.86	0.95
8.6P	EE847	Viva-Voce		1.84
		Average	1.22	1.31

Table B: 3.3.2b Attainment of Program Specific Outcome

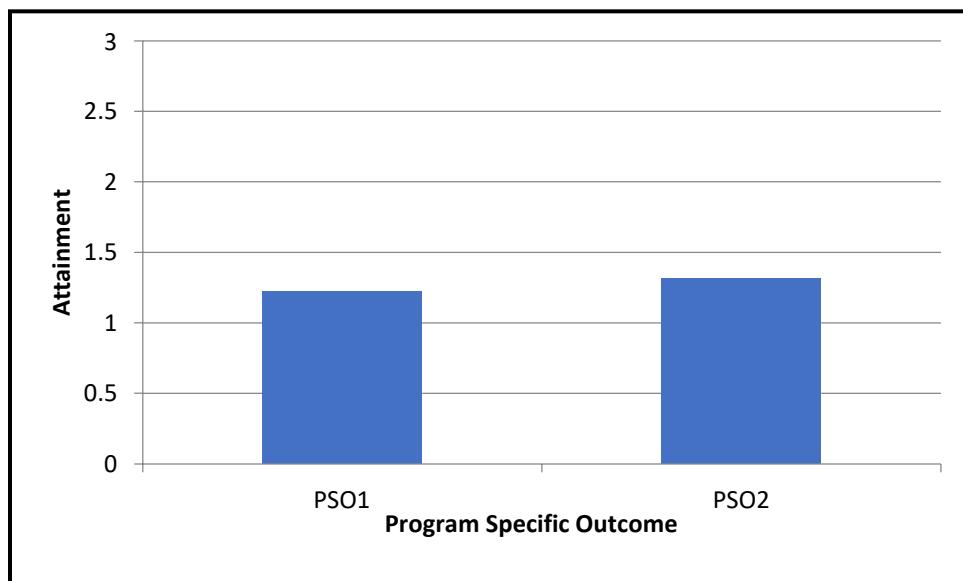


Fig: 3.3.2b Attainment of Program Specific Outcome

CRITERION 4	Students' Performance	150
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4. STUDENTS' PERFORMANCE (150)

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY	CAYm1	CAYm2
Sanctioned intake of the program (N)	90	90	90
Total number of students admitted in the first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	-	100	96
Number of students admitted in 2 nd year in the same batch via lateral entry (N2)	-	9	7
Separate division students, if applicable (N3)	-	-	-
Total number of students admitted in the Program (N1 + N2 + N3)	90	109	103

Table B.4a

CAY – Current Academic Year

CAYm1- Current Academic Year minus1= Current Assessment Year

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

LYG – Last Year Graduate minus 1

LYGm1 – Last Year Graduate minus 1

LYGm2 – Last Year

Graduate minus 2

Year of entry	N1 +N2 + N3	Number of students who have successfully graduated without backlogs in any semester/year of study			
		I Year	II Year	III Year	IV Year
CAY(2017-2018)	90				
CAYm1(2016-2017)	109	50			
CAYm2(2015-2016)	103	31	22		
CAYm3(2014-2015)	101	67	36	48	
CAYm4(2013-2014)	87	43	40	45	55
CAYm5(2012-2013)	111	57	39	56	63
CAYm6(2011-2012)	102	82	44	51	69

Table B.4b

Year of entry	N1 + N2 + N3	Number of students who have successfully graduated with backlogs in any semester/year of study			
		I Year	II Year	III Year	IV Year
CAY(2017-2018)	90				
CAYm1(2016-2017)	109	RESULTS AWAITED			
CAYm2(2015-2016)	103	73	27		
CAYm3(2014-2015)	101	85	76	59	
CAYm4(2013-2014)	87	74	74	64	61
CAYm5(2012-2013)	111	88	77	82	81
CAYm6(2011-2012)	102	90	94	93	93

Table B.4c

Enrolment Ratio (20)

YEAR	N1	N	ENROLMENT RATIO(N1/N)	PERCENTAGE	MARKS
2017-18	90	90	1	100	20
2016-17	109	90	1.21	121	20
2015-16	103	90	1.14	114	20
AVERAGE					20

Table B.4.1

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

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

SI= (Number of students who have graduated from the program without backlog)/

(Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable)

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

Item	Last Year Graduate LYG (2016-2017)	Last Year Graduate minus1, LYGM1 (2015-2016)	Last Year Graduate minus2, LYGM2 (2014-2015)
Number of students admitted in the corresponding First Year + admitted in 2 nd year via lateral entry and separate division, if applicable	87	111	102
Number of students who have graduated without backlogs in the stipulated period	25	23	39
Success Index (SI)	0.2873	0.2072	0.3823
Average SI		0.2922	

Table B.4.2.1

Success rate without backlogs in any year of study = 25 × Average SI

=7.30

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

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

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

Item	Last Year Graduate LYG (2016-2017)	Last Year Graduate minus1, LYGm1 (2015-2016)	Last Year Graduate minus2, LYGm2 (2014-2015)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	87	111	102
Number of students who have graduated with backlog in the stipulated period	41	57	88
Success Index (SI)	0.4712	0.5135	0.8627
Average SI	0.6158		

Table B.4.2.2

Success rate = 15 × Average SI

$$= 15 \times 0.6158$$

$$= 9.23$$

Academic Performance in Third Year (15)

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

APT = ((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)) × (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the final year.

Academic Performance	2016-17	2015-2016	2014-2015
Mean of CGPA or Mean Percentage of all successful students (X)	7.136	7.168	7.272
Total no. of successful students (Y)	48	45	56
Total no. of students appeared in the examination (Z)	93	90	105
API = x* (Y/Z)	3.683	3.584	3.878
Average API = (AP1 + AP2 + AP3)/3		3.715	

Table B.4.3

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

$$= 1.5 \times 3.71$$

$$= 5.57$$

Academic Performance in Second Year (15)

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

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

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

Academic Performance	2016-17	2015-2016	2014-2015
Mean of CGPA or Mean Percentage of all successful students (X)	6.6	6.9	7.03
Total no. of successful students (Y)	36	40	39
Total no. of students appeared in the examination (Z)	94	94	102
API = x* (Y/Z)	2.53	2.93	2.69
Average API = (AP1 + AP2 + AP3)/3		2.73	

Table B.4.3

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

$$= 1.5 \times 2.73$$

$$= 4.09$$

Placement, Higher Studies and Entrepreneurship (40)

Assessment Points = $40 \times$ average placement

Item	Last Year Graduate LYG (2016-2017)	Last Year Graduate minus1, LYGm1 (2015-2016)	Last Year Graduate minus2, LYGm2 (2014-2015)
Total No. of Final Year Students (N)	87	111	102
No. of students placed in companies or Government Sector (x)	61	45	41
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	3	8	16
No. of students turned entrepreneur in engineering/technology (z)	3	3	1
$x + y + z =$	67	55	58
Placement Index : $(x + y + z)/N$	0.77	0.4954	0.57
Average placement= $(P1 + P2 + P3)/3$	0.61		

Table B.4.5

Assessment Points = $40 \times$ average placement

$$= 40 \times 0.61$$

$$= 24.53$$

Professional Activities (20)

Professional societies/chapters and organizing engineering events (5)

The College has ISTE AEC Students' Chapter active in the college.

Assam Engineering College, Guwahati has been identified as the Best Student Chapter of ISTE Assam and Eastern States Section in the year 2013 and 2017.

Events Organized:

SL. No	Event	Date	Resource Person With Designation
1	One Day Seminar on Switchgear and protection	17/03/2018	Resource person from AEGCL
2	Industry Visit to ITI for students	27/03/18 to 31/03/18	Industry Visit to ITI for students
3	3-days Workshop on LABView and Its Practical Applications	29/03/18 to 31/03/18	Dr. Kanthalakshmi, EEE Dept. PSG College, Coimbatore
4	Seminar on "Electronic System Design and Manufacturing"	11/11/2017	Manoj Kumar, Application Engineer, Entuple Technologies Pvt. Ltd
5	40 Hrs Training on MATLAB and Simulink	17/12/17 to 21/12/17	Micropro, Kolkata
6	40 Hrs workshop cum training on "Embedded System" (Aurdino)	22/12/17 to 26/12/17	Micropro, Kolkata
7	STC on "Advances on Renewable Energy and Its Application"	07/03/16 to 11/03/16	Experts from GU /IITG /NIT /TU/JEC /ASTEC/ NPTI
8	NPTI Training on Power Generation Technology	Nov-Dec 2015	Resource Persons from NPTI
9	NPTI Training on Power Generation Technology	Nov-Dec 2014	Resource Persons from NPTI

Table B.6.1

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

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

NCC "COMBINED ANNUAL TRAINING CAMP-I" from 2 January, 2018 to 11 January, 2018.

Name	NCC Roll No.
NILAM DEKA	ASD/16/38524
BIBRATA DAS	ASD/16/38537
PRAKHAR KASHYAP	ASD/16/38533

RASKIN DUTTA	ASD/16/38515
ASHIM SAIKIA	ASD/16/38530
TAMAL KANTI SUTRADHAR	ASD/16/38538
DIMESA M. SANGMA	AS/17/SWA/104510

Table B.4.6.3.a

Students Co-curricular Activities

Name	Year	Participation
OHIKA BAISHYA	2017	(1) Represented MACAU SAR under WHO committee at the MUN 2017 during Techniche IITG. (2) Participated in a workshop on LaTex at IITG 2017.
		(1) Attended the workshop on Brain controlled robotics and Sixth sense in IITG during techniche'17
Drishti Medhi	2017	(2) Came 3rd in B plan pitching during UDGAM'18 in IIT Guwahati
	2018	(3) Selected for Harvard US INDIA INITIATIVE'18
		(1) 2nd position (Intsrumental FLUTE) in International Multi Lingual Play Dance & Music contest Fest 2018, Vrindavan, Mathura.
SHOUSTHAV JYOTI DUTTA	2018	(1) Entrepreneurship (my startup got selected for pitching in the 1st ever national innovation summit held at Nit Silchar in 2016.
Hemanga Sekhar Singha	2016	(2) Finalist in business plan competition of Techniche 2017 IIT Guwahati
Nayanita Bhattacharyya	2015	(1) Attended an AUTONOMOUS ROBOTICS workshop at ROBOTTHON,2015,TECHNICHE,IIT, GHY
		(2) Attended an image processing and Matlab workshop under TECHNICHE, the annual Techno- Management festival of IIT GHY, 2016.
Debabrat Sarma	2015-2016	(1) Participated in College Round of StockMind 4 organised under ICICI in the year 2015-16.
	2016	(2) Participated in Entrepreneurship meet organised under UDGAM held at IIT GHY in the year 2016.
Gitartha laskar	2016	(1) Participated in Revive 2016, A National conference on Advances in Renewable Energy organised by Energy club, AEC, 2016.
Gaurab Saha	2015	(1) Attended Ethical Hacking Workshop at Robothlon, IITG(2015)
	2016	(2) Attended workshop on Internet of Things, INVENTROM, IITG(2016)
		(3) Attended workshop on Aspen Plus, Reflux, 2016(IITG)
Ankur Dutta	2016	(1) Participated in Mimansa (IIT Guwahati).
Ankit Bhattacharjee	2015	(1) Recipient of Anundooram Barooah Award, 2015
Chirashree Datta	2016	(1) Recipient of Anundooram Barooah Award, 2015
Dhruba Jyoti Das	2017	(1) Participated in 'Ideathon 2017' at IIIT Guwahati.
Baishalee Sharma	2018	Technical paper presentation on " Polymer Memory: A new approach for using polymer as a secondary storage device" in Technical Paper Presentation in AAROHAN, 2018, RGI,

		Guwahati
Ahmed Abid Abbash	2015	(1)Zonal Winner of National Network Security Championship by Network Bulls, New Delhi (2015) in collaboration with IIT-Kanpur.
	2017	(2)Smart Bicycle System (11/2017) Participated in Aroohan

Table B.4.6.3.b

CRITERION 5	Faculty Information and Contributions	200
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5. FACULTY INFORMATION AND CONTRIBUTIONS (200)

Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date of Joining the Institution	Department	Specialization	Academic Research		Sponsored Research (Funded Research)	Consultancy and Product Development
	Degree (highest degree)	University	Year of Graduation						Research Paper Publications	Ph.D. Guidance		
Dr Damodar Agarwal	PhD	IIT KGP	2003	Prof. 4.1.84	EE	Ind Eng		1	2			
Dr Durlav Hazarika	PhD	IIT KGP	2000	Prof. 23.07.83	EE	PS			6			
Dr Runumi Sarma	PhD	J.U	2002	Prof. 1.9.86	EE	Img Proc		4	3			
Dr Aoop Bardalai	PhD	GU	2008	Prof. 17.2.85	EE	M/C Cont			2			
Dr Sarmila Patra	PhD	JU	2004	Asso. Prof.	EE	PS		7	4			
Dr Bani Kanta Talukdar	PhD	IIT KGP	2009	Assoc. Prof 31.7.89	EE	PS		2	4			
Dr Dipankar Chanda	PhD	IIT KGP	2003	Asso. Prof. 22.06.2005	EE	PS			3			
Prof. Deeptarka Deka	M.Tech	IIT D	1989	Assoc. Prof 2011	EE	OC						
Dr Satyajit Bhuyan	PhD	JU	2006	Assoc. Prof 24.10.96	EE	PS		5	3			
Dr Bimal Chandra Deka	PhD	IIT B	2004	Assoc. Prof 12.11.92	EE	PS Rb		3	5			
Dr BarnaliGoswami	PhD	JU	2008	Assoc. Prof 8.11.95	EE	PS		4	1			
Dr Amrita Ganguly	PhD	IIT G	2012	Assoc. Prof 8.11.1995	EE	IP		3	6			
Dr Purabi Patowary	PhD	IIT KGP	2016	Assoc. Prof 19.12.1996	EE			2		1		
Mr. Deba Kumar Mahanta	M.Tech	ADBU	2013	Asstt. Prof 3.10.07	EE	OE&OC		12				
Mr. Biswanath Dekaraja	M.Tech	JU	2012	Asstt. Prof 5.1.07	EE	PS						
Mr. Sasanka S. Sarma	M.Tech	JU	2013	Asstt. Prof 03.10.07	EE	HV		1				

Table B.5

5.1 Student-Faculty Ratio (SFR) (20)

No. of UG Programs in the Department (n) :=1

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

No. of Students in UG 2nd Year=u1= 99

No. of Students in UG 3rd Year= u2= 99

No. of Students in UG 4th Year= u3 =99

No. of Students in PG 1st Year= p1 =18

No. of Students in PG 2nd Year=p2 =18

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

S =Number of Students in the Department = UG1 + UG2 +UG3 + PG1 +PG2

F = Total Number of Faculty Members in the Department (excluding first year faculty)

Student Teacher Ratio (STR)

Year	CAY(2017- 2018)	CAY(2016- 2017)	CAY(2015- 2016)
UG1	99	99	99
UG2	99	99	99
UG3	99	99	99
UG	297	297	297
PG1	18	18	18
PG2	18	18	18
PG	36	36	36
Total No. of Students in the Department (S)	333	333	333
No. of Faculty in the Department (F)	19	17	17
Student Faculty Ratio (SFR)	SFR1=333/ 19=17.52	SFR2= 333/17= 19.58	SFR3= 333/17= 19.58
Average SFR	SFR=(SFR1+SFR2+SFR3)/3 = 18.89		

Table B.5.1

Note:

Minimum 75% should be Regular/ full time faculty and the remaining shall be Contractual Faculty/Adjunct Faculty/Resource persons 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.

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

15.00 - 15.50	-	20marks
15.51 - 16.50	-	18 marks
16.51 - 17.50	-	16marks
17.51 - 18.50	-	14marks
18.51 - 19.50	-	12marks
19.51 - 20.00	-	10marks

Faculty Cadre Proportion (25)

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

F1: Number of Professors required = $1/9 \times \text{Number of Faculty required to comply with 15:1 Student-Faculty ratio based on no. of students (N)}$ as per 5.1 = $1/9 \times 23 = 3$

F2: Number of Associate Professors required = $2/9 \times \text{Number of Faculty required to comply with 15:1 Student-Faculty ratio based on no. of students (N)}$ as per 5.1 = $2/9 \times 23 = 6$

F3: Number of Assistant Professors required = $6/9 \times \text{Number of Faculty required to comply with 15:1 Student-Faculty ratio based on no. of students (N)}$ as per 5.1 = $6/9 \times 23 = 16$

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY	3	3	6	9	16	3
CAYm1	3	3	6	9	16	3
CAYm2	3	3	6	9	16	3
Average Numbers	RF1=3	AF1=3	RF2=6	AF2=9	RF3=16	AF3=3
AF1/RF1	1.00	$\text{CADRE} = \left[\left(\frac{AF1}{RF1} \right) + \left(\frac{AF2}{RF2} \right) \times 0.6 + \left(\frac{AF3}{RF3} \right) \times 0.4 \right] \times 12.5$				
AF2/RF2	1.5	$\text{RATIO} = \left[(1.00) + (1.5) \times 0.6 + (0.187) \times 0.4 \right] \times 12.5$				
AF3/RF3	0.187	$\text{MARKS} = 24.68 \approx 25$				

Table B.5.2

- If AF1 = AF2 = 0 then zero marks
- Maximum marks to be limited if it exceeds 25

Example: Student No. = 180; Required number of Faculty: 12; RF1 = 1, RF2 = 2 and RF3 = 9

Case 1: AF1/RF1 = 1; AF2/RF2 = 1; AF3/RF3 = 1; Cadre proportion marks = $(1+0.6+0.4) \times 12.5$

= 25 Case 2: AF1/RF1= 1; AF2/RF2 = 3/2; AF3/RF3 = 8/9; Cadre proportion marks = (1+0.9+0.3) x12.5 = limited to 25

Case 3:AF1/RF1=0; AF2/RF2=1/2; AF3/RF3=11/9; Cadre proportion marks = (0+0.3+0.49) x12.5 = 9.87

Faculty Qualification (25)

FQ = $2.5 \times [(10X + 4Y)/F]$ where X is no. of regular faculty with Ph.D., Y is no. of regular faculty with M.Tech. F is no. of regular faculty required to comply 1:15 Faculty Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1)

Years	X	Y	F	FQ= $2.5 \times [(10X + 4Y)/F]$
2017-18	11	8	23	15.43
2016-2017	12	3	23	14.34
2015-2016	12	3	23	14.34
Average Assessment				14.70≈15

Table B.5.3

Faculty Retention (25)

No. of regular faculty members in CAYm2= 15 CAYm1=15 CAY=13

Years	No. Of Regular Faculty	No. Of Faculty Retained	Retention %
2015-2016	15	15	100
2016-2017	15	15	100
2017-2018	15	13	87
Average			96

Table B.5.4

No. of regular faculty members retained keeping CAYm2 (2014-15) as base year = 15

No. of regular faculty members in CAY m3 (2014-15) = 15

Therefore, Faculty retention is = (15/15)*100=100 %

Innovations by the Faculty in Teaching and Learning (20)

- Faculty members have not limited the teaching learning process to only blackboard teaching.
- Faculties have taken initiatives to arrange lectures on topics related to their courses beyond the

syllabus.

- Students are encouraged to engage in learning through web courses and assignments based on different software tools are given to the students
- Every semester end, a viva voce, covering all the topics up to that semester, is organized where comprehensive learning is tested.
- Soft skill training is given to the students for preparing them for the campus placements.
- Hands-on training on different aspects of the curriculum is given to the students to improve their practical knowledge.
- The area where some additional inputs can be given, training and seminars are held in the Department. Some of the initiatives are given below:

Appropriate Methods to improve Teaching and Learning Process with relevance Curriculum

Sl. No	Topics	Technical talk/ workshop	Resource Person	Date
1.	Electronic Design	Seminar on "Electronic System Design and Manufacturing"	Manoj Kumar, Application Engineer, Entuple Technologies Pvt. Ltd	11.11.2017
2.	MATLAB	40 Hrs Training on MATLAB and Simulink	17th to 21st Dec' 2017	Micropro Kolkata
3.	Embedded System	40 Hrs workshop cum training on "Embedded System" Aurdino	22nd to 27th Dec, 2017	Micropro, Kolkata
4.	Transformer Construction	Industry Visit for students to Transformer Manufacturing Unit	09/03/2018	Er. Bimal Das Proprietor, Powermake Industries
5	Practical Exposure	Hands-on training	27th to 31st Mar 2018	Industry Visit to ITI for students
6.	Hands on	3-days Workshop on LABView and Its Practical Applications	29th to 31st Mar, 2018	Dr. Kanthalakshmi, EEE Dept. PSG College, Coimbatore

Table B.5.5

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 point

Name of Faculty	Max. 5 per Faculty		
	17-18	16-17	15-16
Dr Damodar Agarwal	3		3
Dr Durlav Hazarika			

Dr Runumi Sarma Bordoloi	3	3	
Dr Aroop Bardalai		3	
Dr Sarmila Patra	3	3	
Dr Bani Kanta Talukdar		3	3
Dr Dipankar Chanda			3
Dr Satyajit Bhuyan	3	3	5
Dr Bimal Chandra Deka			3
Dr Barnali Goswami			5
Dr Amrita Ganguly	5		5
Dr PurabiPatowari			5
Mr. Deba Kumar Mahanta		3	5
Mr. Biswanath Dekaraja	5	5	5
Mr. Sasanka S. Sarma	5	5	5
Sum	27	28	47
RF = Number of Faculty required to comply with 15:1 Student-Faculty ratio as per 5.1	23	23	23
Assessment = $3 \times (\text{Sum}/0.5\text{RF})$ (Marks limited to 15)	7.04	7.3	12.26
Average Assessment over three years (Marks limited to 15) = 8.86≈9			

Table B.5.6

Research and Development(30)

Academic Research (10)

Ph.D. guided /Ph.D. awarded during the assessment period

Research Guide	Name of the Scholar	Area of Research	Year of Completion	Status
Dr Damodar Agarwal	Dipankar Kalita	LED Lighting	continuing	course work completed
	Biplobjyoti Saikia	DG and Power Control	continuing	course work completed
Dr Durlav Hazarika	S Bhuyan	PS planning and operation	2006	Completed
	P K Sarmah	Instrumentation Engineering	2009	Completed
	Neelanjana Baurah	PS planning and operation	2011	Completed
	R Das	PS planning and operation	2016	Completed
	C Das	Embedded system in Sericulture Industry	2017	Completed
	B M Gupta	Power system Voltage stability	continuing	Thesis Submitted
	Smriti Dey	Operation planning of FACTS devices	continuing	Synopsis Submitted

	Gitu Das	Micro Grid Operation Planning	continuing	Synopsis Submitted
	J K Barman	Railway Track condition monitoring	continuing	Synopsis Submitted
	Dipankar Sutradhar	Instrumentation Engineering	continuing	Course work complete
	Raj Kamal Kakoti	Power system corridor	continuing	Course work complete
Dr Runumi Sarma	Mrs. Debirupa Hore	Wind Driven DFIG	Submitted in 2018	Reports awaited
	Mrs. Sangita Choudhury	DIP	continuing	Course work completed
	Ms. Jugasri Joy Sarma	FRA for Transformer	continuing	Course work completed
Dr Aroop Bardalai	Sanjeeb Hazarika(Jointly with Dr. Satyajit Bhuyan)	Power System	continuing	Synopsis Submitted
	Hrishikesh Sarma	Electric Drive	continuing	Synopsis Submitted
Dr Sarmila Patra	Mitali Chakravorty	Power System	2017	submitted
	Ritunjoy Bhuyan	Power System	2017	submitted
	Suranjana Bhardwaj	Power System	continuing	Synopsis Submitted
	Nayan Jyoti Pathak	Power System	continuing	Synopsis Submitted
Dr Bani Kanta Talukdar	Jesif Ahmed	FACTS Devices, PS	continuing	Synopsis Submitted
	Anupam Saikia	Power system	continuing	Course work completed
	Pallabi Roy	Power System	continuing	Course work completed
	Sourav Deka	Power System	continuing	Course work complete
Dr Dipankar Chanda	Rupjyoti Haloi	Biomedical Signal Proc	continuing	Course work complete
	Jumpi Dutta	Biomedical Signal Proc	continuing	Course work complete
	Rulia Azam	Biomedical Signal Proc	continuing	Course work complete
Dr Satyajit Bhuyan	Manash Jyoti Baishya	Power System	continuing	Course work complete
	Abu Hachan Shah	Power System	continuing	Course work complete
	Sanjib Hazarika(Jointly with Dr. Aroop Bardalai)	Power System	continuing	Course work complete
Dr Bimal Chandra Deka	Basudev Das	Power System Reliability	submitted 2018	submitted
	Pranab Kumar Goswami	Reliability	continuing	Course work complete
	Bipul Talukdar	Renewable Energy	continuing	Course work complete

	Mousumi Patowary(CG)	Microgrid	continuing	Submit in May 2018
	Mrigakshi Sarma	Renewable Energy	continuing	Course work complete
Dr BarnaliGoswami	Bhaskar Mahanta	P S Optimization	continuing	Synopsis Submitted
Dr Amrita Ganguly	Chayashree Patgiri	Biomedical Image Processing	continuing	Synopsis Submitted
	Namrata Kataki	Biomedical Image Processing	continuing	Synopsis Submitted
	Nisha Goswami	Image Processing	continuing	Course work complete
	Mausam Choudhury	Image Processing	continuing	Course work complete
	Munmi Dutta	Image Processing	continuing	Course work complete
	Chandana Deb	Image Processing	continuing	Course work complete

* CG= Co Guide

Table B.5.7.1a

Faculty Pursuing Ph.D.

Mr. Deba Kumar Mahanta

List of Publications

Name of the Faculty	Title of the paper	Name of the journal	Name of the Conference	ISBN/ISSN/ Proceeding	Volume /No.	Date & Year of publication
Dr Durlav Hazarika	Development of Microprocessor based Embedded System for detection of mature muga	Sericologia		0250-3980	Vol 53 Issue-3	2015
	Use of DFIWG for Improvement of Voltage Stability Condition of a Power System	J. Inst. Eng. India Ser. B		2250-2106	Vol. 99 No. 1 61-69	2018
	A Method for Optimal Load Dispatch of a Multi-zone Power System with Zonal Exchange Constraints	J. Inst. Eng. India Ser. B			Volume 99, Issue 2,	2018

	Improvement of bus voltage profile of a target bus using doubly fed induction generator-based distributed generator		IEEE International conference on power and embedded derive control (ICPEDC2017) Chennai ,India		386-391	2017
Dr Runumi Sarma	Improved control of Dynamic Responses of wind driven DFIG under fault condition		ICCUBEA 2015 IEEE conference.	ISBN: 978-1-4799-6892-3	pp 511-515	2015
	Modeling, analysis and operation of wind driven DFIG under unbalance network voltage conditions: a review	IJCRR January 2015.		ISSN: 2231-2196 (Print) ISSN: 0975-5241 (Online)	Volume 7 Issue 1	2015
Dr Sarmila Patra	A New Methodology for Reliability Analysis of Interconnected Power System by using Improved Genetic Algorithm	Trends in Electrical Engineering, STM journal			5 (3),	2015
	Measurement and Classification of Power Quality Disturbances Using Wavelet Based Neural Network	i-Manager's Journal on Power Systems Engineering			3 (4),	2015
	Adequacy analysis of a wind and diesel based stand alone microgrid system	Global Journal on Advancement in Engineering and Science (GJAES)			2 (1),	2016
	Multi objective optimal power flow using particle swarm optimization technique		Signal Processing, Communication, Power and Embedded System (SCOPES), 2016 Paralakhemundi, India	ISBN: 978-1-5090-4620-1		2016
	Multi-Objective Teaching Learning Based Optimization Technique for Loss Reduction and Fast Voltage Stability Index Minimization	International Research Journal of Engineering and Technology (IRJET)			Volume : 04 Issue: 04	2017

Dr Satyajit Bhuyan	Variable Evaluation And Optimal Placement of STATCOM in Test Bus Systems		National Exhibition and Conference on New and Renewable Energy, Assam Don Bosco University	To be published in June 2018 issue of ADBU Journal	6—7 October, 2017
Dr Bimal Chandra Deka	Impact of isolation process of faulty section on reliability of distribution system connected with distributed generation	Int. Journal of Power and Energy Conversion		1757-1154 Vol.9/N o.1	2018
	ANN-based adaptive current controller for on-grid DG system to meet frequency deviation and transient load challenges with hardware implementation	IET Renewable Power Generation, IEEE		1752-1416 Vol.12/ No.1	2018 (SCI)
	An adaptive current control-detuned harmonics elimination schemes for enhancement of power quality in RES interfaced AC-grid network	Sustainable Energy Technologies and Assessments- Elsevier		Vol.25	2018 (SCIE)
	Relative Influence of Intelligent Current Controllers on Power Quality in Grid-interactive Solar Inverter System		IEEE Conference on Energy, Power and Environment (ICEPE), NIT Meghalaya, Shillong, Meghalaya		June 1-2, 2018,
Dr BarnaliGoswami	An Efficient Regression Based Demand Forecasting Model including temperature with Fuzzy Ideology for Assam	International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering		ISSN:2320-3765 Vol. 4, Issue 1,	2015

	An Efficient Differential Evolutionary approach to Optimal Reactive Power Dispatch with Voltage Profile Improvement	International Research Journal of Engineering and Technology (IRJET)	ISSN:2395-0056	Volume : 02, Issue 3	2015
	Firefly based Unit Commitment	International Journal of Engineering Research & Technology (IJERT)	ISSN: 2278-0181	Vol. 5, Issue 12,	2016
	Artificial Bee Colony Algorithm for Profit Based Unit Commitment Using Modified Pre-Prepared Power Demand Table	International Research Journal of Engineering and Technology (IRJET)	S.NO: 122	vol 4, Issue 5	2017
Dr Amrita Ganguly	Transmission Line Fault Classification Using Discrete Wavelet Transform		ICEPE 2015 IEEE Conference NIT Meghalaya	978-1-4673-6503-1	2015
	An improved fault area detection & fault location methodology using wavelet transform		ICEPE 2015 IEEE Conference NIT Meghalaya	978-1-4673-6503-1	2015
	Optimal sizing and cost assessment of hybrid Renewable Energy Systems for Assam Engineering College		INDICON IEEE Conference	2325-9418	2015
Mr. Deba kumar Mahanta	Investigation of Transformer Oil Breakdown using Optical Fiber as Sensor	IEEE Transactions on Dielectrics and Electrical Insulation	ISSN: 1070-9878	Volume : 25, Issue: 1	
	Water quantity based quality measurement of transformer oil using polymer optical fiber as sensor	IEEE Sensors Journal	Print ISSN: 1530-437X Volume: 18, Issue: 4	pp 1506 - 1512	Feb.15, 2018

Dr. Purobi Patowary	Transformer Condition Monitoring using Fiber Optic Sensors: A Review	AJET	ISSN: 2348-7305	Vol. 4, Issue: 1	pp 142 – 145,	2016
	Electrical insulating liquid: A review	Journal of Advanced Dielectrics	Print ISSN: 2010-135X Online ISSN: 2010-1368	Volume 07, Issue 04	pp. 1-9	Aug. 2017
	Transformer Oil Temperature Measurement Using Tungsten Filament as Sensor	International Journal of Electrical Machines and Drives		Vol. 3, No. 2	pp 17-20	2017
	Genetic Algorithm Approach for Placement Optimization of FBG Sensors for a Diagnostic System	International Journal of Electrical and Electronics Engineering	ISSN: 2278-1676	Vol. 4, Issue 5	pp 18-23	Jan-13
	Design of Uniform Fiber Bragg Grating using Transfer matrix method	International Journal of Computational Engineering Research	ISSN: 2250-3005	Vol. 3, Issue. 5	pp 8-14	May-13
	A Phase Shift Control based DSTATCOM for mitigation of voltage sag and voltage swell in Distribution Systems	Int. Journal of Engineering Research and Technology (IJERT)		ISSN:2278-0181	Vol. 6, No. 04	2017

Table B.5.7.1b

Sponsored Research(5)

- Funded research:

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

Funding amount (Cumulative during last three academic years starting from CAYm1):
Amount > 20 Lacs – 5 Marks

Amount \geq 16 Lacs and \leq 20 lacs – 4 Marks
Amount \geq 12 Lacs and $<$ 16 lacs – 3 Marks
Amount \geq 8 Lacs and $<$ 12 lacs – 2 Marks
Amount \geq 4 Lacs and $<$ 8 lacs – 1 Mark
Amount $<$ 4 Lacs – 0 Mark

Development activities (10)

Department Contribution to Institute Development Activities

Name of Faculty	Position Held	Period	Nature of Work
Dr. Damodar Agarwal	Dean, Faculty of Engineering, Gauhati University	Since May 2014	<p>Coordinate/supervise academic programs (both UG and PG) under faculty of Engineering of Gauhati University.</p> <p>Place any issues, such as introducing a new program, changes in the syllabi, changes in the regulation etc. related to the academic programs (both UG and PG) under Faculty of engineering before the Academic council, the highest academic body of the university for its approval.</p>
Dr. Damodar Agarwal	Coordinator, Entrepreneurship Development Cell, AEC	Since April, 2009	<p>To coordinate/supervise various activities, such as holding awareness programs, EDPs, lecture series, Erthniti- the annual entrepreneurship event of the college, conducting industrial visits etc. in order to build an Entrepreneurship ecosystem</p>
Dr. Bimal Deka	Assistant Zonal Officer (Examination)	Since 2011 till date	<p>(a) To prepare draft time table for examination</p> <p>(b) To conduct five university examinations in a year</p> <p>(c) To distribute examination answer scripts to the examiners according to the list prepared by the university</p> <p>(d) To collect evaluated answer scripts from examiners and do scrutiny of all answer scripts</p> <p>(e) To send scrutinized mark foils to the university for preparation of results</p> <p>(f) To attend all examination related problems of students</p>
Dr. Amrita Ganguly	Asst. Training And Placement Officer	Since 2012 till Date	<p>Contacting companies for placements.</p> <p>Arranging different Training activities from the cell</p> <p>Arranges the summer internship for students</p> <p>Hosting companies during Placement Drives</p>
Dr. Amrita Ganguly	Nodal Officer Academics TEQIP III	Since September 2017	Look into all the academic activities in the institution under TEQIP III Project
Dr. Bani Kanta Talukdar	Prof.-in-charge Central Computing	Since July 2011	To monitor procurement of various equipment

	Centre		And relevant softwares Communicate with all other Departments about the usage of the centre To conduct online exams and look after the internet and wi-fi connectivity of the college campus
Dr. Aroop Bardalai	Vice President, Assam Engineering College Student Union.		Heads the panel of Prof. in charge of different port folios. Convene meeting of office bearers as when necessary. Monitor overall functioning of the union body
Dr. Aroop Bardalai	Prof. In Charge Central Store, AEC		Supervises over all activity of the store, monitor quality control of material procured.
Dr. Satyajit Bhuyan	Prof.In Charge Magazine Section, AECSU	Since 2013	Supervises the publication of the annual magazine of the college. Also supervises various literary activities organized amongst the students.
Prof. Deba Kumar Mahanta	Prof. In Charge ISTE Student Chapter, AEC		Organizing aptitude tests on a regular basis for preparing students for the placements and other competitive exams. 2) Organizing Gate mock tests, Organizing mock interviews group discussions Organizing ISTE-SRMC Examination.
Dr. Dipankar Chanda	TEQIP -III Coordinator for Electrical Engineering Department	Since November 2017	Submission of academic activity & expenditure plans of the department Submission & Approval of procurement Plan of the department and Execution of activities

Table B.5.7.3a

Additional Activities:

Dr. Satyajit Bhuyan: He has been writing regularly in two vernacular dailies published from Assam. His columns appear in both editorial page as well as weekly literary page. Till date a good number of books in Assamese have been published. An anthology of translated short stories into English has also been published.

Provide details:

- Product Development

- Research laboratories

Power System Research Laboratory where research scholars undertake research

Room description	Usage	Area sq.mt	Exclusive/shared	Capacity	Room Equipped with	No of research Scholars
Power system Research Laboratory	For Research scholars	12	Sharing	6 No's	<ol style="list-style-type: none"> 1. Internet with speed of 100mbps 2. Chairs 3. Desktop Computers 6Nos 4. Printers 1 Nos 5. Scaners1 Nos 6. Book racks 7. AC 1 no. 	18 on sharing basis

Table B.5.7.3b

- Instructional materials
 - Faculty gives hand outs to the students on certain topics for self study.
 - Every Laboratory course of the Department has detailed lab manuals which are available for the students at the beginning of the semester.
- Working models/charts/monograms etc.
 - Charts displayed in all Laboratories.
 - Some poster presentation by the students is displayed in the laboratories.
 - Models of some motors are displayed for the students to understand the motors in a better way.

Consultancy (from Industry)(5)

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

Funding amount (Cumulative during last three academic years starting from CAYm1):

Amount > 10 Lacs – 5 Marks

Amount \geq 8 Lacs and \leq 10 lacs – 4 Marks

Amount \geq 6 Lacs and $<$ 8 lacs – 3 Marks

Amount \geq 4 Lacs and $<$ 6 lacs – 2 Marks

Amount \geq 2 Lacs and $<$ 4 lacs – 1 Mark

Amount $<$ 2 Lacs – 0 Mark

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

Faculty members of Higher Educational Institutions today have to perform a variety of tasks pertaining to diverse roles. In addition to teaching, faculty members need to innovate and conduct research, keep abreast with changes in technology, and develop expertise for effective implementation of curriculum. They are also expected to engage themselves in solving the problems

of industry and the society pertaining to their field. Another role relates to the shouldering of administrative responsibilities and co-operation with other faculty, heads-of-departments and the head of the institute. An effective performance appraisal system for faculty is vital for optimizing the contribution of individual faculty towards institutional performance.

- **A well-defined system for faculty appraisal for all the assessment years(10)**

The Faculty Appraisal System in the department is a two tier system. At the end of each Academic Year, every faculty has to fill up an Annual self-Assessment for the performance based appraisal system (PBAS) given in Annexure V which is submitted to the Principals office. The Principals office then forwards the same to the Government.

In addition to this, there is a internal faculty appraisal at the departmental level. The process involved in this is as follows:

The HOD forms a committee consisting of a few faculty members of the department.

All faculty members are asked to fill up a Self Appraisal Form where different metrics for assessment is included.

The Appraisal Committee then will assess the performance of the faculty. The departmental level appraisal form is given in Annexure V

Its implementation and effectiveness (20)

- All the faculties are briefed about the appraisal criteria at the beginning of the academic year.
- At the end of the academic year, faculty members carry out self appraisal& submit to the concerned HOD.
- HOD, in turn, discusses with the Appraisal Committee about the performance of the faculty.
- HOD then discusses the assessment with the concerned faculty about his/her performance.
- The faculty is informed by the HOD about the steps that are to be taken to improve the teaching learning process in the following academic year.

Effectiveness:

- This process has effectively improved the overall academic environment of the college with the faculties taking steps to improve the shortfalls of the department as a whole.
- Faculty members are also encouraged to improve themselves and aim for a higher attainment level.

Visiting/Adjunct/Emeritus Faculty etc.(10)

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

- Provision of inviting/having visiting/adjunct/emeritus faculty(1)
- Minimum 50 hours per year interaction with adjunct faculty from industry/retired professors etc. (Minimum 50 hours interaction in a year will result in 3 marks for that year; 3 marks x 3 years = 9marks)

CRITERION 6	FACILITIES AND TECHNICAL SUPPORT	80
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6. FACILITIES AND TECHNICAL SUPPORT

6.1 Adequate and well equipped laboratories and technical manpower

Sl. No	Name of the laboratory	Number of students per setup (Batch size)	Name of the Important Equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1	Electrical Machines I (5 th sem E.E)	33	DC generator & motor, 1-ph transformer, auto-transformer, various measuring instruments.	6 hrs	Dr. D. Agarwal Dr. A. Bardalai Dr. S. Bhuyan (supervisors)	Prof. Prof. Assc. Prof.	PhD PhD PhD
					1. Thaneswer Kalita 2. Sarat Deka 3. Doyal Das 4. Mrinal Thakuria	Jr. Instructor Inst. mechanic Electric mistry Guest instructor	ITI ITI WM Dip. EE
2	Electrical Machines II (6 th sem E.E)	33	DC generator & motor, 1-ph & 3-ph. transformer, auto-transformer, induction motor, synchronous alternator and motor, various measuring instruments.	6 hrs	Dr. D. Agarwal Dr. A. Bardalai Dr. S. Bhuyan (supervisors)	Prof. Prof. Assc. Prof	PhD PhD PhD
					1. Thaneswer Kalita 2. Sarat Deka 3. Doyal Das 4. Mrinal Thakuria	Jr. Instructor Inst. mechanic Electric mistry Guest instructor	ITI ITI WM Dip. EE
3	Electrical Machines (4 th sem E&TE) (6 th sem I.E)	30	DC generator & motor, 1-ph transformer, auto-transformer, various measuring instruments.	6 hrs	Dr. B.K. Talukdar Dr. A. Ganguly Dr. P. Patowary (supervisors)	Assc. Prof. Assc. Prof. Assc. Prof	PhD PhD PhD
					1. Thaneswer Kalita 2. Sarat Deka 3. Doyal Das 4. Mrinal Thakuria	Jr. Instructor Inst. mechanic Electric mistry Guest instructor	ITI ITI WM Dip. EE
4	Electro Technology I (3 rd sem M.E) (3 rd sem. Ch.E)	30	DC generator & motor, 1-ph transformer, auto-transformer, various measuring instruments.	8 hrs	Dr. Barnali Goswami Dr. Purabi Patowary (supervisors)	Assc. Prof Assc. Prof	PhD PhD
					1. Thaneswer Kalita 2. Sarat Deka 3. Doyal Das 4. Mrinal Thakuria	Jr. Instructor Inst. mechanic Electric mistry Guest instructor	ITI ITI WM Dip. EE
Electrical Engineering Machine Lab. Total Utilization				26 hrs./week			
5	Power Electronics (5 th sem.EE) (5 th sem.IE)	30	Thyristor characteristic determination kit, converter, chopper, ac regulator, inverter experimental setups, power supplies,	6 hrs.	Dr. A. Bardalai Dr. S. Bhuyan (supervisors)	Prof. Assc. Prof	PhD PhD
					1. Mrinal Thakuria	Guest Instructor	Dip. E.E

			triggering circuits, oscilloscopes. Etc.				
6	Digital Electronics & Systems (5 th .Sem)	35	1. Digital Electronics Experimentation Kits having dc power supply, bread board, function generator, LED etc. 2. IC's	Utilized for 4 classes (2.5 hrs each) per week. Each class with a maximum of 35 students	Dr. Runumi Sarma Dr. Sarmila Patra Mr. Diptarka Deka. Mr. Debo Kumar Mahanta 1. Sarat Deka. 2. Mrinal Thakuria 1. Sharat Deka. 2. Mrinal Thakuria	Professor Associate Professor Associate Professor Assistant Prof Inst. mechanic Guest Instructor Inst. mechanic Guest Instructor	PhD PhD M.Tech M.Tech ITI Dip. EE ITI Dip. E.E
7	Microprocessor Lab. (6 th .Sem)	33	8085 µP kit, power supply, CRO	6 hrs	Dr. D. Hazarika	Prof.	PhD
8	Computer Lab. (5 th .Sem)	30	Computers 30 nos. 12kVA ups system	6 hrs	Dr. B.K. Talukder Mr. B. Dekaraja Mr. D. Talukder	Assc. Prof. Asstt. Prof Sc. Asstt	PhD M.Tech B.Sc
9	Control System Lab. (5 th .Sem)	30	Control system kit, CRO, Power Supply.	6 hrs	Dr. B.C. Deka	Assc. Prof	PhD
10	Electrical Measurements and Measuring Instruments (EMMI) (4 th Sem)	30	Anderson Bridge, Wien Bridge, Schering Bridge, Maxwell Bridge, Kelvin Bridge, 3-Φ power measurement, 1-Φ Energymeter	4 days/week	1. Mr. B. Dekaraja 2. Mr. Rhittwikraj Moudgollya 3. Mr. Jobin Mathew 4. Mr. Soumya Samanta	Assistant Professor Assistant Prof (TEQIP) Assistant Prof (TEQIP) Assistant Prof (TEQIP)	M.E. M. Tech M. Tech M. Tech
11	BEEE(2 nd Sem)	30	Ammeter, Voltmeter, Wattmeter, CRO, Rheostat, Shunt, Variac, Choke Coil etc	15 classes (2.10 hrs each) per week	R. Sarma, S. Patra, D. Chanda, B. Goswami, P. Patowary A. Ganguly S. S. Sarma, B. Dekaraja, R. Nazneen D. K. Mahanta N. Adhikary, Afreen Islam, Soumya Samanta, Jobin Mathew, Kumari Nutan Singh, Siddhant Singh Maurya, Rhittwik Raj Moudgollya D. Das,	Prof Assoc Prof Asst. Prof Asst. Prof (all) EE Mistri	Phd Phd M.Tech Phd M.Tech (all) Wiremen Permit

					T.Kalita,	Jr. Instructor	ITI
					S.Deka,	Inst. Mechanic	ITI
					D.Talukdar,	Sc. Asst	B.Sc
					Mrinal Thakuria	Guest Instructor	Dip (EE)

Table B.6.1

Additional facilities created for improving the quality of learning experience in Laboratories:

Sl. no	Facility Name	Reason(s) for creating facility	Utilization	Areas in which students' are expected to have enhanced learning	Relevance to POs/PSOs
1	Orientation classes are conducted before starting of the laboratory. (EMMI Lab., BEEE Lab, M/c Lab)	To understand the underlying principles of the experiments and to know the safety measures to be followed in the laboratories	5 hrs before the commencement of the Laboratory classes starts in the semester	To perform laboratory experiments and utilize the concept during project work in the final year.	PO4, PSO-1
2	Lab Manuals given before start of laboratory	Students can come prepared for the LAB	Used in every Laboratory experiment	<ul style="list-style-type: none"> Students are prepared for the Lab Students know the procedure to be followed The students can utilize maximum time for the experiment as the data sheet is already prepared beforehand 	PO4, PO9
3.	Wi fi connection in Computer Laboratory	To refer to online resources for performing the Labs	Used as and when required by the students	<ul style="list-style-type: none"> Increase the knowledge base Get the latest developments in the field of study 	PO4, PO5
4.	Generator 25 kVA UPS 10 kVA	Non disruption of Lab During Power Cuts	During Power Cuts		

Table B.6.2

Laboratories: Maintenance and overall ambiance:

Maintenance

1. Do's and Don'ts and Safety measures rules are displayed in each laboratory.
2. Technical Staff are well trained and are available for all the laboratories.
3. Maintenance of each laboratory is doing frequently. The technical staff of the department is well trained for repair and maintenance of the laboratory instruments.
4. In the computer laboratory of the department, the PCs are regularly maintained, the battery of the UPS is serviced and steps are taken to keep an uninterrupted wi-fi connection.
5. All laboratories instruments, machines and other related accessories undergoes a thorough check before commencement of the Lab sessions.

Ambience:

- Electrical Engineering Department laboratories are well equipped for catering to all UG curriculum requirements for students of this program as well as for students from other programs.
- Conditions of chairs/benches are in good condition. In some Laboratories, high stools are provided to the students.
- Each laboratory classes have experienced faculty to educate them apart from the technical staff in all the fields of engineering.
- All the labs are conducted and evaluated every week.
- Laboratories are equipped with sufficient machines and equipments to run program specific curriculum.
- Laboratory manual are distributed to students.
- The laboratory rooms are well ventilated.
- Each Lab is equipped with white/black board, desks (in some Labs), computer, Internet (in some labs), Experimental kits and such other amenities.

Project laboratory:

- Power System Laboratory is available for the students to carry their projects.
- Students doing hardware projects perform the experiments in different UG labs of the department.

Safety measures in laboratories:**The following safety measures are used in all the labs:**

- Safety instructions given during orientation of laboratory Classes.
- Specific Safety Rules like Do's and Don'ts are displayed and instructed for all students.
- First aid box and fire extinguishers are kept in each laboratory.
- Students are supposed to wear proper dress and shoes to the Lab.
- Well trained technical supporting staff monitor the labs at all times.
- Circuits and connections checked by instructor before switching on power.
- Damaged equipments are identified and serviced at the earliest.
- Periodical calibration of the lab equipments are regularly done
- The use of cell phones is prohibited.
- Insulating floor mats provided for system voltage experiments

CRITERION 7	Continuous Improvement	50
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7. CONTINUOUS IMPROVEMENT (50)

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

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

POs Attainment Levels and Actions for improvement – 2016-2017			
POs	Target Level	Attainment	Observations
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems			
PO1	1.46	2.07	Electrical engineering curriculum requires strong foundation of science and mathematics, which the students study during their first year course. However, students are not able to correlate the theoretical concepts with application.
Action 1: Faculty will put additional effort in teaching the fundamental concepts of the subjects. Action 2: Students are motivated to take online courses to further enhance their knowledge base.			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.46	1.92	Students need to improve the performance in the subjects relating to the core area so as to achieve the required PO attainment
Action 1: Industry visits will be arranged for the students addressing the core areas of the program so as to enhance their knowledge through practical observation. Action 2: Tutorial classes will be arranged and assignments given to improve the students learning outcome			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.46	1.38	The curriculum lacks in this aspect. The curriculum does not include sufficient inputs regarding public health and safety, cultural, societal, and environmental issues.

<p>Action 1: The students will be given projects by considering the overall socio cultural and environmental issues.</p> <p>Action 2: Lecture series will be organized for motivating the students in these directions.</p>			
<p>PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.</p>			
PO4	1.46	1.67	Observations suggest that students are reluctant to consult the relevant material available online as well as in the library.
<p>Action 1: Assignments based on online research will be given to the students to enhance their expertise on the subject.</p> <p>Action 2: In the laboratory classes, students will need to collect data and then analyze, interpret and draw valid conclusion.</p>			
<p>PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.</p>			
PO5	1.46	1.48	It is observed that use of modern software tools and other such facilities is very limited amongst the students.
<p>Action 1: Assignments designed based on modern software tools will be given to students.</p> <p>Action 2: Training programs on Matlab, embedded system and Labview will be organized.</p>			
<p>PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
PO6	1.46	1.3	Electrical engineers are very much accustomed to various safety practices in practical applications. Students must have the knowledge of safety in practical application to avoid any untoward incident.
<p>Action 1: Classes will be conducted for the students to create awareness regarding safety measures to be practiced.</p> <p>Action 2: Safety measures used in industries are to be demonstrated to the students during their industrial visits.</p>			
<p>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.</p>			
PO7	1.46	1.23	Electrical engineers are responsible in finding state of the art solutions which is environmental friendly and sustainable.
<p>Action 1: To motivate students towards sustainable solution of engineering problem, department will arrange talks from entrepreneurs working in this area.</p>			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			
PO8	1.46	1.31	It is of utmost importance that the students not only become competent engineers but also imbibe ethical values
<p>Action 1: Faculty and mentors will take out time in the class to talk about the importance of ethics and good engineering practices.</p> <p>Action 2: Interactive sessions with distinguished alumni to be arranged to inculcate ethics and values in the students.</p>			

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.46	1.88	Team work and quality leadership is of utmost importance in engineering practices.
Action 1: Seminars presentation will be made a part of the teaching process where students work as a team on the presentation.			
Action 2: Mini projects will be given in the second and third years where students need to work as a team.			
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.46	1.71	Soft skills are important for engineering graduates. It has been observed that performance of students is below par in communication and soft skills.
Action 1: The third year students will be given semester long training on soft skills to be arranged by the training cell of the college.			
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO11	1.46	1.66	The curriculum does not have provisions for the students to learn project management and finance. The management and economics courses are offered in the third year by the humanities department.
Action 1: Talk on Power Business and management shall be arranged by the Department.			
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	1.46	1.72	Learning is a lifelong process. The knowledge gained from the curriculum can be applied to various walks of life and in the process can engage themselves for further learning throughout their lives.
Action 1: Interaction with Alumni working in different fields to be held time to time to help the students understand the needs of the industry and thus improve their employability skills.			

Table B.7.1a

PSOs Attainment Levels and Actions for improvement – 2016-2017			
PSO	Target Level	Attainment	Observations
PSO1: Demonstrate the capability to comprehend the technical advancements related to electric engineering as well as in multidisciplinary areas.			
PSO1	1.26	1.22	Electrical engineering curriculum addresses the diversified fields of engineering. The students' project reflects the application of real life problems in the laboratory set up.
Action 1: Students to be given final year projects pertaining to real life problems and use the latest technology and software to find a solution.			

PSO2: Be professional with leadership qualities, good communication skills, and ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.

PSO2	1.26	1.31	Professional ethics and societal context is taken into consideration as far as practicable while solving various engineering problems
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Action 1: Faculty during interactions with the students will discuss about different ethical and environmental angle to be considered in their professional career.

Action 2: Life skills talks will be arranged for the students.

Table B.7.1b

POs Attainment Levels and Actions for improvement – 2015-2016			
POs	Target Level	Attainment	Observations
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems			
PO1	1.51	1.96	Electrical engineering curriculum requires strong foundation of science and mathematics, which the students study during their first year course. However, students are not able to correlate the theoretical concepts with applications.
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.51	1.78	Students need to improve the performance in the subjects relating to the core area so as to achieve the required PO attainment
Action 1: Industry visits to transformer manufacturing industry to be arranged for the students			
Action 2: Tutorial classes will be arranged and assignments given to improve the students learning outcome			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.51	1.34	The curriculum lacks in this aspect. The curriculum does not include sufficient inputs regarding public health and safety, cultural, societal, and environmental issues.
Action 1: The students will be given projects by considering the overall socio cultural and environmental issues.			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.51	1.74	Observations suggest that students are reluctant to consult the relevant

			material available online as well as in the library.
Target has been achieved			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.51	1.78	It is observed that use of modern software tools and other such facilities is very limited amongst the students.
Action 1:			
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
PO6	1.51	1.25	Electrical engineers are very much accustomed to various safety practices in practical applications. Students must have the knowledge of safety in practical application to avoid any untoward incident.
Action 1: Classes are conducted for the students to create awareness regarding safety measures to be practiced.			
Action 2: Safety measures used in industries are demonstrated to the students during their industrial visits.			
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.			
PO7	1.51	1.13	Electrical engineers are responsible in finding state of the art solutions which is environmental friendly and sustainable.
Action 1: Lecture on Renewable Energy Sources will be organized for the students.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1.51	1.23	It is of utmost importance that the students not only become competent engineers but also imbibe ethical values
Action 1: Talk on Entrepreneurship development will be arranged by the department.			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.51	1.70	Team work and quality leadership is of utmost importance in engineering practices.
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.51	1.38	Soft skills are important for engineering graduates. It has been observed that performance of students is below par in communication and soft skills.

<p>PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	1.51	1.67	The curriculum does not have provisions for the students to learn project management and finance. The management and economics courses are offered in the third year by the humanities department.
<p>Action 1:</p>			
<p>PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life- long learning in the broadest context of technological change.</p>			
PO12	1.51	1.23	Learning is a lifelong process. The knowledge gained from the curriculum can be applied to various walks of life and in the process can engage themselves for further learning throughout their lives.
<p>Action 1:</p>			

Table B.7.1c

PSOs Attainment Levels and Actions for improvement – 2015-2016			
PSO	Target Level	Attainment	Observations
PSO1: Demonstrate the capability to comprehend the technical advancements related to electric engineering as well as in multidisciplinary areas.			
PSO1	1.21	1.20	Electrical engineering curriculum addresses the diversified fields of engineering. The students' project reflects the application of real life problems in the laboratory set up.
<p>Action 1:</p>			
PSO2: Be professional with leadership qualities, good communication skills, and ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.			
PSO2	1.21	1.22	Professional ethics and societal context is taken into consideration as far as practicable while solving various engineering problems
<p>Action 1:</p>			

Table B.7.1d

POs Attainment Levels and Actions for improvement – 2014-2015			
POs	Target Level	Attainment	Observations
<p>PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems</p>			

PO1	1.56	2.07	Electrical engineering curriculum requires strong foundation of science and mathematics, which the students study during their first year course. However, students are not able to correlate the theoretical concepts with applications.
Action 1:			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.56	1.85	Students need to improve the performance in the subjects relating to the core area so as to achieve the required PO attainment
Action 1: Training courses by NPTI was arranged.			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.56	1.32	The curriculum lacks in this aspect. The curriculum does not include sufficient inputs regarding public health and safety, cultural, societal, and environmental issues.
Action 1:			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.56	1.68	Observations suggest that students are reluctant to consult the relevant material available online as well as in the library.
Action 1:			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.56	1.76	It is observed that use of modern software tools and other such facilities is very limited amongst the students.
Action 1:			
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
PO6	1.56	1.07	Electrical engineers are very much accustomed to various safety practices in practical applications. Students must have the knowledge of safety in practical application to avoid any untoward incident.
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.			

PO7	1.56	0.97	Electrical engineers are responsible in finding state of the art solutions which is environmental friendly and sustainable.
Action 1:			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1.56	1.03	It is of utmost importance that the students not only become competent engineers but also imbibe ethical values
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.			
PO9	1.56	1.70	Team work and quality leadership is of utmost importance in engineering practices.
Action 1:			
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.56	1.64	Soft skills are important for engineering graduates. It has been observed that performance of students is below par in communication and soft skills.
Action 1:			
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO11	1.56	1.88	The curriculum does not have provisions for the students to learn project management and finance. The management and economics courses are offered in the third year by the humanities department.
Action 1:			
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	1.56	1.61	Learning is a lifelong process. The knowledge gained from the curriculum can be applied to various walks of life and in the process can engage themselves for further learning throughout their lives.
Action 1:			

Table B.7.1e

PSOs Attainment Levels and Actions for improvement – 2014-2015			
PSO	Target Level	Attainment	Observations
PSO1: Demonstrate the capability to comprehend the technical advancements related to electric			

engineering as well as in multidisciplinary areas.			
PSO1	1.51	1.66	Electrical engineering curriculum addresses the diversified fields of engineering. The students' project reflects the application of real life problems in the laboratory set up.
Action 1:			
PSO2: Be professional with leadership qualities, good communication skills, and ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.			
PSO2	1.51	1.35	Professional ethics and societal context is taken into consideration as far as practicable while solving various engineering problems
Action 1:			

Table B.7.1f

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

Academic audit and actions taken are carried out with the help of the following procedural steps:

1. Course File Evaluation: Faculty members prepare the course files at the beginning of the semester. The academic audit committee comprising of HOD, NBA coordinator and a few senior faculty members verify the contents of the course file and provide feedback to the concerned faculty member for the necessary action to be taken in this direction. The way the audit system improves the teaching-learning process. The following are the contents of the course file

Sl. No.	Contents
1	Detailed Course Plan
2	CT Question Papers
3	Sample Answer Papers
4	Assignment Topics & reports
5	Mini Projects/Seminar Topics
6	Attendance details in percentage
7	Result Analysis
8	Feedback on teachers
9	Pass Percentage of the Course

Table B.7.2

2. Lecture/ Lab Evaluation

The Academic Committee check and verify the relevant lesson plan, teaching aids and communication skill of faculty members as per the norms and suggest required feedback to the concerned faculty member.

3. Faculty Development Program (FDP):

To improve teaching-learning and to keep abreast with the latest advances in technology, faculty from the department are encouraged to attend FDPs/Workshops/Seminars at other reputed institutes.

4. Review: Review of the faculty member is done at the end of the semester so as to get information about improvement in teaching-learning process of each faculty member after getting various feedbacks and training and corrective actions are taken accordingly.

Improvement in Placement, Higher Studies and Entrepreneurship (10)

Item	Last Year Graduate LYG (2016-2017)	Last Year Graduateminus1, LYGm1 (2015-2016)	Last Year Graduateminus2, LYGm2 (2014-2015)
Total No. of Final Year Students (N)	87	111	102
No. of students placed in companies or Government Sector (x)	61	45	41
No. of students admitted to higher studies with valid qualifying scores	3	8	16
No. of students turned entrepreneur in engineering/technology (z)	3	3	1
Pay Packages	Maximum	17.3 lacs	14.00 lacs
	Minimum	2.75 lacs	2.75 lacs
Placement in Core Companies	20	7	15

Table B.7.3 Placement Data

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

Item		2017-18	2016-17	2015-16
State Level Entrance Examination (Common Entrance Examination)	No. of Students admitted	90	90	90
	Opening Score	226	178	169
	Closing Score	59	105	92
Joint Lateral Entrance Examination (JLEE)	No. of Students admitted	--	9	9
	Opening Score	--	213	194
	Closing Score	--	142	155
Average CBSE/Any other Board Results of admitted students (Physics, Chemistry, Maths)		77.91	77.25	70.14

Table B:7.4 Admitted Students Data

CRITERION 8	First Year Academics	50
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8. FIRST YEAR ACADEMICS (50)

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

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

Data for first year courses to calculate the FYSFR:

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

TableB.8.1

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

Year	x	y	RF	Assessment of faculty qualification $(5x+3y)/RF$
CAY (2017-18)	19	22	28	5.75
CAYm1 (2016-17)	22	23	28	6.39
CAYm2 (2015-16)	22	24	28	6.50
Average Assessment				6.21

TableB.8.2

First Year Academic Performance (10)

Academic Performance	CAY (2017-18)	CAYm1 (2016-17)	CAYm2 (2015-16)
Mean of CGPA or Mean Percentage of all successful students (X)	-	58.76	61.84
Total no. of successful students (Y)	-	97	92
Total no. of students appeared in the examination(Z)	-	97	92
API= $x*(Y/Z)$	-	58.76	61.84
Average API=(AP1+ AP2+AP3)/3	$(58.76+61.84)/2= \mathbf{60.3}$		

TableB.8.3

Attainment of Course Outcomes of first year courses (10)

Describe the assessment processes used together 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. is 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.

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

Short Code	Long Code	Course Name	Att. Of CO (2016-2020)	Set attainment Level
1.1 TS	PH101	Engg. Physics	71.13	50
1.1 P	PH101L	Engg. Physics Lab	71.13	50

Short Code	Long Code	Course Name	Att. Of CO (2016-2020)	Set attainment Level
1.2 TS	CY102	Engg. Chemistry	71.13	60
1.2 P	CY102L	Engg. Chemistry Lab	93.81	60
1.3 TS	MA103	Mathematics-I	77.31	50
1.4 TS	CE114	Mechanics of Solids	65.97	50
1.5 TS	HU105	Technical Report Writing	85.57	50
1.6 PS	CE117	Engineering Graphics-I	75.27	50
1.7 TS	CS106	Computer Programming	83.51	50
1.7 P	CS106L	Computer Programming Lab	83.51	50
1.8 P	ME108	Workshop Practice	78.35	60
2.1 TS	PH201	Engg. Physics-II	70.10	50
2.1 P	PH201L	Engg. Physics-II Lab	77.32	50
2.2 TS	CY202	Engg. Chemistry-II	79.38	50
2.2P	CY202L	Engg. Chemistry-II Lab	94.85	60
2.3 TS	MA203	Mathematics-II	74.23	50
2.4 TS	ME224	Engineering Mechanics I	89.69	50
2.4 P	ME224L	Engineering Mechanics I Lab	79.38	60
2.5 TS	EE245	Basic Electrical Engg. & Electronics	64.71	50
2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	63.92	50
2.6 TS	HU206	Sociology	84.54	50
2.7 PS	ME227	Engineering Graphics-II	88.66	50

Table B.8.4

Attainment of Program Outcomes from first year courses (20)

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 1st year courses

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 0	PO 1	PO 1	PO 1
1.1 TS	PH101	Engg. Physics	2.5	2											
1.1 P	PH101L	Engg. Physics Lab	2												

Short Code	Long Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
1.2 TS	CY10 2	Engg. Chemistry	2.6	1.8	1.8			0.8	1.4					1.6
1.2 P	CY10 2L	Engg. Chemistry Lab	2	1.8		1					1.2	1.8		
1.3 TS	MA10 3	Mathematics-I	3	3	1.2	1					1			2
1.4 TS	CE11 4	Mechanics of Solids	2	1.4	0.8	0.8	0.2		0.2					0.6
1.5 TS	HU10 5	Technical Report Writing		0.6	0.6	0.8		1.4	1	1.4	1.6	2.8	1	3
1.6 PS	CE11 7	Engineering Graphics-I	3	3	2.4 2	2.5 7	2.1 4	2.5 7	0.7 1					
1.7 TS	CS10 6	Computer Programming	2	1.8	2.4	1.2	1.2							
1.7 P	CS10 6L	Computer Programming Lab	2	1.8	2.4	1.2	1.2							
1.8 P	ME10 8	Workshop Practice	1.6	2						1	1.6			
2.1 TS	PH20 1	Engg. Physics-II	2.5	2										
2.1 P	PH20 1L	Engg. Physics-II Lab	2											
2.2 TS	CY20 2	Engg. Chemistry-II	2.8	1.8	1.6	1		1.8	1		1.6	1.8		1
2.2P	CY20 2L	Engg. Chemistry-II Lab	2	2				1.2 5	1.2 5		1	1		
2.3 TS	MA20 3	Mathematics-II	3	3	2									2
2.4 TS	ME22 4	Engineering Mechanics I	3	2	2	2.5	1.8							1
2.4 P	ME22 4L	Engineering Mechanics I Lab	3	1.5	1.3	1.8	1.3							1
2.5 TS	EE245	Basic Electrical Engg. & Electronics	3	3	3	2	1.6	1	3	0.4	1			3
2.5 P	EE245 L	Basic Electrical Engg. & Electronics Lab	3	3		1					3	0.7		3

Short Code	Long Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
2.6 TS	HU206	Sociology		1				2		2	1	1	1	3
2.7 PS	ME227	Engineering Graphics-II	3	3	1		0.4	0.6						1

TableB.8.5.1

CO-PSO mapping of 1st year courses

SI No.	Short Code	Long Code	Course Name	PSO1	PSO2
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	-	-
10	1.7 P	CS106L	Computer Programming Lab	-	-
11	1.8 P	ME108	Workshop Practice	-	-
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	2.2P	CY202L	Engg. Chemistry-II Lab	-	-
16	2.3 TS	MA203	Mathematics-II	-	-
17	2.4 TS	ME224	Engineering Mechanics I	-	-
18	2.4 P	ME224L	Engineering Mechanics I Lab	-	-
19	2.5 TS	EE245	Basic Electrical Engg. & Electronics	2.00	1.00
20	2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	-	-
21	2.6 TS	HU206	Sociology	-	-
22	2.7 PS	ME227	Engineering Graphics-II	-	-

TableB.8.5.2

PO attainment for the batch 2016-17

SI No.	Short Code	Long Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	1.1 TS	PH101	Engg. Physics	1.78	1.42										
2	1.1 P	PH101L	Engg. Physics Lab	1.42											

SI No.	Short Code	Long Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
3	1.2 TS	CY102	Engg. Chemistry	1.85	1.28	1.28			0.57	1.00					1.14
4	1.2 P	CY102L	Engg. Chemistry Lab	1.88	1.69		0.94					1.13	1.69		
5	1.3 TS	MA103	Mathematics-I	2.32	2.32	0.93	0.77					0.77			1.55
6	1.4 TS	CE114	Mechanics of Solids	1.32	0.92	0.53	0.53	0.13		0.13					0.40
7	1.5 TS	HU105	Technical Report Writing		0.51	0.51	0.68		1.20	0.86	1.20	1.37	2.40	0.86	2.57
8	1.6 PS	CE117	Engineering Graphics-I	2.26	2.26	1.82	1.93	1.61	1.93	0.53					
9	1.7 TS	CS106	Computer Programming	1.67	1.50	2.00	1.00	1.00							
10	1.7 P	CS106L	Computer Programming Lab	1.67	1.50	2.00	1.00	1.00							
11	1.8 P	ME108	Workshop Practice	1.25	1.57						0.78	1.25			
12	2.1 TS	PH201	Engg. Physics-II	1.75	1.40										
13	2.1 P	PH201L	Engg. Physics-II Lab	1.55											
14	2.2 TS	CY202	Engg. Chemistry-II	2.22	1.43	1.27	0.79		1.43	0.79		1.27	1.43		0.79
15	2.2P	CY202L	Engg. Chemistry-II Lab	1.90	1.90				1.19	1.19		0.95	0.95		
16	2.3 TS	MA203	Mathematics-II	2.23	2.23	1.48									1.48
17	2.4 TS	ME224	Engineering Mechnaics I	2.69	1.79	1.79	2.24	1.61							0.90
18	2.4 P	ME224L	Engineering Mechnaics I Lab	2.38	1.19	1.03	1.43	1.03							0.79
19	2.5 TS	EE245	Basic Electrical Engg. & Electronics	1.94	1.94										
20	2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab				1.92								
21	2.6 TS	HU206	Sociology		0.85				1.69		1.69	0.85	0.85	0.85	2.54
22	2.7 PS	ME227	Engineering Graphics-II	2.66	2.66	0.89		0.35	0.53						0.89
			Direct attainment	1.93	1.60	1.30	1.20	0.96	1.22	0.75	1.22	1.08	1.46	0.85	1.30

TableB.8.5.3

*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

SI No.	Short Code	Long Code	Course Name	PSO1	PSO2
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		
10	1.7 P	CS106L	Computer Programming Lab		
11	1.8 P	ME108	Workshop Practice		
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		
18	2.4 P	ME224L	Engineering Mechanics I Lab		
19	2.5 TS	EE245	Basic Electrical Engg. & Electronics	1.29	0.65
20	2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab		
21	2.6 TS	HU206	Sociology		
22	2.7 PS	ME227	Engineering Graphics-II		
Direct attainment				1.29	0.65

TableB.8.5.4

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
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	1.5	1.93	Target is achieved
Action1:			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.5	1.60	Target is achieved
Action1:			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.5	1.30	Not many subjects will contribute to this PO at first year level
Action1:			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.5	1.20	Not many subjects will contribute to this PO at first year level
Action1:			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.5	0.96	This PO will be addressed more in higher semesters
Action1:			
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
PO6	1.5	1.22	Not many subjects will contribute to this PO at first year level

Action1:			
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.			
PO7	1.5	0.75	Not many subjects will contribute to this PO at first year level
Action1:			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice			
PO8	1.5	1.22	Not many subjects will contribute to this PO at first year level
Action1:			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.5	1.08	Not many subjects will contribute to this PO at first year level
Action1:			
PO10:Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.5	1.46	Not many subjects will contribute to this PO at first year level
Action1:			
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO11	1.5	0.85	Not many subjects will contribute to this PO at first year level
Action1:			
PO12: Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	1.5	1.30	Not many subjects will contribute to this PO at first year level
Action1:			

Similar information is provided for PSOs			
PSOs	Target Level	Attainment Level	Observations
PSO1: Demonstrate the capability to comprehend the technical advancements related to electric engineering as well as in multidisciplinary areas.			
PSO1	1.5	1.29	Not many subjects will contribute to this PO at first year level
Action1:			
PSO2: Be professional with leadership qualities, good communication skills, ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.			
PSO2	1.5	0.75	Not many subjects will contribute to this PO at first year level
Action1:			

CRITERION 9	Student Support System	50
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9. STUDENT SUPPORT SYSTEMS (50)

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 mentors at regular intervals inform the mentees regarding their attendance and performance. The mentors sometime come together to avoid any alarming or untoward condition that may arise among the students. If the need arise, some matters of importance are forwarded to the senior professors/mentors or the HOD. If required the parents/guardians of the mentees are also contacted for discussion regarding 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 counseling, thus enabling the mentors to show the way forward.

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 disliked 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 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.			
0. Never 1. Rarely 3. Sometime 3. Frequent 4. Always			
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 illustrated with solved examples	0 1 2 3 4	
4	Active student performance ensured in the class	0 1 2 3 4	
5	Question 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	Provides list of 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: _____			

Course End Survey Transportation Engineering Laboratory-II (CE 613 L) B.E. 6 th Semester Department of Civil Engineering Assam Engineering College, Guwahati Date: 29 th April, 2016		
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 the what type of situation or condition the material should be used by looking at the results	_____
CO 3	Review the test results to find out the shortcomings in the apparatus/tools used	_____
CO 4	Predict the change in test results for any shortcoming in the test procedure	_____
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? _____		

Fig. 9.2.1 Sample Feedback survey sheet on teacher

Fig. 9.2.2 Sample course end survey form

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 (wef 01/01/2018 to 10/05/2018)

INSTRUCTIONS:

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

1. About the teacher of the course

	Strongly Agree (5)	Agree (4)	Neutral (3)	Agree (2)	Strongly Agree (1)
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. The teacher spoke 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 Agree (5)	Agree (4)	Neutral (3)	Agree (2)	Strongly Agree (1)
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 semester.					
4. The course load was very heavy.					
5. The course was highly enjoyable.					

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

4. Any suggestion: (write overall)

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 their opinion on the contents of the course. The first feedback form is on the laboratory facilities and whether the course coverage is adequate to meet their requirements for competitive examinations as well as promoting research. The forms are evaluated and department takes the necessary actions to overcome the drawbacks in respective areas. The second is the course feedback form where the students give the feedback on whether the course contents and delivery met with their expectations. The HoD goes through the feedbacks and takes necessary action to improve the overall quality of teaching-learning process.

DEPARTMENT OF ELECTRICAL ENGINEERING
Questionnaire for Exit Survey

Dear students,

We are happy to note that you will complete your graduation in a few days. We hope in your 4-year undergraduate program here, you have assimilated enough to know the way towards a successful career. We request you to give your valuable feedback on the following outcomes, which will help us to make the program more useful.

Please put a wherever applicable.

At the end of the program, I am able to:

Outcomes	Strongly Agree	Agree	Somewhat Agree	Disagree
Apply the knowledge of mathematics, basic science, engineering fundamentals and electrical engineering acoustics to design programs to solve problems relevant to electrical engineering.				
Identify, formulate, and analyze complex engineering problems relevant to electrical engineering.				
Design products, processes and systems that cater to the societal needs, health, safety, and the societal and environmental concerns.				
Conduct research-based investigation by using different analytical methods, and interpret the data and draw conclusions.				
Create, select, and use modern IT tools and techniques to predict and model complex engineering activities.				
Apply the knowledge of engineering to assess societal, health, safety, legal and cultural issues and the consequent responsibility relevant to professional engineering practice.				
Understand the impact of the professional engineering activities on society and the environment.				
Apply professional ethics in engineering practices.				
Function effectively as a team member as well as a leader.				
Communicate effectively on engineering activities with the engineers and non-engineers by way of writing reports and making presentations.				
Apply engineering and management principles in handling multidisciplinary projects.				
Acquire the skills for self-prepared for life long learning in view of technological changes.				
Formulate and solve real life problems faced in industry/research work.				
Solve professional level electrical engineering problems in social and environmental context.				
Work professionally in industries in different areas related specifically to electrical engineering.				
Solve ethically and professionally various societal and environmental problems related to electrical engineering.				
Work in a professional way in power system and control system engineering industries, manufacturing industries, software industries etc.				

Fig. 9.2.4 Sample exit survey form

COURSE FEEDBACK FORM

Academic year	Term	Course No.	Course Title
I. Information on the Respondent : (Tick <input checked="" type="checkbox"/> Appropriately)			
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 : (Tick <input checked="" type="checkbox"/> Appropriately)			
a) Enhance my 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			
II. About the Instructor : (Tick <input checked="" type="checkbox"/> Appropriately)			
A	B	C	D
E			
1. Coverage of syllabus			
2. Organization of the Course			
3. Emphasis on fundamentals			
4. Availability of text book/study materials			
5. Usefulness of the prescribed text book			
6. Usefulness of tests and assignments			
7. Benefit you derived 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. Accessibility outside the class			
Overall range of the Course			
A: Excellent	B: Very Good	C: Good	D: Satisfactory
E: Poor			
(Tear 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. 9.2.5 Course feedback form

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	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																																																																																						
I. Information on the Respondent: (Tick (✓) Appropriately)																																																																																									
<p>1. Percentage of classes attended</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>0-20</td> <td>20-40</td> <td>40-60</td> <td>60-80</td> <td>80-100</td> </tr> </table>						0-20	20-40	40-60	60-80	80-100																																																																															
0-20	20-40	40-60	60-80	80-100																																																																																					
<p>2. The expectations of the students from the course are:</p> <ul style="list-style-type: none"> (a) Enhance my 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 																																																																																									
<p>II About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </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. Content 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> <tr> <td>Overall rating of the Course</td> <td>A: Excellent</td> <td>B: Very Good</td> <td>C: Good</td> <td>D: Satisfactory</td> <td>E: Poor</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. Content 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
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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 3: Somewhat agree 4: Agree 5: Strongly agree Not applicable																																																																														
6. [List of 12 items from the feedback form]	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Items</th> <th>Strongly Agree</th> <th>Agree</th> <th>Somewhat Agree</th> <th>Disagree</th> <th>Strongly Disagree</th> <th>Not applicable</th> </tr> <tr> <td>a) Laboratory and computational facilities fulfilled the needs for undergraduate course and career</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>b) Faculty members were available for all assistance</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>c) Faculty was supportive and provided constructive guidance</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>d) Faculties are competent and well abreast of the course materials</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>e) Questions were always encouraged in the classroom</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>f) Soft skills and computational ability were enhanced through classroom teaching, project works and laboratory</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>g) Lectures delivery in the class were adequate and helpful for competitive examinations</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>h) Laboratory facilities were adequate to promote research</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>i) Academic environment of the department was conducive and motivate towards learning</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>j) Course curriculum helped you in developing communication and presentation skills</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Items	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Not applicable	a) Laboratory and computational facilities fulfilled the needs for undergraduate course and career	5	4	3	2	1	0	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) Lectures 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						
Items	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Not applicable																																																																								
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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.

Feedback on facilities (5)

The feedback on facilities of the departments is 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 (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		
Wi-Fi/Internet		
T&P targeted to Civil Engineering Department		
Mentoring system		
Departmental library		
Other-Specify		

Roll No.	Name
Date	Current 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							
STUDENT SURVEY 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 3: Somewhat agree 4: Agree 5: Strongly agree Not applicable							
Sl. No.	Items	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Not 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)	Lectures delivery in the class were adequate and helpful for competitive examinations						
h)	Laboratory facilities were adequate to promote research						
i)	An overall 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:							
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 JALUKBARI-781013						
**Departmental Feedback form for the Session _____ Batch _____						
Sl No.	QUESTIONNAIRE	Poor (1)	Average (2)	Good (3)	Very Good (4)	Excellent (4)
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?					

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

Particulars	Marks on available facilities (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&P support in Electrical Engineering Department		
Mentoring System		
Others (Specify)		

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.

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 knowledge 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.

Facilities for the self-learning/beyond the syllabus in the department/institution
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

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 organization 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 counseling for higher studies

The training cell collects Rs. 1000 each from all the students of 3rd and 4th year. This money is then utilized for organizing counseling, 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 12th of March, 2018, the newly engaged TEQIP-III faculties of department of Civil Engineering have started coaching for GATE among the 6th 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-

2017-18												
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total	
1	Rivigo (Passed Out)	1	0	0	0	0	0	2	0	0	3	
2	JUD Cements (P/O)	-	0	-	1	-	-	-	-	-	1	
3	Control Print (P/O)	-	0	-	0	-	-	-	-	-	0	
4	Ashok Leyland	-	3	-	-	-	-	-	-	-	3	
5	Wipro	-	0	3	-	2	2	0	-	-	7	
6	Bureau Veritas	-	-	-	-	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	

2017-18												
SI	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total	
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	
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	
Branch-wise total		24	26	15	16	13	06	04	00	03	107	

2016-17												
SI	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	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	

2016-17											
SI	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
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
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

2016-17											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
39	Technowell Services Pvt Ltd. (core)	-	-	-	-	-	1	-	-	-	1
Branch-wise total		20	40	54	34	27	2	15	0	5	197

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 Dynamics	0	0	0	0	0	0	0	0	0	0
24	Emami	-	6	-	2	-	-	1	-	-	9
25	Power grid	-	-	3+1w	-	-	-	-	-	-	3+1w
Branch-wise total		14	31	45	19	26	12	8	0	5	160

2014-15											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
1	TCS	-	1	8	-	17	3	3	-	2	34

2014-15											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
2	IBM	2	1	7	2	4	-	-	-	-	16
3	SM GROUP	3	-	-	-	-	-	-	-	-	3
4	Tata Advanced System Ltd	-	4	-	-	-	-	-	-	-	4
5	GODREJ & B	-	0	-	-	-	-	-	-	-	0
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 CEMENTS	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
Branch-wise total		27	20	27	6	36	10	8	0	13	147

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 employment'. 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 Poptales, 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- "ERTHNIKI 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. DigantaGoswami (Associate professor, Civil Engineering Dept.)**
- Their guidance has helped a lot to prepare the plan of the upcoming year 2018-19.

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 organization 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 under 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 organized 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

Criterion 10	Governance, Institutional Support and Financial Resources	120
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10. GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES (120)

Organization, Governance and Transparency (40)

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.

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, Kahlipara. 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-

Position	Functions
Principal	<ul style="list-style-type: none"> • Design & define organization structure • Define & delegate responsibilities of various positions in the organization • Ensure periodic monitoring & evaluation, of various processes & sub-processes • Ensure effective purchase procedure • Define quality policy and objectives • Prepare annual budget • Conduct periodic meeting of various bodies such as LMC, Standing Committee and Grievances Redressal Committee

Position	Functions
	etc <ul style="list-style-type: none"> • Manage accounts and finance • Office Administration • Compliance with AICTE, DTE & University • Admission
Administrative Officer	<ul style="list-style-type: none"> • Liasoning with AICTE, DTE and University • College roster • Service Books • Faculty personal files • Maintain minutes of meeting (all) • Co – ordinate day to day activities of office • Purchase process • AICTE, DTE, SU committee preparation • Annual College budget
Head of Departments	<ul style="list-style-type: none"> • Plan and execute academic activities of the department • Maintain discipline and culture in the department • Maintain the department neat and clean • Pick and promote strengths of students / faculty / staff • Monitor academic activities of the department • Propose Department Budget • Adhere to QMS Procedures • Maintain records of departmental activities and achievements
I/C Alumni Association	<ul style="list-style-type: none"> • Formation of student council (SC) • Arrange periodic meetings of SC • Ensure alumni registration • Prepare alumni news letter • Proposing annual budget
I/C Workshop	<ul style="list-style-type: none"> • Smooth running of college workshop • Preparing Material Requirement • Oversee the routine work
I/C Employee Development cell	<ul style="list-style-type: none"> • Identifying training needs of employees
Training and Placement Officer	<ul style="list-style-type: none"> • Notify the employees about various Employee Development programmes • Arrange Employee Development Programmes • Maintain training records • Liaison with industry

Position	Functions
	<ul style="list-style-type: none"> • Student Training and Placement • Identify and provide for training needs of students • Arrange campus interviews • Proposing annual T & P budget
I/C Library	<ul style="list-style-type: none"> • Plan and execute modus operandi of routine activity of the library • Plan and propose expansion / development • Maintain library discipline and culture • Prepare annual budget for library
I/C Student Professional Activities	<ul style="list-style-type: none"> • Organize events through students professional societies / chapters • Organize different contests • Encourage student participation • Publication of technical magazine and news letters • Record of student participation and achievements in Co-curricular and extra – curricular activities • Maintain record of such events
I/C Gymnasium/Sports	<ul style="list-style-type: none"> • Ensure smooth conduct of sports • Ensure proper use of gym • Purchasing of sport items • Encourage students to participate in zonal tournaments • Creation and upkeep of sports facilities • Proposing annual budget
I/C Counseling Cell	<ul style="list-style-type: none"> • Facilitate career guidance to students • Assist students suffering from psychological disorders • Arrange for professional counselors • Maintain record of counseling activities • Student academic counseling • Provide slow-pace programme for weaker students • Arrange remedial classes for weaker students

Position	Name	Contact Details
Principal	Dr. Atul Bora	Phone: +913612570550 , 03612572521(R) Email: principal@aec.ac.in

Position	Name	Contact Details
Administrative Officer	<i>The post is vacant now, the tasks are taken care of by the Principal</i>	Phone: +913612570550 , 03612572521(R) Email: principal@aec.ac.in
Head of Departments	Chemical Engineering	Prof. Ashok Baruah ashok_baruah@yahoo.com
	Civil Engineering	Dr. Palash Jyoti Hazarika pjhaz@rediffmail.com
	Mechanical Engineering	Dr. Ranjit Kumar Dutta hellorkdutta@gmail.com
	Electrical Engineering	Dr. Damodar Agarwal agarwal_d.ele@aec.ac
	Computer Science and Engineering	Mr. Apurbakumarkalita a_kalita@rediffmail.com
	Electronics and Telecommunications	Mr. Apurbakumarkalita a_kalita@rediffmail.com
	Industrial and production Engineering	Dr. Ranjit Kumar Dutta hellorkdutta@gmail.com
	Instrumentation Engineering	Dr. Damodar Agarwal agarwal_d.ele@aec.ac
I/C Alumni Association	Dr. Pradip Baishya	baishyapk@gmail.com
I/C Workshop	Mr. BinoySarma	bcsbinoy@gmail.com
Training and Placement Officer	Dr. NavajitSaikia 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 Counseling 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. AroopBardoloi	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)

S. No	Portfolio	Name	Phone No
1.	GENERAL SECRETARY	Abinash Medhi	9678115894
2.	ASSISTANT GENARAL SECRETARY	Udipta P. Goswami	7086692798
3.	SOCIAL WELFARE SECRETARY	Shahrukh Zaman Siddiki	9706350222

S. No	Portfolio	Name	Phone No
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)

S. No	Portfolio	Name	Phone No
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	8876640042
6.	CRICKET SECRETARY	BIKASH RANJAN DAS	7086238755
7.	FOOTBALL SECRETARY	AKASH JYOTI DUTTA	7896594881
8.	TRAINING AND PLACEMENT SECRETARY	SUDARSHAN SAIKIA	9707845119
9.	ASSISTANT GENERAL 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	JADOB KRO	8486760867

S. No	Portfolio	Name	Phone No
	SECRETARY		
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 2) Dr. Moushumi Barooah	Professor CE, AEC 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 2) Dr. Amrita Ganguly	Associate Prof. E&TC, AEC Associate Prof. EE, AEC
10	Football Section	Prof. Madhurjya Boruah	Asstt. Prof. 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)

Sl. No.	Position	Name of the Member	Designation
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

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

SI 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, Counseling 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, and 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 stakeholders 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)

SI No.	Name	Designation	Position	Contact Number
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
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)

SI 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

SI No.	Name	Designation	Position	Contact Number
9	Dr. M. Baruah	Professor	Member	9864036044
10	Prof. Bhaskarjyoti Das	Asst. Professor	Member	9864093762
11	Dr. Sasanka Borah	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
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

SI 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

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.

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.

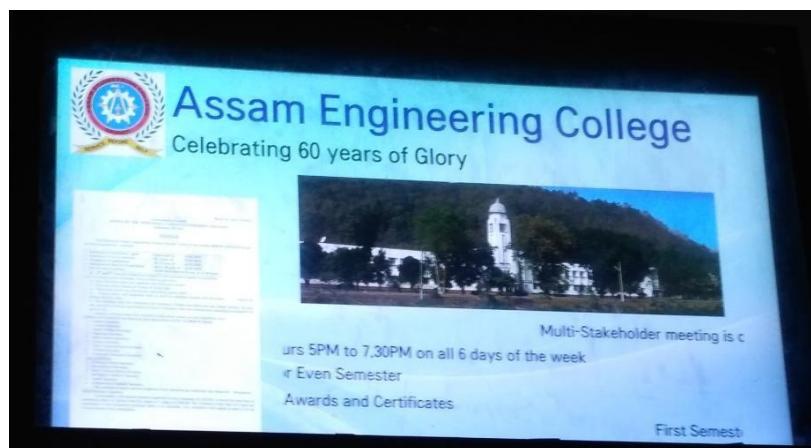


Fig. 10.1.5LCD display screen at Main Building Entrance

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.

Information sought under RTI act is promptly furnished by the Principal.

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 1901
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 1919
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 1963
Fee	Govt.	Grant(s)	Other Sources	Recurring including salaries	Non-recurring	Special Projects/ Any 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
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For 2014-15

Total Income (in Rs.)				Actual Expenditure (in Rs.)			Total No. of students 1999
Fee	Govt.	Grant(s)	Other Sources	Recurring including salaries	Non-recurring	Special Projects/ Any 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

Items	Budgeted in 2017-18	Actual expense s in 2017-18	Budgeted in 2016-17	Actual expense s in 2016-17	Budgeted in 2015-16	Actual expense s in 2015-16	Budgeted in 2014-15	Actual expense s in 2014-15
Infrastructure Built-Up	86,50,000	46,00,000	3,14,48,687	3,32,28,378	1,87,86,350	2,15,29,333	1,75,00,000	1,27,94,310
Library	-	-	-	-	9,000	9,000	-	-
Laboratory Equipment	2,45,000	2,00,961	-	-	80,000	80,000	71,000	67,936
Laboratory	45,72,500	45,72,500	46,17,500	4617500	47,27,500	47,27,500	48,17,500	48,17,500

Items	Budgeted in 2017-18	Actual expense in 2017-18	Budgeted in 2016-17	Actual expense in 2016-17	Budgeted in 2015-16	Actual expense in 2015-16	Budgeted in 2014-15	Actual expense in 2014-15
Consumables								
Teaching and Non-teaching Staff salary	25,14,87,106	24,19,46,954	26,32,20,000	23,62,75,376	24,01,76,000	21,63,94,318	21,91,24,000	19,66,84,877
Maintenance And spares	-	-	19,95,870	19,95,870	2,43,000	2,43,000	3,60,000	3,44,921
R & D	1,00,000	1,05,856	-	-	-	-	-	-
Training and Travel	1,39,82,554	82,07,131	84,08,500	83,70,336	85,89,500	85,89,500	87,41,500	87,37,725
Miscellaneous expenses	2,00,000	8,548	1,55,000	85,000	-	-	5,00,000	5,00,000
Others	2,25,06,660	2,17,41,276	1,43,29,198	1,13,82,393	1,54,06,741	1,24,34,224	1,41,43,828	1,18,09,274
Total	30,17,43,820	28,13,83,226	32,41,74,755	29,59,54,853	28,80,18,091	26,40,06,875	26,52,57,828	23,57,56,543

Table B.10.
2b

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.

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.

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

Program Specific Budget Allocation, Utilization (30)

For 2017-18

Total Budget		Actual expenditure		Total no of students: 1901
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: 1919
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: 1,963
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: 1,963
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.10.3a

Items	Budget ed in 2017-18	Actual expens es in 2017-18	Budget ed in 2016-17	Actual expens es in 2016-17	Budget ed in 2015-16	Actual expens es in 2015-16	Budget ed in 2014-15	Actual expens es in 2014-15
Laborator y Equipment	2,45,000	2,00,961	-	-	80,000	80,000	71,000	67,936
Software	14,50,000	14,39,600	-	-	-	-	-	-
Laborator y Consumables	45,72,500	45,72,500	4617500	4617500	47,27,500	47,27,500	48,17,500	48,17,500
Maintena nce And spares	-	-	19,95,870	19,95,870	2,43,000	2,43,000	3,60,000	3,44,921
R & D	1,00,000	1,05,856	-	-	-	-	-	-
Training and	1,39,82,554	82,07,131	8408500	8370336	85,89,500	85,89,500	87,41,500	87,37,725

Items	Budget ed in 2017- 18	Actual expenses in 2017- 18	Budget ed in 2016- 17	Actual expenses in 2016- 17	Budget ed in 2015- 16	Actual expenses in 2015- 16	Budget ed in 2014- 15	Actual expenses in 2014- 15
Travel								
Miscellaneous expenses	2,00,000	8,548	1,55,000	85,000	-	-	5,00,000	5,00,000
Total	2,05,50, 054	1,45,34, 596	1,51,76, 870	1,50,68, 706	1,36,40, 000	1,36,40, 000	1,44,90, 000	1,44,68, 082

TableB.10.3b

***Items to be mentioned.**

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.

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.

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.

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)

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

ABOUT THE COLELGE LIBRARY	
Carpet area of library (in m ²)	616
Reading space (in m ²)	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**

Year	Number of new titles added	Number of new editions added	Number of new volumes added
2017-18	75	97	2251
2016-17	135	250	1835
2015-16	3	10	115

SCHOLARLY JOURNAL

Details		2017-18	2016-17	2015-16
Engg. And Tech	Soft Copy	IEEE & ASCE Journal	IEEE & ASCE Journal	IEEE & ASCE Journal
	Hard 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

Year	Expenditure				Comments if any
	Books	Magazines/journals (for hard copy subscriptions)	Magazines/journals (for soft copy subscriptions)	Misc. Content	
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

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 24×7 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.

PART C

Declaration

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.



Signature & Name

Head of the Institution with seal

Principal
Assam Engineering College
Guwahati-781013



ANNEXURE I

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

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

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

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

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

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

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

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

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

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcome

The graduates of Electrical Engineering will:

PSO1: Demonstrate the capability to comprehend the technical advancements related to electric engineering as well as in multidisciplinary areas.

PSO2: Be professional with leadership qualities, good communication skills, and ethical values and excel in finding creative and environment friendly solutions while working as entrepreneurs or employed in manufacturing, research and development and service sectors.

ANNEXURE II

Assam Engineering College BE (Revised) course structure

Proposed and accepted for 2006 batch of BE admitted in July 2006

Break up of total marks and weightage

Semester	Total marks	% weight		Marks over	Carried
		Normal entry	Lateral entry		
First	1100	10%		110	
Second	1200	10%		120	
Third	1150	20%	40%	230	460
Fourth	1150	20%	20%	230	230
Fifth	1150	70%	70%	805	805
Sixth	1150	70%	70%	805	805
Seventh	1200	100%	100%	1200	1200
Eighth	1100	100%	100%	1100	1100
Total cumulative marks				4600	4600

Branch: Common to all branches

Year: First year

Semester: First

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
						Sessional Exam					
						TA	CT	Tot			
1	PH101	Physics-I	3	1		30	20	50	100	150	4
2	CY102	Chemistry-I	3	1		30	20	50	100	150	4
3	MA103	Mathematics-I	3	1		30	20	50	100	150	4
4	CE104	Elements of Civil Engineering	3	1	3	30	20	50	100	150	4
5	HU105	Eng. Communication and Tech report Writing	2			15	10	25	50	75	2
Practicals/Drawing/Design											
6	CE106	Engineering Graphics-I	1		3	30	20	50	100	150	4
7	CS107	Introduction to Computing		2	2	15	10	25	50	75	2
8	ME108	Workshop-I			3	50	50	100		100	2
9	PH101L	Physics-I Lab			3	10		10	40	50	2
10	CY102L	Chemistry-I Lab			3	10		10	40	50	2
Total			15	6	17						

Total Marks: 1100

TA: teachers assessment

Total Periods: 38

CT: Class Test

Total Credits: 30

ESE: End Semester Exam

Notation followed while assigning course numbers:

First two letters: The department offering the course:

PH: Physics; CY: Chemistry; MA: Maths; HU: Humanities; CE: Civil Engg; ME: Mech Engg;
IP: Industrial Production Engg.; EE: Electrical Engg; IN: Instrumentation Engg.;
ET: Electronics Engg; CS: Computer Science; CH: Chemical Engg.

1st Digit: Semester in which the course is offered.

2nd Digit: Department for which the course is offered

0: the course is common to some branches; 1: CE; 2: ME; 3: IP; 4:EE; 5: INS; 6: ET; 7: CS; 8: ChE

3rd Digit: Serial number for the specific semester of the branch concerned

L: Denotes laboratory.

Branch: Common to all branches

Year: 1st

Semester: Second

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme				
						Sessional Exam				
						TA	CT	Tot		
1	PH201	Physics-II	3	1		30	20	50	100	150
2	CY202	Chemistry-II	3	1		30	20	50	100	150
3	MA203	Mathematics-II	3	1		30	20	50	100	150
4	ME204	Engg. Mechanics-I	2			15	10	25	50	75
5	CE205	Strength of Materials	2			15	10	25	50	75
6	EE206	Basic Electrical Engg -I	3	1		30	20	50	100	150
Practicals/Drawing/Design										
7	ME207	Engineering Graphics-II			4	30	20	50	100	150
8	ME208	Workshop-II			3	50	50	100	100	2
9	PH201L	Physics-II Lab			3	10	10	40	50	2
10	CY202L	Chemistry-II Lab			3	10	10	40	50	2
11	ME204L	Engg. Mech.-I Lab			2	15	10	25	25	1
12	CE205L	Strength of Materials Lab			2	15	10	25	25	1
13	EE206L	Basic Electrical Engg-I Lab			3	10	10	40	50	2
Total			16	4	20					

Total Marks: 1200

Total Periods: 40

Total Credits: 34

TA: teachers assessment

CT: Class Test

ESE: End Semester Exam

Course structure of BE Electrical Engineering branch

Branch: Electrical Engineering

Year: 2nd

Semester: 3rd

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme				
						Sessional Exam				
						TA	CT	Total		
1	MA 301	Mathematics -III	3	1		30	20	50	100	150
2	EE 341	Network Analysis	3	1		30	20	50	100	150
3	EE 342	Electrical Engineering Materials & Devices	3	1		30	20	50	100	150
4	EE 343	Advanced Computer Programming	3	1		30	20	50	100	150
5	ME 302	Engineering Mechanics -II	3	1		30	20	50	100	150
6	ME 305	Basic Thermodynamics	3	1		30	20	50	100	150
Practicals/Drawing/Design										
7	EE 345	Electrical Engineering Drawing			3	30	20	50	50	2
8	EE 343	Advanced Computer Programming			3	30	20	50	50	2
9	ME 302	Engineering Mechanics -II			3	30	20	50	50	2
10	ME 305	Basic Thermodynamics			3	30	20	50	50	2
11	EE344	General Proficiency							50	50
Total			18	6	12					

Sl No.	Course No.	Subject	Period			Evaluation Scheme					
			Sessional Examination			TA	CT	Total			
1.	MA 401	Mathematics –IV	3	1		30	20	50	100	150	4
2.	HU 402	Sociology and Accountancy	3	1		30	20	50	100	150	4
3.	HU 403	Communication Skill	2			15	10	25	50	75	2
4.	EE 441	Analog Electronics	3	1		30	20	50	100	150	4
5.	EE 442	Electrical Machines-I	3	1		30	20	50	100	150	4
6.	EE 443	Electrical Measurements and Measuring Instruments	3	1		30	20	50	100	150	4
7.	EE 444	Data Structure	3	1		30	20	50	100	150	4
8	EE 445	General Proficiency							25	25	1
Practical/Drawing/Design											
8.	EE 441	Analog Electronics				3	25	25	50	50	2
9.	EE 443	Electrical Measurements and Measuring Instruments				3	25	25	50	50	2
10.	EE 444	Data Structure				3	25	25	50	25	2
TOTAL			20	6	9	270	205	475	675	1150	33

Sl No.	Course No.	Subject	Period			Evaluation Scheme					
			Sessional Examination			ESE	Subject Total	Credit			
1.	HU 501	Economics & Principles of Management.	3	1		30	20	50	100	150	4
2.	EE 541	Digital Systems	3	1		30	20	50	100	150	4
3.	EE 542	Control System-I	3	1		30	20	50	100	150	4
4.	EE 543	Power Electronics	3	1		30	20	50	100	150	4
5.	EE 544	Electric Power System-I	3	1		30	20	50	100	150	4
6.	EE 545	Electrical Machines-II	3	1		30	20	50	100	150	4
7.	EE 546	General Proficiency							50	50	2
Practical/Drawing/Design											
8.	EE 541	Digital Systems				3	25	25	50	50	2
9.	EE 542	Control System-I				3	25	25	50	50	2
10.	EE 543	Power Electronics				3	25	25	50	50	2
11.	EE 547	Electrical Machines-I				3	25	25	50	50	2
Total			18	6	12	280	220	500	650	1150	34

Sl No.	Course No.	Subject	Period			Evaluation Scheme						
						Sessional Examination			TA	CT	Total	
1.	EE 641	Electromagnetic Fields	3	1		30	20	50	100	150	4	
2.	EE 642	Computer Oriented Numerical Methods	3	1		30	20	50	100	150	4	
3.	EE 643	Microprocessors & Applications	3	1		30	20	50	100	150	4	
4.	EE 644	Electric Power System-II	3	1		30	20	50	100	150	4	
5.	EE 645	Control System -II	3	1		30	20	50	100	150	4	
6.	EE 646	Signals and Systems	3	1		30	20	50	100	150	4	
7.	EE 647	General Proficiency							50	50	2	
Practical/Drawing/Design												
8.	EE 642	Computer Oriented Numerical Methods				3	25	25	50		50	2
9.	EE 643	Microprocessors & Applications				3	25	25	50		50	2
10.	EE 645	Control System -II				3	25	25	50		50	2
11.	EE 648	Electrical Machines-II				3	25	25	50		50	2
TOTAL			18	6	12	280	220	500	650	1150	34	

Sl No.	Course No.	Subject	Period			Evaluation Scheme					
						Sessional Examination			ESE	Subject Total	Credit
						TA	CT	Total			
1.	EE 741	Computer Aided Power System Analysis	3	1		50	25	75	100	175	4
2.	EE 742	Communication Engineering	3	1		50	25	75	100	175	4
3.	EE 743	Operations Research	3	1		50	25	75	100	175	4
4.	EE 744	Instrumentation Engineering	3	1		50	25	75	100	175	4
5.	EE 745	Elective -I	3	1		50	25	75	100	175	4
6.	EE 746	Elective-II	3	1		50	25	75	100	175	4
8.	EE 747	Training								50	2
9.	EE 748	Project -I		6						100	4
TOTAL			18	12		300	150	450	600	1200	30

Elective-I:

EE745.1 NCES

EE745.2 Computer networking

Elective -II

EE746.1 MBI

EE746.2 DSD

Sl No.	Course No.	Subject	Period			Evaluation Scheme					
			3	1		Sessional Examination			ESE	Subject Total	Credit
						TA	CT	Total			
1.	EE 841	Power System Interconnection & Control.	3	1		50	25	75	100	175	4
2.	EE 842	Digital Signal Processing	3	1		50	25	75	100	175	4
3.	EE 843	Industrial Drives & Control	3	1		50	25	75	100	175	4
4.	EE 844	Elective -I	3	1		50	25	75	100	175	4
5.	EE 845	Elective-II	3	1		50	25	75	100	175	4
6.	EE 846	Project -II		6					100	50	150
7.	EE 847	Viva-Voce							75	75	2
TOTAL			15	11		300	150	475	625	1100	30

Elective-I:

EE844.1 UCEE

EE844.2 Reliability Engineering

Elective -II

EE845.1 Digital Signal Processing

EE845.2 Digital Image processing

ANNEXURE III

Total number of printed pages-7

16 (EE 542) COSY

2017

CONTROL SYSTEMS

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

PART-A

1. Answer the following questions : 4×5=20

(a) What do you mean by open loop and closed loop control system ? State the differences. What are the advantages of closed loop system over open loop ?

(b) Define transfer function. Determine transfer function of a system represented by a differential equation

$$\frac{d^3y}{dt^3} + 3\frac{d^2y}{dt^2} + 2\frac{dy}{dt} + 6y = \frac{dx}{dt} + 5x$$

where x and y are the input and output respectively.

(c) State necessary conditions for stability of a control system. The characteristic equation of a control system is given by

$$s^4 + 3s^2 + 4s + 10 = 0$$

Is the system stable ? Justify your answer.

(d) The root locii of the following open loop control system intersect the imaginary axis at $\pm j\omega$. Calculate the value of ω .

$$GH(s) = \frac{K}{s(s^2 + 6s + 25)}$$

(e) Define the following frequency response specifications :

- (i) Resonant peak
- (ii) Resonant frequency
- (iii) Gain cross-over frequency
- (iv) Gain margin

Contd.

16 (EE 542) COSY/G

2

PART-B

Answer **any two** questions :

2. (a) Derive transfer function $\frac{E_0(s)}{E_i(s)}$ for the circuit shown in Fig. 1. 10

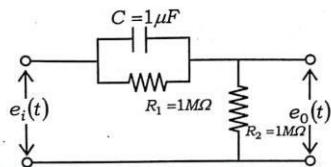


Fig. 1

- (b) Derive transfer function $\frac{X(s)}{F(s)}$ for the mechanical system shown in Fig. 2. 10

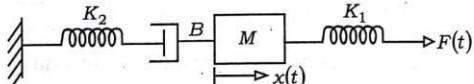


Fig. 2

3. (a) Determine transfer function $\frac{C(s)}{R(s)}$ for the block diagram shown in Fig. 3 using reduction technique. 10

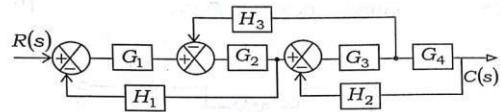


Fig. 3

- (b) Draw a signal flow graph for the following set of equations :

$$x_2 = x_1 + h_1 x_3 - h_2 x_4$$

$$x_3 = g_1 x_2 - h_3 x_4$$

$$x_4 = g_2 x_1 + g_3 x_3$$

where x_1, x_2, x_3, x_4 are the variables and h_1, h_2, h_3 and g_1, g_2, g_3 are the constant coefficients. Also determine transfer function using gain formula. 10

4. (a) The time response of a control system is given by

$$C(t) = 1 - \frac{16}{3}e^{-t} + \frac{4}{3}e^{-4t}$$

subjected to a unit step input.

- (i) Find the expression for closed loop transfer function.
 (ii) Obtain the undamped natural frequency and damping ratio of the system. 6

- (b) The open loop transfer function of a system with unity feedback is given by

$$G(s) = \frac{108}{s^2(s+4)(s^2+3s+12)}$$

Determine the steady-state error for the input signal $r(t) = 2 + 5t + 2t^2$. 6

- (c) The open loop transfer function of a unity feedback system is given by

$$G(s) = \frac{K}{s(s+1)(s+2)(s+3)}$$

Using Routh stability criterion,

- (i) determine the range of K for stability

- (ii) determine the value of K which causes sustained oscillation in the system and then determine the frequency of sustained oscillation. 8

PART-C

Answer **any two** questions.

5. (a) State the rules for finding the breakaway point and cross-over point with $j\omega$ axis of a root locus. 6

- (b) Sketch the root locus for the following open loop transfer function

$$GH(s) = \frac{K(s+2)}{(s+1)(s^2+3s+10)}, K \geq 0 \quad \text{and}$$

comment on stability. 14

6. (a) Discuss the advantages and limitations of frequency response method of analysis for control systems. 6

- (b) The open loop transfer function of a unity feedback system is given by

$$G(s) = \frac{200}{s(s+1)(s+10)}$$

Draw the Bode magnitude and phase angle plot. Determine gain margin, phase margin, gain cross-over frequency and phase cross-over frequency from the plot. Is the system stable ? 14

7. (a) Define Nyquist path and Nyquist plot. State and explain Nyquist stability criterion. What is the limitation of this criterion ? 8

- (b) Sketch the Nyquist plot and therefrom determine the stability of the closed loop system whose open loop transfer function is given by

$$GH(s) = \frac{K}{s(s^2 + s + 2)} \quad 12$$

ANNEXURE IV

DEPARTMENT OF ELECTRICAL ENGINEERING

Questionnaire for Exit Survey

Dear students,

We are happy to note that you will complete your graduation in a few days. We hope in your 4-year undergraduate program here, you have assimilated enough to show you the way towards a successful career. We request you to give your valuable feedback on the following outcomes, which will help us to make the program more useful.

Please put a ✓ wherever applicable.

At the end of the program, I am able to:

Outcomes	Strongly Agree	Agree	Somewhat Agree	Disagree
Apply the knowledge of mathematics, basic and engineering fundamentals, and electrical engineering acquired during the program to solve problems related specifically to electrical engineering				
Identify, formulate, and analyze complex engineering problems relevant to electrical engineering				
Design products, processes and systems that cater to the needs of public health and safety, and the societal and environmental concerns				
Conduct research-based investigation by using different analytical methods, and interpret the data and draw conclusions				
Create, select, and use modern IT tools and techniques to predict and model complex engineering activities				
Apply the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to professional engineering practices				
Understand the impact of the professional engineering solutions on the society and the environment				
Apply professional ethics in engineering practices				
Function effectively as a team member as well as a leader				
Communicate effectively on engineering activities with the engineering community and with society etc etc by way of writing reports and making presentations				
Apply engineering and management principles in handling multidisciplinary etc projects				
Recognize the need for, and be prepared for life-long learning in view of technological changes				
Formulate and solve real life problems faced in industries and/or research work				
Solve professionally various electrical engineering problems in social and environmental context				
Work professionally in industries in different areas related specifically to electrical engineering				
Solve ethically and professionally various societal and environmental problems related to electrical engineering				
Work in a professional way in power system and control system engineering industries, manufacturing industries, software industries etc.				



Electrical Engineering Department

Assam Engineering College, Jalukbari, Guwahati

ALUMNI SURVEY

Dear proud alumni of EE department, AEC,

The following are the list of skills and competencies that engineering graduates should have. We seek your participation in the Alumni Survey conducted to know your satisfaction with the level of competency you have achieved as a result of your education at EE department of AEC. For each question, indicate your answer with tick symbol "A" in the appropriate box/ column.

Regards,
Head of the department

S. No	Competencies	Level of competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely satisfied
	Engineering knowledge				
	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.				
	Problem analysis				
	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.				
	Design/development of solutions				
	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.				
	Conduct investigations of complex problems				
	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.				
	Modern tool usage				
	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an				

understanding of the limitations.				
The engineer and society				
Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.				
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.				
Ethics:				
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice				
Individual and team work				
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.				
Communication				
Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.				
Project management and finance				
Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.				
Life-long learning				
Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.				
Indicate your answer with symbol A in the appropriate box				
1) How would you rate your overall satisfaction with your preparation to become an engineer?				
Not satisfied	Little satisfied	satisfied	Very satisfied	
2) In general, the department has provided quality academic program?				
Poor	OK	Good	Very Good	
Name:				Branch:
e-mail id:				Batch:
Name of the Organization:				
Corresponding Address:				
Signature:				

ANNEXURE V

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. 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	Place	Duration in Weeks	Sponsoring Agency
VLSI Architecture for Image and Video Processing Systems			
Hydroelectric Power Development			
Applications of Statistics in Engineering, Management and Applied Science			
Modeling and Analysis of Linear Control Systems			
Biotechniques for Pollution Control and Resource Recovery			

Optoelectronics and Optical Communication			
Recent Trends in Power Engineering and Management			
Environmental Impact Assessment: A Tool for Sustainable Development			
Advance Materials for Engineering Applications			
TEQIP III Teachers Training Workshop on Induction Program for NER Institutes			

10. Date of appointment in Govt. of Assam :
11. Date of joining :
12. For which position & AGP you are applying under CAS : AGP: Rs. _____
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		Scale of Pay with AGP
		From	To	
Lecturer	1			
Lecturer				
Sr. Lecturer				
Associate Prof				
Associate Professor (CAS)				

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/ i/c Principal

Date:

Seal

Assam Engineering College
Electrical Engineering Department
SELF-APPRAISAL OF TEACHING FACULTY
(Details are required from Vr. _____ to Vr. _____)
(Please attach separate sheets if necessary)

1. Name:
2. Designation:
3. Date of joining in the department:
4. Educational Qualification:
5. Teaching-Learning Activities:

Year	Semester	UG/PG	EE/other branch	Subjects (Theory or Practical)	No of classes taken & %	Lecture delivery system

Above (3) (>90%)	Expected (2) (75-90)%	Below (1) (75-50)%	NIL (0) (< 50%)
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6. Analysis of Students Feedback:

Above (3) (>60%)	Expected (2) (50-60)%	Below (1) (40-50)%	NIL (0) (< 40%)
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7. Administrative works:

Above (3) (>=3 responsibility)	Expected (2) (2 responsibility)	Below (1) (1 responsibility)	NIL (0) (No responsibility)
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8. Involvement in Students' Extra- curricular Activities:

Above (3) (>=3 responsibility)	Expected (2) (2 responsibility)	Below (1) (1 responsibility)	NIL (0) (No responsibility)
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9. Workshop/Seminar/Conference/Faculty Development Programme Conducted:

Type of Programme	Institute/Organisation	Period	National/International

If Conducted: 3, If not=0

Above (3)	Nil (0)
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10. Workshop/Seminar/Conference/Faculty Development Programme Attended:

Type of Programme	Institute/Organisation	Period	National/International

Above (3) (>=3)	Expected (2) (=2)	Below (1) (=1)	NIL (0)
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11. University Examination Related Works:

Nature of Duty	Y/N
Examination	
Superintendent	
Paper Setting	
Invigilation	
Script Evaluation	

Above (3) (3 Y)	Expected (2) (2Y)	Below (1) (1Y)	NIL (Y=0)
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12. Consultancy Works/Funded Projects Undertaken:

If Consultancy/Projects Undertaken: 3 (Give details)

If No Consultancy/Projects: 0

Above (3)	Nil (0)
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13. Invited Speaker/Guest Faculty /External Examiner/External Paper Setting in other Organisations:

Above (3) (>=3)	Expected(2) (=2)	Below (1) (=1)	NIL (0)
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14. PhD Research Works:

No of Students registered	No of Students completed	No of Students submitted	No of students pursuing degree

If Candidate Submitted/Completed: 3

If Candidate Continuing: 2

If no Candidates: 0

Beyond (3)	Expected (2)	Nil (0)
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15. Membership of professional bodies, Boards of Studies, Editorial committees of journals /institutional publications:

If Member of professional bodies etc: 3 (Give details)

If No: 0

Above (3)	Nil (0)
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16. Publications:

International reputed refereed journal: 3

National reputed refereed journal: 2

Conference Publication: 1

No Publication: 0

Above (3)	Expected (2)	Below (1)	NIL (0)
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17. Any Other Academic Activities:

Signature of the faculty with
Designation, Place & Date

Signature of HOD