



NATIONAL BOARD OF ACCREDITATION

SELF ASSESSMENT REPORT (SAR) 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: 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 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"/>

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
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	1983	15	Phase I-15 nos. Phase II-30 nos.	Phase I-1996 Phase II-2007	60	Applying first time
6	B.E. in Computer Science Engineering	Computer Science Engineering	1998	20	-	-	20	Eligible but not applying
7	B.E. in Instrumentation Engineering	Instrumentation Engineering	1998	20	-	-	20	Eligible but not applying
8	B.E. in Industrial and Production Engineering	Industrial and Production Engineering	1998	20	-	-	20	Eligible but not applying

Sl No.	Program Name	Name of the Department	Year of Start	Intake	Increase in intake	Year of increase	AICTE Approval	Accreditation Status*
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 applying
11	M.E. in Electrical Engineering	Electrical Engineering	2004	18	-	-	18	Eligible but not applying
12	M.E. in Mechanical Engineering	Mechanical Engineering	2005	18	-	-	18	Eligible but not applying
Other postgraduate programs								
13	Masters in Computer Application	Computer Applications Department	1990	30	-	-	30	Eligible but not applying

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		CAYm1		CAYm2	
		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 Mathematics, 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

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

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

CAY – Current Academic Year

CAYm1- Current Academic Year minus1= Current Assessment Year

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

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

Items		CAY		CAYm1		CAYm2	
		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 Mathematics, 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:

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

11. Vision of the Institution:

To be an institution for promoting and supporting sustainable development.

12. Mission of the Institution:

- 1) To prepare technical manpower with knowledge, skills and values of sustainability.
- 2) To take up relevant problems of society and 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

Name	: Dr. Atul Bora
Designation	:Principal, Assam Engineering College
Mobile no.	:+91-98640-78634
Email id	:principal@aec.ac.in

PART B: Criteria Summary

Name of the program: Bachelor of Engineering (Chemical Engineering)

Criteria No.	Criteria	Mark / Weightage
Program Level Criteria		
1.	Vision, Mission and Program Educational Objectives	60
2.	Program Curriculum and Teaching– Learning Processes	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
Institute Level Criteria		
8.	First Year Academics	50
9.	Student Support Systems	50
10.	Governance, Institutional Support and Financial Resources	120
	Total	1000

CRITERION 1	Vision, Mission and Program Educational Objectives	60
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1. VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES (60)

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

VISION AND MISSION OF THE INSTITUTE

Vision

To be an institution for promoting and supporting sustainable development.

Mission

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

VISION AND MISSION OF THE DEPARTMENT

Vision

To be a department of repute by imparting quality education and research to produce technical manpower who can address the challenges of the chemical and allied industries as well as society.

Mission

- To provide quality education at the undergraduate level and produce competent professionals.
- To prepare students for advanced learning in Chemical Engineering and its allied fields.
- To prepare students with up-to-date technical knowledge through industry-institute interaction.

- To inculcate professional, environmental and social values in students so as to groom them into individuals who would strive to contribute towards building a better society.

State the Program Educational Objectives (PEOs) (5)

- Graduates will be able to pursue careers in Chemical Engineering and related fields of engineering such as petroleum & petrochemical sectors, environmental, material science, energy, etc.
- Graduates will be able to identify and formulate engineering and design related problems and provide appropriate solutions in social, environmental and economic context.
- Graduates will be motivated for life-long independent learning through advanced degrees, certifications and handling innovative project schemes.

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

(Describe where (websites, curricula, posters etc.) the Vision, Mission and PEOs are published and detail the process which ensures awareness among internal and external stakeholders with effective process implementation)

(Internal stakeholders may include Management, Governing Board Members, faculty; support staff, students etc. and external stakeholders may include employers, industry, alumni, funding agencies, etc.)

Displayed in the locations where the attention of stakeholders are prominent like –

- Institute website
- Flex board at the department entrance
- On the department newsletter
- HODs chamber
- Laboratories
- Other social media – AEC Chemical Engineering group

The list of the stakeholders that serves the Department of Chemical Engineering either directly or indirectly by providing information and technical expertise or by providing training to the students in different fields includes:

- Faculty & Staff
- Students
- Alumni
- Industry experts
- Parents
- Employers

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

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

The Vision and Mission of the Department and the PEOs of the program were finalized based on the suggestions and views given by the ex-faculties, present faculties, alumni, support staff in the stakeholders meeting.

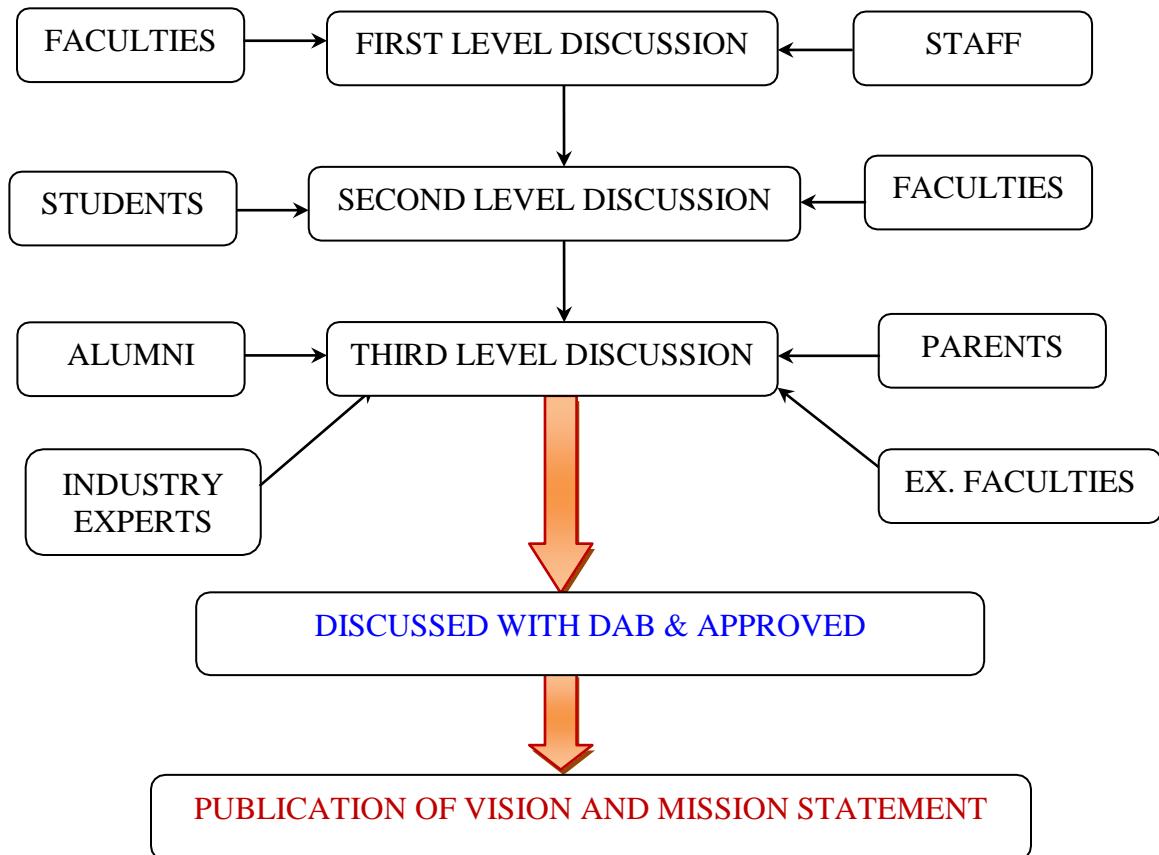


Fig 1: Flow diagram for Vision and Mission

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

PEO Statements	M1	M2	M3	M4
PEO1: Graduates will be able to pursue careers in Chemical Engineering and related fields of engineering such as petrochemicals & petroleum refineries, environmental, material science, energy, etc	3	3	3	2
PEO2: Graduates will be able to identify and formulate any engineering and design related problems and provide appropriate solutions in social, environmental and economic context.	3	2	3	3
PEO3: Graduates will be motivated for life-long independent learning through advanced degrees, certifications and handling innovative project schemes.	3	3	1	2

Table B.1.5

Note: M1, M2, M3 and M4 are distinct elements of Mission statement. Enter correlation levels 1, 2 or 3 as defined below:

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

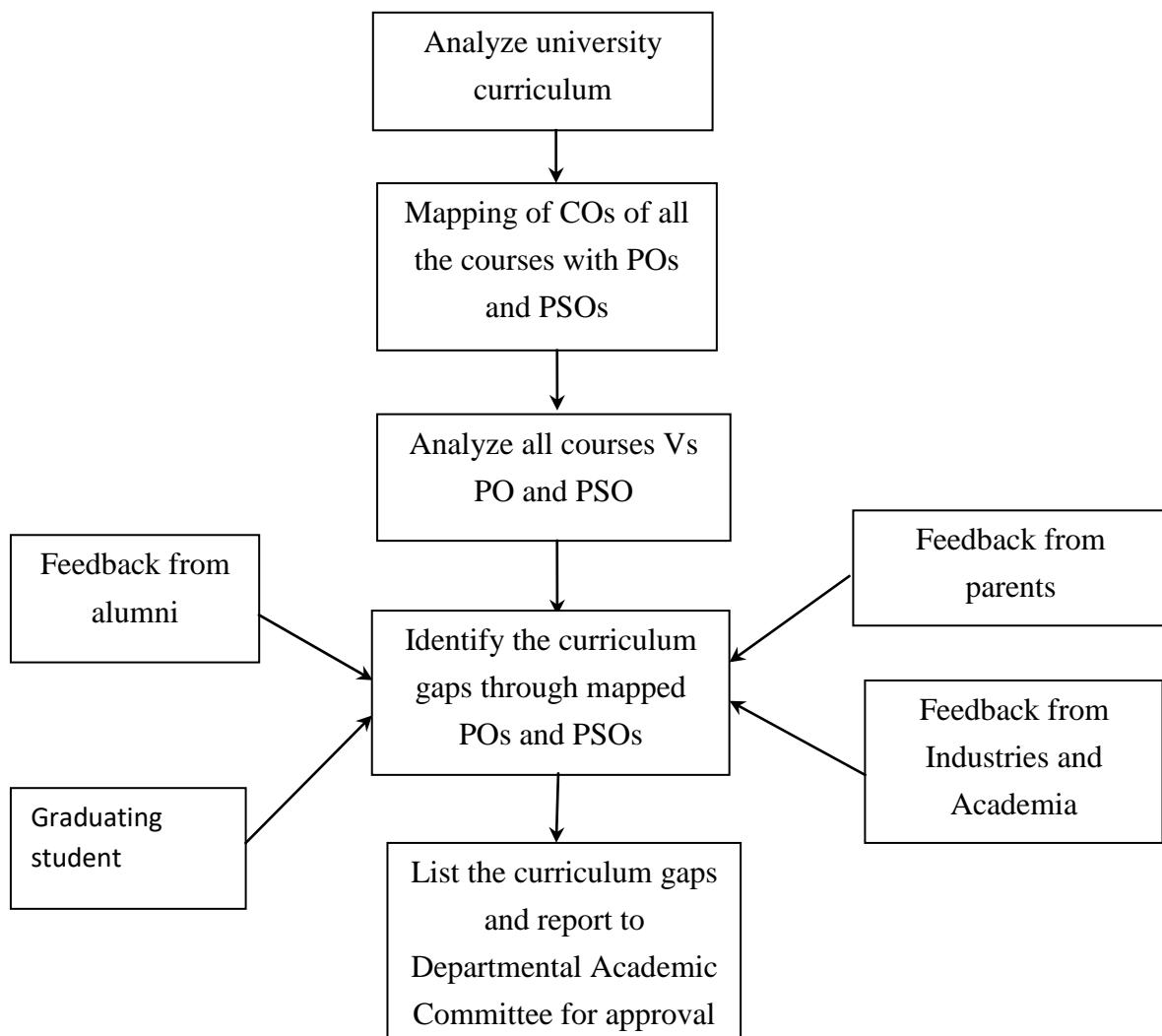
If there is no correlation, put “-”

2. PROGRAM CURRICULUM AND TEACHING – LEARNING PROCESSES (120)**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)

Process used to identify curriculum gaps to the attainment of POs/POSS

**Figure: 2.1.1**

Chemical Engineering department curriculum is affiliated to Gauhati University, Assam. The curriculum comprises of Professional Subjects, General and Basic Sciences related to Chemical Engineering. Subjects are mapped with twelve Programme Outcomes and gaps are identified.

Curriculum gaps were identified in emerging areas of:

- Nano and Polymer composites.
- New technologies in Non-Conventional energy.
- Hazards and safety in Industries.
- Advance Corrosion prevention techniques.
- Reuse and Reclamation on plastics.
- Membranes – Zeolite, Composites, Contractors etc.

Considering the above gaps, the departmental syllabus committee, incorporated these topics under the relevant subjects.

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

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

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

Course Delivery Methods used in the department:

- Additional Lectures
- Additional Tutorial
- Presentation (Slides and Video)
- Experimental Laboratory Work
- Group tasks (Projects)
- Hand-outs, research papers, patents, industry bulletins, etc.
- Workshop literature

In addition to above course delivery techniques, we encourage students to refer to following peer academic sites:

- NPTEL (nptel.ac.in)
- SWAYAM (swayam.govt.in)

List of Expert Talks for delivery of the content beyond the syllabus for the attainment of POs and PSOs.

Sl. No	Gap	Action taken	Date Month Year	Resource Person with designation	No. of students present	Relevance to POs, PSOs
1	Update practical knowledge, problems and maintenance, safety and environment related issues of petroleum refinery.	Talk was organiged for the final year students for the subjects Petroleum Refining& Petrochemicals and Environmental Pollution Control Engineering.	14 th Dec. 2017	Ms. Gayatrie Medhi Laskar, Sr. Manager, IOC, Guwahati	All final year students of Chemical Engg. Total No of students:56	1,2,3,6,7, 8,11,12 1,2
2	Update knowledge in the area of corrosion and its mitigation.	Special talk was arranged for the students for the subject Material Sc. & Corrosion Engineering (M&CE).	3 rd Feb. 2018	Nibedita Sarma Bhattacharjee, DGM, EIL, Delhi	4 th sem and 8 th sem students of Chemical Engg. Total No: 45+40=85	1,3,4,6,7 1,2
3	Update knowledge in emerging	Special lecture was conducted for the students for the subject	10 th Feb 2018	Dr. Arun Chattopadhyaya, Professor, Dept. Of Chemistry and	4 th and 8 th sem students. Total No:	1,2,6,7 1

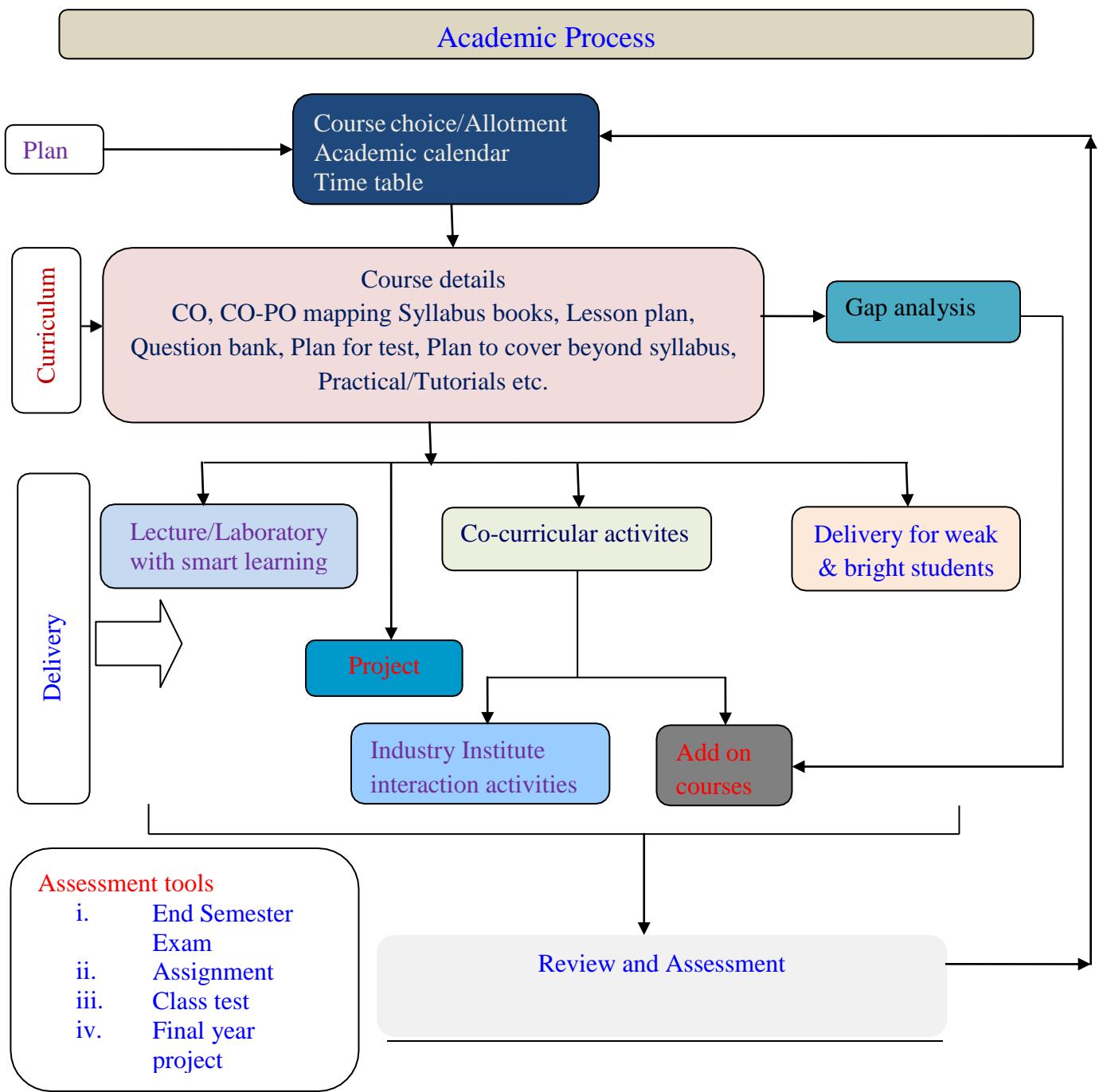
	areas in the nano material and polymer composites	M&CE / Polymer Scince Engineering on (i) nano material, (ii) Polymer composite material.		Nanotechnology, IITG. & Dr. Vimal Katiyar, Professor, Dept. Of Chemical Engineering, IITG.	80 & 6 th sem students Total No: 50	
4	Update knowledge in the field of gas cracking and its downstream industries.	Special lecture was conducted for the students for the subjects petrochemicals and Polymer Science Engineering	16 th March 2018	Mr. Pranjal Changmai, General manager (operation), BCPL. Dibrugarh.	6 th Sem students. Total No:52	1,2,4 1,2,3
5	Industrial exposure.	An industrial visit to MARICO industries Limited was arranged for the 4 th Sem students.	21 st March 2018	Arindom Paul, proprietor of MARICO industry, Guwahati.	4 th sem students. Total=56	1,2,3,6,7, 9,10,12 1,2,3
6	Update in application software	A two days workshop was conducted on the basic operations in MATLAB and its application in Chemical Engineering.	5 th and 6 th April 2018	Dr. Prakash Kotecha, Associate Professor, Dept. of Chemical Engineering., IITG	6 th sem students. Total no: 54	1,2,3,5,12 1,2
7	Update knowledge and research exposure in the field of energy	Special talk was arranged for the students for the subject AER on the production of Hydrogen fuel.	25 th Jul. 2017	Ms. Richa Sharma Research scholar, IIT, Guwahati.	All 8 th sem students and few 6 th sem students of Chemical Engg. Total	1,2,6,7,12 1,2

	resources.				number of students present = 75	
8	Update in application software	Procurement and demonstration of CHEMCAD process simulation software (25 Licences)	15 th & 17 th Nov. 2016	CHEMSTATION INC	Final year students.	1,2,3,5,12 1,2
9	Industrial exposure	An industrial visit to Dalmia Cement, Lanka was arranged for the 4 th sem students	4 th Mar. 2017		4 th sem students Total No=58	1,2,3,6,7, 9,10,12 1,2,3

Teaching – Learning Processes (100)

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

Following figure describe the processes followed to improve quality of teaching and learning



Initiatives and implementation details of Encouraging Advanced learner

Assam Engineering College encourages students by providing them necessary guidance and moral support.

- Class Toppers are awarded certificate and cash prize.
- Encouraged to attend conferences, workshops and publish papers.
- Encouraged to take up innovative projects and apply for funding.
- Encouraged to participate in various competitions.
- Encouraged to take up competitive examinations.

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

A committee consisting of senior faculty members discusses the type and standard of question to be set for internal semester exams. The respective subject teachers are then briefed about the discussion and finally questions are set.

Surprised test as well as open book tests is also conducted.

Assignments:

- Assignments are given in areas based on topics discussed in the class and related areas.
- Assignment issue and submission dates are announced by the respective faculty members.

Evaluation:

- The faculties after every internal assessment test, explain the solution of the questions in the class which will enable them to perform well in the final examination.
- The marks obtained from the best two tests are chosen to assess internal assessment marks.
- If a candidate remains absent for all the tests conducted, the internal assessment mark are marked as absent in the result.
- Assignments are given as a tool for practice and accordingly they are evaluated.

Question papers and evaluation/assessment are preserved and analysed for future improvements.

Quality of student projects (25)

Initiative

- The student's projects are selected in line with department mission, vision and Program outcomes.
- Students are provided with brief ideas from various
- Faculties encourage the students to carry out in house projects and required support is provided by the department.
- Students are encouraged to undertake projects in association with other institutes (like IITG, Gauhati University).
- Faculties encourage the students to participate in project exhibitions.
- Faculties encourage students to publish their project work in journals/conferences.
- Faculties encourage students to avail the external funding schemes for their project work (like ASTEC, Pollution control board etc.)

Identification of projects and allocation methodology

- The student projects are completed in two phases in 7th and 8thsemester as per the syllabus.
- The project works include shared idea between student groups and faculty concerned, fabrication works, theoretical analysis, testing and validation.
- These are aimed at improving the theoretical and computational skills as well as hands-on experience in making models and prototypes.
- Respective guide discusses with the group of students allotted to him to decide and select the area of their interest and accordingly choose a topic for the project.

Aim of the project:

- Projects are allotted keeping in mind, environment, safety, society and cost issues as well.
- To develop a problem solving attitude with an innovative mind with economic consideration while taking up real life technical issues having environmental and societal impact which may even lead to an entrepreneurial venture. On this process also develop qualities like decision making, group activities, leadership quality, responsibility towards society etc.

Process for monitoring and evaluation

Respective guide meet the group of student under his supervision weekly to monitor the progress of their project and to discuss the problems faced by the students. Students have to present two seminars in 7th semester and three in 8th semester on their work before final submission.

I. Evaluation scheme for final year Project (7th semester)

Phase-I

SI No	Performance Indicator	Marks
1	Literature Survey/Methodology	15
2	Presentation	3
3	Question and Answer	2

Phase – II

SI No	Performance Indicator	Marks
1	Final report	20
2	Final Presentation & Viva	30
3	Guide's impression	30

II. Evaluation scheme for final year Project (8th semester)

Phase-I

SI No	Performance Indicator	Marks
1	Literature Survey/Process selection	5
2	Presentation	3
3	Question and Answer	2

Phase – II

SI No	Performance Indicator	Marks
1	Material balance &Energy balance	5
2	Presentation	3
3	Question and Answer	2

Phase III

SI No	Performance Indicator	Marks
1	Equipment Design	5
2	Presentation	3
3	Question and Answer	2

Phase – IV

SI No	Performance Indicator	Marks
1	Final report	30
2	Evaluation by external examiner	50
3	Guide's Impression	40

III. Best Project Evaluation scheme

SI No	Performance Indicator	Marks
1	Innovativeness and creativity	10
2	Review of literature and related studies	10
3	Results and overall quality of the project	20

Because of the quality of the projects, student's employment opportunities are also enhanced. Entrepreneurial activities may also be taken up based on some project. A committee consisting of 4/5 faculties of the department decide the best project for the respective year

Details of best project

Best Project for the year 2014-15

SI No	Title of the project	Name of the students	Project guide	Relevance to PO's & PSO
1	Manufacture of handmade paper from rags/pulp	1. Arnal Nanda Choudhury 2. Nelson Daimary 3. Rahul Daimary 4. Sidhartha Borah	T.J Sarma	1,2,5,6,7,9,12 1,2,3
2	Solar drying	1. Ankita Sarkar 2. Hena Nasir 3. Monikangkana Talukdar 4. Nilakshi Debbarma 5. Priyanka Kumari	Runjun Das	1,2,3,4,5,6,7,9,12 1,2,3

Best Project for the year 2015-16

SI No	Title of the project	Name of the students	Project guide	Relevance to PO's & PSO
1	Production of biofertilizer from biomass	Moumita Das Arnab Adhikary Atur Timungpi Jinni Jamatia Hemanta Pegu	Chiranjib Das	1,2,5,6,7,9 1,2
2	Reuse of waste plastics in quality improvement of Bitumen	Shyamoli Hazarika Sunanda Pal Udit Ratan Kashyap Subham Kumar Guha Dibya Jyoti Roy	Dolly Talukdar	1,2,5,6,7,9,12 1,2

Best Project for the year 2016-17

SI No	Title of the project	Name of the students	Project guide	Relevance to PO's & PSO
1	Manufacturing of Particle board from rice husk: an	Shatanik Bhattacharjee Bikram Das Dipankar Chakma	Chiranjib Das	1,2,5,6,9,12 1,2,3

	alternative to commercial plywood	Nilanjana Sharma		
2	Production of paper pulp from waste banana stem	Joy Sriman Sarma Siba prakash Bhoi Nitul Choudhury Ankur Kumar Das	Runjun Das	1,2,5,6,7,9,12 1,2

Best Project for the year 2017-18

SI No	Title of the project	Name of the students	Project guide	Relevance to PO's & PSO
1	Role of chemical EOR in Assam Crude reservoir (By alkali Surfactant flooding)	Bapan Roy Harshajit Deka Nilakshi Bhuyan	Dr. Bandan Chakrabarty	1,2,4,6,7,9,12 1,2
2	Synthesis and characterization of Polysulphone substrate for RO membrane	Rukshar Sultana Rahman Audesh Thaosen Himakshi Saikia	Runjun Das	1,2,3,5,6,7,9, 11, 12 1,2

Individual student and team performances in a project are finally evaluated in a viva voce examination conducted by an expert panel consisting of external examiners and internal examiners.

Initiatives related to industry interaction (15)

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

- The Chemical Engineering syllabus committee of Gauhati University and Department Advisory Board include members from industries (e.g. IOCL, Guwahati,

NRL) whose suggestions are taken into consideration while designing the curriculum.

- IOCL Gauhati Refinery has agreed and approved to provide TBP distillation unit (Cost = Rs 20 Lacs). Necessary procurement process is initiated by IOCL Guwahati. This is the first step towards setting up for collaborative research lab between IOCL Guwahati and Chemical Engineering Department.
- IOCL Guwahati has agreed to depute technical personnel to deliver class lectures as part of the curriculum.

As a part of strengthening industry-institute interaction, we invite experts from several industries such as IOCL, EIL, BCPL, NRL, etc on a regular basis. The lectures are attended by faculties as well as by students. Industrial experts are also invited to evaluate the projects. Faculties as well as students are encouraged to attend the lectures organized by Institute of Engineers, Guwahati. Faculty and Students utilize this platform to interact with the industry experts.

Recently, the Department organized one National Conference where a good number of Industry personnel attended as resource person as well as delegates. As a part of industrial training of pre final year students, our faculty continuously interact with the concerned industry so as to have best professional training to students. During these interactions, the industry provides feedback on course curriculum, student quality, etc which are taken up at appropriate level for quality enhancement.

Initiatives related to industry internship/summer training (15)

- Students after the 4th semester examination may undergo industrial training at their own interest. The department forwards the applications of the students to industries where the students desire to take the training.
- The industry internship/training is a compulsory work for the students after the 6th semester examinations.
- The Training and placement cell forwards the applications of the students to industries where the students desire to take the training.
- Normally, the industries respond quickly to the request and the students undergo training for a period of one month.

Process giving details of industry internship/summer training is shown in the figure 2.2.5

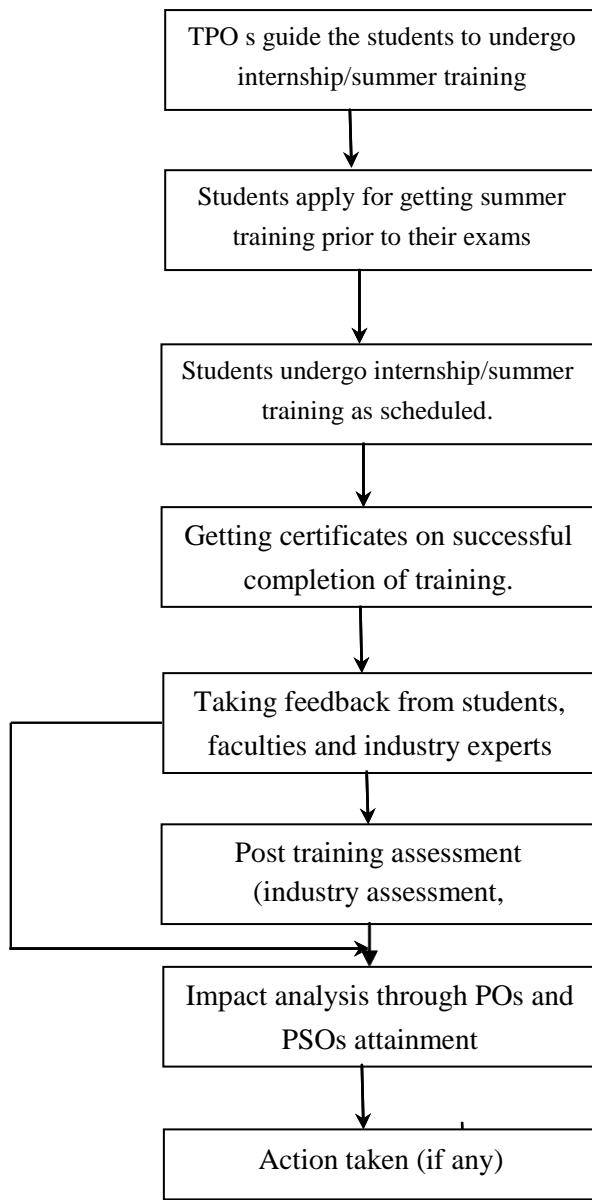


Figure: 2.2.5

After the completion of training, the students are to submit a report and present themselves before a panel of internal examiners to assess their learning outcome.

Table 2.2.5 Details of Industrial/internship/summer training

In Plant summer training 2017-18					
Sl. No	Class	Name of Student	Industry Name	Duration	Relevance with PO & PSO
1	3 rd year Engineering	Jamiluddin Ahmed (14/045)	NRL	03/07/2017	1,2,3,4,5,6,7,8,
2		Kaveri Deka (14/099)		–	9,10,12
3		Sneha Kalita (14/242)		31/07/2017	
4		Rezaul Karim Chowdhury (14/262)			1,2
5		Madhumita Das (14/276)			
6		Tanusmita Das (14/277)			
7		Basundhara Das (14/279)			
8		Babul Khakhlary (14/284)			
9		Kashmary Basumatary (14/286)			
10		Angsuman Bora (14/287)			
11		Leena Bora (14/288)			
12		Chiranjib Senapoti (14/294)			
13		Priyanka Kumar (14/299)			
14		Rani Borah (14/399)			
15		Pushpanjali Hazarika (15/526)			
16		Mousumi Bora (15/528)			
17	IOCL, Dhaligaon.	Dil Ajaj Muktadir (14/093)	IOCL, Dhaligaon.	20/06/2017	1,2,3,4,5,6,7,8,
18		Dristi Priya Das (14/103)		19/06/2017	9,10,12
19		Ekramul Mazid (14/105)		20/06/2017	
20		Vishakha Phalung (14/132)		19/06/2017	1,2
21		Bapan Roy (14/144)		20/06/2017	
22		Rishabh Sarma (14/200)		20/06/2017	
23		Harshajit Deka (14/248)		20/06/2017	

24		Vishal Goswami (14/249)		20/06/2017	
26		Shyam Verma (14/257)		20/06/2017	
27		Sumee Sarma (14/258)		20/06/2017	
28		Kumar Abhinav (14/261)		20/06/2017	
29		Abhilekh Baruah (14/266)		20/06/2017	
30		Avdesh Thaosen (14/282)		20/06/2017	
31		Bharat Gogoi (14/296)		19/06/2017	
32		Salim Mazid (14/095)		21/06/2017	1,2,3,4,5,6,7,8, 9,10,12
33		Shahrukh Zaman Siddiki (14/229)		-	
34		Jasmine Sikdar (14/241)		05/07/2017	I,2
35		Victor Banik (14/292)		21/06/2017	
36		Khyo Lon Chakhap (14/415)		-	
37		Arunaday Roy Barman (14/098)		27/06/2017	1,2,3,4,5,6,7,8, 9,10,12
38		Sauradeep Bhattacharjee (14/120)		-	
39		Rukhshar Sultana Rahman.(14/260)		25/07/2017	I,2
40		Abinash Goswami (14/263)			
41		Priyank Sarma. (14/271)			
42		Bubul Mani Baishya (14/272)			
43		Himakshi Saikia (14/283)			
44		Sampreeti Gogoi (14/295)			
45		Nilakshi Bhuyan (14/297)			
46		Priyanu Baruah (14/316)			
47		Farhin Adid Ahmed ((14/291)			
48		Anisha Choudhury (14/009)	IOCL, Guwahati	19/06/2017	1,2,3,4,5,6,7,8, 9,10,12
49		Abhinav Dutta (14/253)	APL, Namrup	10/07/2017	1,2,3,4,5,6,7,8, 9,10,12
50		Pragyan Bhuyan (14/420)		-	

51		Bibek Sarkar (14/414)		24/07/2017	I,2
52		Hrishikesh Saikia (14/416)	GVIL (MAX CEMENT)	20/06/2017 - 22/07/2017	1,2,3,4,5,6,7,8, 9,10,12 I,2
53		John Chawnglunsang (14/280)			
54		Ong Chan Saton (14/281)	HCC TAZ CEMENTS	05/07/2017 - 31/07/2017	1,2,3,4,5,6,7,8, 9,10,12 I,2,3
55		Sarlong Engti (13/395)			

In Plant summer training 2016-17					
Sl. No	Class	Name of Student	Industry Name	Duration	Relevance with PO & PSO
1	3 rd year Engineering	Shyamalima Photowali (13/287)	IOCL (Bongaigaon Refinery)	20/06/2016	1,2,3,4,5,6,7,8, 9,10,12
2		Debajyoti Kathar(13/127)		—	
3		Bubul Kalita (13/250)		19/07/2016	
4		Saurabh Deka (13/267)			I,2
5		Debasish Deka (13/244)			
6		Dipankar Chakma (13/281)			
7		Trisharani Dutta (14/526)			
8		Anokha Difoesa (13/279)			
9		Akash Chetry (13/252)			
10		Dhanraj Nandi (13/247)			
11		Gaurab Singha Roy (13/254)			
12		Dip Jyoti Choudhury (13/283)			
13		Tridip Kuli (13/284)			
14		Parag Moni Deka (13/98)	IOCL , Guwahati	16/06/2016	1,2,3,4,5,6,7,8, 9,10,12
15		Faruk Ahmed (14/525)		—	
16		Gautam Jyoti Kakati (13/262)		15/07/2016	
17		Dipankar Sarmah (13/269)			I,2
18		Monoj Chetry (13/294)			
19		Ankur Kumar Das (13/413)			

20		Swapnil Rajkhowa (13/411)			
21		Partha P. Saikia (14/528)			
22		Subhasish Sutradhar(13/437)			
23		Ranjit Das (13/438)			
24		Partha Pratim Das (13/291)			
25		Bikram Das (13/277)			
26		Joy Sriman Sarma (13/249)			
27		Arindom Nath (13/292)			
28		Trideep Kurmi (13/297)			
29		Debolina Deb (13/243)		15/12/2015 — 14/01/2016	1,2,3,4,5,6,7,8, 9,10,12 I,2
30		Angshuman Buragohain (13/251)			
31		Audrika Thakuria (13/266)			
32		Saranga Bora (13/268)			
33		Musaddique Mehfuz Ahmed			
34		Keshab Chandra Das (13/278)			
35		Argha Deb (13/256)			
36		Chinmoy Gogoi (14/529)			
37		Nihal Gupta (13/258)			
38		Dhananjay Kaman (13/285)			
39		Susma Das (13/255)			
40		Pokhraj Dey (13/337)			
41		Dipankar Mili (13/286)			
42		Sarthak Chetia (14/530)			
43		Ayush Kayal (13/242)			
44		Pokhraj Dey (13/333)			
45		Musaddique Mehfuz Ahmed			
46		Nipam Nayan Gogoi (13/248)			
47		Siba Prakash Bhoi (13/270)			
48		Akshoy Ghosh (13/296)	NRL	01/07/2016	1,2,3,4,5,6,7,8,

49		Ramit Das (13/141)		– 29/07/2016	9,10,12 <i>I,2</i>
50		Dwipan Kakati (13/21)			
51		H. Prakash Singha (13/102)			
52		Nitul Choudhury (13/271)			
53		Pallavi Bhuyan (13/525)			
54		Mayuri Chetia (13/288)			
55		Sangita Hazarika (13/400)			
56		Soun Baruah (13/152)			
57		Samiran Gogoi (14/527)			
58		Sudharshan Saikia (13/282)			
59		Debadrist Saikia (13/290)			
60		Bishal Kashyap (13/276)			
61		Hrishikesh Kumar			
62		Tridip Bhuyan (13/259)			
63		Alakesh Kalita (13/264)			

In Plant summer training 2015-16						
Sl. No	Class	Name of Student	Industry Name	Duration	Relevance with PO & PSO	
1	3 rd year Engineering	Zakaria Halim (12/256)	IOCL, Digboi	15/06/2015	1,2,3,4,5,6,7,8,	
2		Dibyajyoti Roy (12/270)		– 14/07/2015	9,10,12 <i>I,2</i>	
3		Sunanda Pal (12/418)				
4		S. Sunanda Singha (12/297)				
5		Sanghita Khersa (12/281)	IOCL, Noonmati	15/06/2015	1,2,3,4,5,6,7,8,	
6		Upasana Sarma (12/95)		– 14/07/2015	9,10,12 <i>I,2</i>	
7		Bibari Boro (12/287)				
8		Bishal Das (12/277)				
9		Arif Ahmed (12/420)				

10	Sandip Kumar Mandal (12/278)			
11	Arindom Boro (12/285)			
12	Subham Kumar Guha (12/262)			
13	Kamal Kalita (12/254)			
14	Pranjal Dutta (11/160)			
15	Tapan Das (13/524)			
16	Mriganka kumar Nath (12/289)			
17	Pranjal Dutta (11/160)			
18	Abhilash Roy (11/100)			
19	Nilangsu Choudhury (12/413)			
20	Amarendra Hazarika (12/284)			
21	Shatanik Bhattacharjee (12/180)			
22	Atur Timungpi (12/282)			
23	Maitreyee Chakraborty.(12/526)	IOCL, Haldia	18/06/2015	1,2,3,4,5,6,7,8,
24	Subhendu Bikash Roy (12/272)		—	9,10,11,12
25	Moumita Das (12/424)		17/07/2015	1,2
26	Ratnadeep Debnath (12/242)			
27	Gaurav Lohar (12/299)			
28	Anurag Deka (12/402)	BRPL	15/06/2015	1,2,3,4,5,6,7,8,
29	Pranab Jyoti Medhi (12/276)		—	9,10,11,12
30	Imtiaz Ali (12/249)		07/07/2015	1,2
31	Debasish Bordoloi (12/253)			
32	Ramkrishna Kangsa Banik (12/408)			
33	Pompy Bodo (12/283)			
34	Raj Rongmei (12/415)			
35	Abhishek Bansal (12/266)			
36	Abhijit Pegu (12/286)			
37	Subhash Handique (12/290)	NRL	11/06/2015	1,2,3,4,5,6,7,8,
38	Porash Bora (12/215)		-	9,10,11,12

39	Md. Saddam Hussain (13/529)	30/06/2015	I,2
40			
41			
42			
43			
44	Plabon Senapati (12/61)		
45			
46			
47			
48			
49			

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, review 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.

PSO-Program Specific Outcomes

PSO 1: With the technical skills acquired, the graduates will be able to apply them in industrial practices e.g. in effective separation and purification in petroleum refineries and petrochemical industries, unit operations and processes in various chemical and allied industries and would be ready for any challenges in chemical engineering and technology work field and research.

PSO 2: Graduates will be able to participate in critical thinking and problem solving related to chemical engineering that requires analytical and design competences in different industries.

PSO 3: Graduates will be equipped to pursue entrepreneurial and leadership activities related to Chemical and allied industries

Course Outcomes (COs)

SAR should include course outcomes of One course/Semester (3rdto8th) of study, however, should be prepared for all courses and made available as evidence, if asked) (05)

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

Course Name: Fundamentals of Chemical Engineering [CH 384]

Semester: Third ; Year of study: 2017-18

CH 384.1	<i>Determine</i> the number of degrees of freedom in a process
CH 384.2	<i>Calculation</i> of composition analysis of a gas mixture.
CH 384.3	<i>Compare</i> ideal and real gas equation of state.
CH 384.4	<i>Develop</i> dimensionless groups by correlating variables in a physical phenomenon.
CH 384.5	<i>Use</i> Psychometric chart to determine properties of moist air.

Course Name: Fluid Flow Operation [CH 487]

Semester: Fourth; Year of study: 2017-18

CH 487.1	<i>Identify</i> the various fluid properties and flow regimes of fluids and express some basic terms related to fluid flow phenomena.
CH 487.2	<i>Formulate</i> and establish the basic equations of fluid flow, integral equation of flow, momentum equation under steady state condition, Bernoulli's equation etc.
CH 487.3	<i>Describe</i> and <i>relate</i> the flow of incompressible fluid in conduits and understand the effects of roughness, restriction, head loss, friction of flow etc.
CH 487.4	<i>Select</i> and <i>evaluate</i> the performance of various fluid transport and metering devices like pumps, compressors, orificemeter, venturimeter, rotameter, pitot tube etc.
CH 487.5	<i>Develop</i> basic equations of fluid flow through packed bed and fluidization phenomenon of gas solid / liquid solid systems and understanding of compressible fluids.

Course Name: Chemical Reaction Engineering I [CH 582]

Semester: Fifth; Year of study: 2017-18

CH 582.1	<i>Develop</i> the reaction rate equation and <i>compute</i> kinetics of the given reaction system
CH 582.2	<i>Analyse</i> and <i>apply</i> kinetic data using integral or differential method for development of kinetics and thermodynamics.
CH 582.3	<i>Design</i> of the batch and steady state flow reactor i.e. plug flow (PFR) and mixed flow reactors (MFR).
CH 582.4	<i>Select</i> best multiple reactor systems for a particular reaction.
CH 582.5	Quantitative <i>evaluation</i> of the performance of MFRs, PFRs and multiple reactor systems.

Course Name: Heat Transfer Operation [CH 684]

Semester: Sixth; Year of study: 2017-18

CH 684.1	<i>Apply</i> the principle of different modes of heat transfer for different situation and for different shapes of solids.
CH 684.2	<i>Compute</i> the heat transfer coefficients related to convection (free and force) and condensation selecting suitable correlations.
CH 684.3	<i>Apply</i> the laws of radiations to solve problems in relevant engineering fields.
CH 684.4	<i>Perform</i> thermal analysis for design of heat exchanger and evaporator.
CH 684.5	<i>Apply</i> and <i>relate</i> the fundamentals of boiling for quantification of the maximum heat flux.

Course Name: Process Equipment Design [CH783]

Semester: Seventh; Year of study: 2017-18

CH 783.1	<i>Interpret</i> and <i>quantify</i> data from the literature, Handbook and Code book.
CH 783.2	<i>Analyse, interpret</i> and design heat transfer equipment such as heat exchangers and condensers for the process with due stress on safety aspect and
CH 783.3	<i>Compute</i> mass and energy balance equations for double effect evaporator for design optimization.
CH 783.4	<i>Design</i> of pressure vessel and storage tank considering safety and environmental aspects.
CH 783.5	<i>Assessment</i> and <i>Engineering drawing</i> of chemical equipments required in a process plant.

Course Name: Transport Phenomena [CH 881]

Semester: Eighth; Year of study: 2017-18

CH 881.1	<i>Apply</i> basic concepts of transport phenomena and thus <i>analyze</i> the role of intermolecular forces in transport process.
CH 881.2	<i>Demonstrate</i> the role of molecular transport mechanism and thus <i>develop</i> the analogy between heat, mass and momentum transport.
CH 881.3	<i>Apply</i> the conservation concept and <i>construct</i> the property balance equation for computation both of molecular and convective transport.
CH 881.4	<i>Develop</i> the property balance equation to <i>quantify</i> the real plant problems
CH 881.5	<i>Apply</i> concepts of continuity and Navier–Stokes equation for quantification of complex plant problems.

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

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

Note:

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

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

If there is no correlation, put “-”

2. Similar table is to be prepared for PSOs

CO-PO Mapping Matrix:

Course Name: [CH 384] Fundamentals of Chemical Engineering; Semester: Third

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 384.1	3	2	2	2	1	1	1	1				1
CH 384.2	3	2	2	2	2	2	2	1				1
CH 384.3	3	2	2	1	1							1
CH 384.4	3	2	2	2	2	1		1				1
CH 384.5	2	1	2	3	1	2	2	1				1
Sum	14	9	10	10	7	6	5	4				5
Av.	2.8	1.8	2	2	1.4	1.2	1	0.8				1

Course Name: [CH 487] Fluid Flow Operation; Semester-Fourth

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 487.1	2	1	1	1	-	-	1	1	-	-	-	1
CH 487.2	2	2	1	1	1	-	1		-	-		1
CH 487.3	2	1	1	2	-	2	1	-	-	-	1	1
CH 487.4	3	1	2	1	3	1	1	1	-	-	1	1
CH 487.5	3	2	2	1	1	1	1	1	-	-	1	1
Sum	12	7	7	5	5	4	5	3	-	-	3	5
Av.	2.2	1.4	1.4	1	1	0.8	1	0.6	-	-	0.6	1

Course Name: [CH 584] Chemical Reaction Engineering I; Semester-Fifth

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 584.1	2	2	2	2	1	1	2	1	-	-	-	1
CH 584.2	2	2	2	2	3	1	2	1	-	-	1	1
CH 584.3	2	2	2	2	2	1	1	1	-	-		1
CH 584.4	2	2	2	2	1	1	1	1	-	-	1	1
CH 584.5	2	2	2	2	1	1	2	1	-	-	1	1
Sum	10	10	10	10	8	5	7	5	-	-	3	5
Av.	2	2	2	2	1.6	1	1.6	1	-	-	0.6	1

Course Name: [CH 684] Heat Transfer Operation; Semester: Sixth

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 684.1	2	3	1	1	2	1	2	-	-	-	-	1
CH 684.2	2	3	1	3	2	1	2	-	-	-	-	1
CH 684.3	1	3	1	1	2	1	2	1	-	-	1	1
CH 684.4	2	3	3	2	2	1	3	1	-	-	1	1
CH 684.5	2	1	1	2	2	1	2	1	-	-	1	1
Sum	9	13	7	9	10	5	11	3	-	-	3	5
Av.	1.8	2.6	1.4	1.8	2	1	2.2	0.6	-	-	0.6	1

Course Name: [CH 783] Process Equipment Design, Semester: Seventh

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 781.1	3	2	1	2	1	2	2	1	-	-	1	1
CH 781.2	3	1	3	2	1	2	2	2	-	-	1	2
CH 781.3	3	3	3	3	1	2	2	1	-	-	1	2
CH 781.4	3	1	3	2	1	2	2	2	-	-	2	2
CH 781.5	3	1	1	1	2	2	1	2	-	-	1	1
Sum	15	8	11	11	6	10	9	8	-	-	6	8
Av	3	1.6	2.2	2.2	1.2	2	1.8	1.6	-	-	1.2	1.6

Course Name: [CH 881] Transport Phenomena, Semester: Eighth

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 881.1	3	2	1	1	1	1	1	1	-	-	-	1
CH 881.2	3	2	1	1	2	1	1	1	-	-	-	1
CH 881.3	3	3	2	2	2	1	1	1	-	-	-	2
CH 881.4	3	3	2	3	2	1	1	1	-	-	1	2
CH 881.5	3	2	2	3	2	1	1	1	-	-	1	2
Sum	15	12	8	10	9	5	5	5	-	-	2	8
Av.	3	2.4	1.6	2	1.8	1	1	1	-	-	0.4	1.6

Table B.3.1.2 (a)

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

CO-PSO Mapping Matrix:

Course Name: [CH 384] Fundamentals of Chemical Engineering; Semester: Third

COs	PSO1	PSO2	PSO3
CH 384.1	1	1	-
CH 384.2	1	1	-
CH 384.3	1	1	-
CH 384.4	1	2	-
CH 384.5	1	1	-
Sum	5	6	-
Av.	1	1.2	-

Course Name: [CH 487] Fluid Flow Operation; Semester-Fourth

COs	PSO1	PSO2	PSO3
CH 487.1	1	-	-
CH 487.2	2	1	-
CH 487.3	1	-	-
CH 487.4	2	1	-
CH 487.5	1	1	-
Sum	7	3	-
Av.	1.4	1	-

Course Name: [CH 584] Chemical Reaction Engineering I; Semester-Fifth

COs	PSO1	PSO2	PSO3
CH 584.1	1	1	-
CH 584.2	1	1	-
CH 584.3	1	1	-
CH 584.4	1	1	-
CH 584.5	1	1	-
Sum	5	5	-
Av.	1	1	-

Course Name:[CH 684] Heat Transfer Operation; Semester: Sixth

COs	PSO1	PSO2	PSO3
CH 684.1	1	1	--
CH 684.2	1	1	-
CH 684.3	1	1	-
CH 684.4	2	1	-
CH 684.5	1	-	-
Sum	6	4	-
Av.	1.2	1	-

Course Name: [CH 783] Process Equipment Design, Semester: Seventh

COs	PSO1	PSO2	PSO3
CH 781.1	2	-	-
CH 781.2	2	3	-
CH 781.3	2	2	-
CH 781.4	2	3	-
CH 781.5	1	-	-
Sum	9	8	-
Av.	1.8	1.4	-

Course Name: [CH 881] Transport Phenomena, Semester: Eighth

COs	PSO1	PSO2	PSO3
CH 881.1	-	2	--
CH 881.2	-	2	-
CH 881.3	2	2	-
CH 881.4	2	2	-
CH 881.5	2	2	-
Sum	6	10	-
Av.	2	2	-

Table B 3.1.2 (b)

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

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1st Semester												
PH 101	2.50	2.00	1.50									
PH 101L	2.00								1.00			
CH 102	2.60	1.60				0.40	0.60					0.60
CH 102L	2.50	1.75		1.00						1.00		
MA 103	3.00	3.00	1.20	0.20					0.20			2.00
CE 104	2.60	2.20	0.20	0.80	0.60							
HU 105	0.00	1.00		1.00		1.00	1.00	1.33	3.00	2.25		3.00
CE 106	3.00	3.00	2.83	2.57	2.14	2.57	1.00					
CS 107	2.00	2.33	3.00	1.33	2.00							
CE 108	1.80	1.40							1.20	1.80		
2nd Semester												
PH 201	1.75	1.33	1.25		1.00							
PH 201L	2.00								1.00			

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 202	2.80	2.20	0.80			0.60	0.60		1.00	1.00		1.00
CH 202L	2.00	2.00		1.25		0.50	1.00			1.00		
MA 203	3.00	3.00	2.00									2.00
CE 204	3.00	2.25	1.50	1.00								
CE 204L	3.00	2.00		3.00	3.00							
EE 205	3.00	3.00										
EE 205L				3.00								
ME 207	3.00	3.00	1.67		2.00	3.00						1.00
ME 208	1.60	2.00						1.00	1.60			

3rd Semester

MA 301	3.00	3.00										2.00
ME 302	3.00	2.00	2.60	1.40	1.40							1.00
ME 302L	2.00	1.80	2.30	1.80	1.30							1.00
EE 303	3.00	2.40										1.80
EE 303L	3.00	1.66		1.00						0.67		1.66
CH 384	2.80	1.80	2.00	2.00	1.40	1.20	1.00	0.80				1.00
CH 385	2.00	1.80	1.60	1.60	1.00	2.00	2.60	1.00		1.00		2.00
CH 385L	2.00			2.00		1.00		1.00	3.00	1.00		1.00
CH 386	1.40	0.60	0.80	0.80		1.20	0.80	0.80		1.00		1.20
CH 387	2.00				1			2.00		1.00		1.00
CH 388	2.00				1.00			1.00	1.00	2.00		1.00

4th Semester

MA 411	3.00	2.40	1.60	1.00	1.00				1.00			1.40
HU 402	0.00	1.00				1.33	1.00	1.33	1.16	1.00	1.00	3.00
HU 403	0.00	1.80		1.50		2.20	1.20	1.80	2.00	3.00		3.00

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
EE 404	3.00	2.00		0.20						0.40		1.40
EE 404L	3.00	1.75		0.75						0.50		1.50
CH 485	3.00	1.60	1.60	1.40	0.60	0.40	0.60	0.20	0.40	0.80	0.40	1.20
CH 486	3.00	2.40	1.20	1.60	1.60	1.60	1.20	1.40				1.80
CH 486 L	1.00			1.60		0.80		0.80	1.80	1.00		1.00
CH 487	2.20	1.40	1.40	1.00	1.00	0.80	1.00	0.60			0.60	1.00
CH 487 L	2.00			3.00		1.00	0.00	2.00	2.00	1.00		1.00
CH 488	2.00				1.00			1.00	2.00	2.00		1.00

5th Semester

HU 501		1.00				1.50	1.00	1.50	2.00	1.00	1.00	2.66
CH 582	2.00	2.00	2.00	2.00	1.60	1.00	1.60	1.00			0.60	1.00
CH582L	1.33			2.00				1.00	2.00	1.00		1.00
CH 583	2.60	2.20	1.40	1.40	1.40	0.60	0.80	0.40				1.00
CH 583L	2.00	0.20	0.20	2.00		1.00		1.00	2.00	1.00		1.00
CH 584	3.00	2.40	1.60	1.20	1.40			1.00				2.00
CH 584L	1.67			2.00		0.33		1.00	1.67	1.00		1.00
CH 585	2.20	1.80	1.60	1.60	1.00	1.40	2.00	1.00				1.60
CH 586	3.00	2.60	1.80	2.00	1.40	1.00	1.00	0.60		1.00		1.40
CH 586L	2.00			1.00		1.00		1.00	2.00	1.00		1.00
CH 587	2.00					1.00		1.00	2.00	3.00		1.00

6th Semester

CH 681	3.00	2.80	2.60	3.00	2.00	1.80	1.40	1.00			0.80	2.00
CH 682	3.00	2.40	2.40	1.60	2.00	1.60	1.20	2.20	0.80	1.20	2.60	2.00
CH 683	3.00	2.60	1.80	1.80	1.40		1.40	0.40		0.80		2.00
CH 683L	2.00			2.00		1.00		1.00	2.00	1.00		1.00

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CH 684	1.80	2.60	1.40	1.80	2.00	1.00	2.20	0.60			0.60	1.00
CH 684L	2.00	2.00		2.00		1.00		1.00	2.00	1.00		2.00
CH 685	2.40	2.00	2.00	1.80	1.00	1.40	1.40	0.80	1.00	1.40		2.40
CH 685L	2.00			2.00		2.00	1.00	1.00	2.00	1.00		1.00
CH 686	3.00	3.00	2.00	2.00	2.20	1.20		1.00				1.60
CH 686L	2.00	1.25		2.00	0.60	1.00		1.00	2.00	1.00		1.00
CH 687	2.00					1.00		1.00	2.00	3.00		1.00
7th Semester												
CH 781	2.60	2.60	2.40	2.20	1.40		0.60	0.60	1.00	1.20		1.40
CH 782	2.40	2.00	1.80	1.20	1.40	1.20	2.00	0.40				1.00
CH 783	3.00	1.60	2.20	2.20	1.20	2.00	1.80	1.60			1.20	1.60
CH 784	2.80	2.20	1.20	1.20	1.20	1.60	3.00	1.40				1.20
CH 785	2.20	2.20	2.20	1.40	1.80	2.00	2.00	1.80				2.00
CH 786	2.40	2.20	1.20	1.60		0.60		0.20				1.20
CH 787	3.00	3.00	2.00	1.00	3.00	2.00	2.00	2.00	2.00	3.00	1.00	3.00
CH 788	3.00	3.00	3.00	3.00	2.00	1.00	2.00	2.00	3.00	2.00	2.00	2.00
8th Semester												
CH 881	3.00	2.40	1.60	2.00	1.80	1.00	1.00	1.00			0.40	1.60
CH 882	3.00	2.50	3.00	2.25	1.00	1.25	1.50	1.25			1.00	1.00
CH 883	3.00	2.60	1.60	0.60	1.20	1.40	1.20	1.00				1.20
CH 884	1.80	1.40	1.20	1.20	0.80	1.00	1.00	0.20				1.80
CH 885	2.40	1.20	1.40	0.80	0.40	2.00	3.00	0.80			0.20	3.00
CH 887	3.00	3.00	2.00	1.00	1.00			2.00	3.00	3.00		3.00
Average	2.45	2.08	1.75	1.60	1.41	1.26	1.38	1.08	1.71	1.36	0.96	1.53

Table B.3.1.3 (a)

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

Course	PSO1	PSO2	PSO3
1st Semester			
PH 101	0.80	1	
PH101L	1.00	2	
CH102	1.00	0.6	
CH102L	0.75	1	
MA 103		3	
CE 104			
HU 105			
CE 106	0.28	1.4	
CS 107	0.60	2	0.33
MA 108	0.60		
2nd Semester			
PH201	0.25	1.25	
PH201L	1.00	2	
CH 202	1.20	0.60	
CH202L	1.00	0.80	3
MA203		3	
ME 204		1.00	
ME204L		1.00	
EE 205			
EE 205L			
ME 207	0.80		
ME 208	0.40		
3rd Semester			
MA 301	-	3	-
ME 302	2.8	3	1
ME 302L	2.00	2.00	1.00
Course	PSO1	PSO2	PSO3
EE 303		0.40	

EE 303L		0.67	
CH 384	1.00	1.20	
CH 385	1.80		0.4
CH 385L	2.00		
CH 386	0.40	0.40	
CH 387	1.00	1	
4th Semester			
EE 404		0.40	
EE 404L		0.5	
MA 411	1.2	1	
CH 485	1.20	0.4	
CH 486	1.20	1.5	1
CH 486L	1.40	0.6	
CH 487	2.00	1	
CH 487L	2.00	1	
5th Semester			
CH 582	3.00	1	
CH 582L	2.00	1.5	
CH 583	2.00		
CH 583 L	1.80	1	
CH 584	1.20	1.2	
CH 584L	2.00	1	
CH 585	2.00		
CH 586	1.00	0.6	
CH 586L	1.00		
CH 587			
6th Semester			
CH 681	1.60	2	
CH 682	0.40		2.2
Course	PSO1	PSO2	PSO3
CH 683	1.80	1.6	

CH 683L	2.00	1	
CH 684	1.20	0.8	
CH 684L	2.00	1.33	
CH 685	3.00	0.4	
CH 685L	3.00		
CH 686	1.60	1.2	
CH 686L	1.00	1	
7th Semester			
CH 781	3.00	2	
CH 782	1.20	0.4	
CH 783	1.80	1.6	
CH 784	1.80	0.8	0.2
CH 785	1.40	0.4	1
CH 786	2.20	0.2	
CH 787		3.00	1.00
CH 788	1.00	3.00	1.00
8th Semester			
CH 881	1.20	2	
CH 882	2.50	2	
CH 883	1.80	0.8	0.4
CH 884	2.80	1.2	
CH 885	1.20	0.4	0.4
CH 887	2.00	3	1.00
Average	1.49	1.33	1.00

Table B 3.1.3 (b)

Attainment of Course Outcomes (50)

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

- *Examples of data collection processes may include, but are not limited to –*
 - *Specific exam/tutorial questions*
 - *Assignments*
 - *Laboratory tests*
 - *Project evaluation,*
 - *Student portfolios.*
- *A portfolio is a collection of artefact that demonstrate skills, personal characteristics, and accomplishments created by the student during study period, internally developed assessment exams, project presentations, oral exams etc*

Direct Assessment:

The Department adopts direct assessment methods for evaluating the course outcomes based on the data collected from the following assessment processes:

- a) University Examinations i.e End semester Examinations
- b) Class Tests
- c) Assignments
- d) Laboratory test/viva
- e) Project evaluation
- f) Grand Viva-voce
- g) Seminar presentations/ Group discussions
- h) Appraisal from Industries
- i) General Impression

Methods for Direct assessment:

1. University Examination

End Semester examination is the most important tool for assessing course outcomes attainment. Examination is more focused on attainment of course outcomes through a descriptive mode.

- Gauhati University conducts 100 marks theory examination.
- Assessment and moderation of papers are done as per University norms.
- Paper examiners are selected by the Controller of University for evaluating the answer sheets.

- 2. Class Tests:** Two to three class tests are conducted during the session. Each test paper is set focusing on attaining the course outcomes. Average of the better marks obtained from any two tests is considered for the Internal assessment for that particular subject.

40% weightages are given from class tests in the internal assessment. After assessment of the answer sheets, the students are counselled accordingly if asked for.

- 3. Assignments work:** Assignments and home works are assigned to the students and accordingly they are evaluated. Average is taken at the end. 10% weightages are given from the assignment work for the internal assessment for each theory subject.
- 4. Laboratory assessment:** After completion of every lab, reports are to be submitted on regular basis which are assessed. Continuous assessment is carried out as per the rubrics given in the following Table 3.2.1A. Viva-voce is carried out for every laboratory.

Table 3.2.1A

Rubrics for Laboratory assessment

Report (10)	Attendance (20)	Viva (20)	Total (50)

- 5. Project Evaluation:** Evaluation of the student based on the project work is also an important criterion for attainment of course outcomes. One project each is given to the students in VII and VIII semesters. Experimental projects are allotted to the students in VII semester and theoretical projects in VIII semester. Evaluations are done based on the rubrics given in Table 3.2.1.B & Table 3.2.1.C

Table 3.2.1.B**Rubrics for evaluation of Project I in VII Semester**

Seminar Presentation on Literature survey & Methodology of the Project (20)	Final Seminar Presentation on completion of the Project (30)	Final Report (20)	Guide's Impression (30)

Students are evaluated for the VIII semester project in a similar manner (Table 3.2.1.B) an external examiner is also appointed by the University for evaluating the project work.

Table 3.2.1.C**Rubrics for evaluation of Project II in VIII Semester**

Seminar presentation on Literature survey/Process selection (10)	Seminar presentation on Material & Energy balance Calculations 10)	Seminar presentation on Design of any equipments used in the process (10)	Final Report (30)	Guide's evaluation (40)	Evaluation by External Examiner (50)

6. Grand Viva-voce:

Grand Viva-voce examination is conducted at the end of final semester where external examiners are appointed by the University to assess the students' knowledge in various subjects of Chemical Engineering.

7. Seminar presentations/ Group discussions:

These are conducted with the help of experts recommended by the Training & Placement Cell in three sections to enhance students' overall aptitude,

presentation/communication and group discussion skills so that they are well equipped for placement drives. Evaluation is done by the following mechanism:

- External evaluation-40 marks
- Internal evaluation-10 marks

8. Industrial Training

Students of VI semester have to undergo one month industrial training just after completion of their end semester examination which is scheduled by the Training & Placement Cell of the college. After completion of the training, appraisal for each student (in standard format) is collected from the concerned industry which is included in the assessment calculation. Also, the students are to give a power point presentation in groups on the operation of the industry. The assessment on factory/industry training is done based on the rubrics given in Table 3.2.1.D.

Table 3.2.1.C

Rubrics for evaluation of Factory training in VII Semester

Seminar Presentation on industrial training (25)	Reports (20)	Appraisal from Industries (5)

9. General Impression

A weightage of 20% of the total sessional marks is given for General Impression which is based on a collection of information regarding the student class performance e.g, attentiveness to class lectures, promptness in responding to any questions asked in the class, overall behaviour in the class, activity in group, etc.)

Table 3.2.1.D
Rubrics for evaluation of General Impression

Attentiveness to Lectures (5)	Class Interaction (5)	Overall behaviour in the class (5)	Activity in Group (5)

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

- *Program shall have set Course Outcome attainment levels for all courses*
- *The attainment levels shall be set considering average performance levels in the*
- *University Examination or any higher value set as target for the assessment years*

Attainment level is to be measured in terms of student performance in internal assessments with respect to the Course Outcomes of a course

- *Performance in the University Examination.*

Measuring Course Outcomes attained through University Examinations

Target is stated in terms of percentage of students getting more than the university average marks or more as selected by the Program in the final examination. The program has chosen an attainment level on its own with justification.

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

Measuring CO attainment through Internal Assessments:

- 1. Target is stated in terms of percentage of students getting more than class average marks in the assessment instruments (midterm tests, assignments, mini projects, reports and presentations etc. as mapped with the COs).*
- 2. Attainment is measured in terms of actual percentage of students getting set percentage of marks.*

3. If targets are achieved then the course outcomes are attained for that year. Program sets higher targets for the following years as a part of continuous improvement.
4. If targets are not achieved the program puts in place an action plan to attain the target in subsequent years.

Following attainment levels are set for the courses of curriculum (2013-17):

Table 3.2.2(A) Set target level

CO Attainment Method	Attainment Level		
	1	2	3
Internal Assessment	30-50% student scoring more than 60% marks in the class tests	50-80% student scoring more than 60% marks in the class tests	80-100% student scoring more than 60% marks in the class tests
University	30-50% student scoring more than 50% marks in the end semester examination	50-80% student scoring more than 50% marks in the end semester examination	80-100% student scoring more than 50% marks in the end semester examination

Course Outcome Attainment:

As per University Rule, the marks distribution for the theory subjects is as follows:

Semester	End Semester marks	Internal assessment marks	Total marks
I-VI	100	50	150
VII-VIII	100	75	175

Thus, for semesters (I-VI) weightage given to

University Examination: $(100/150)*100=66.67\approx67\%$

Internal Assessment: $(50/150)*100=33.33\approx33\%$

For semesters (VII-VIII) weightage given to

University Examination: $(100/175)*100=57.14\approx57\%$

Internal Assessment: $(75/150)*100=42.86\approx43\%$

For example:

If, Attainment through University Examination = 3
 and Attainment through Internal Assessment = 2
 Then, Overall CO attainment level = $0.67*3+0.33*2 = 2.67$
 Overall CO attainment (%) = $(2.67/3)*100 = 89\%$

Record of attainment of COs of all courses with respect to set attainment levels

Curriculum: 2013-2017

SR. No.	Subject	Course Code	Internal assessment			University Exam			Overall CO attainment (%)	Overall CO attainment level
			Target (%)	Attainment (%)	Level	Target (%)	Attainment (%)	Level		
1	Physics I	PH101	60%	66.67	2	50%	66.67	2	66.67	2.00
2	Physics I-Lab	PH101L	60%	33.33	1	-	-	-	33.33	1.00
3	Chemistry I	CH102	60%	100	3	50%	66.67	2	77.67	2.33
4	Chemistry I Lab	CH102L	60%	100	3	-	-	-	100.0	3.00
5	Mathematics I	MA103	60%	100	3	50%	33.33	1	55.33	1.66
6	Elements of Civil Engg.	CE104	60%	100	3	50%	0	0	33.0	0.99
7	Eng Comm. & Tech Report Writing	HU105	60%	100	3	50%	66.67	2	77.67	2.33
8	Engg. Graphics I	CE106	60%	100	3	50%	33.33	1	55.33	1.66
9	Introduction to computing	CS107	60%	66.67	2	50%	100	3	89.0	2.67
10	Workshop Practice I	ME 108	60%	100	3	-	-	-	100.0	3.00
11	Physics II	PH201	60%	33.33	1	50%	33.33	1	33.33	1.00
12	Physics II Lab	PH201L	60%	66.67	2	-	-	-	66.67	2.00
13	Chemistry II	CH202	60%	33.33	1	50%	66.67	2	44.33	1.33
14	Chemistry II Lab	CH202L	60%	100.0	3	-	-	-	100.0	3.00
15	Mathematics II	MA 203	60%	100.0	3	50%	33.33	1	55.33	1.66
16	Engg Mechanics & Strength of material	CE 204	60%	100.0	3	50%	0	0	33.0	0.99
17	Engg Mechanics &	CE 204L	60%	100.0	3	-	-	-	100	3.00

	Strength of material Lab										
18	Basic Electrical Engg I	EE 205	60%	33.33	1	50%	33.33	1	33.33	1.00	
19	Basic Electrical Engg I Lab	EE 205L	60%	33.33	1	-	-	-	33.33	1.00	
20	Engg Graphics II	ME 207	60%	100.0	3	50%	66.67	2	77.67	2.33	
21	Workshop Practice II	ME 208	60%	100.0	3	-	-	-	100	3.00	
22	Mathematics III	MA 301	60%	100.0	3	50%	0	0	33.0	0.99	
23	Engg Mechanics II	ME 302	60%	100.0	3	50%	66.67	2	77.67	2.33	
24	EM II Lab	ME 302L	60%	100.0	3	-	-	-	100	3.00	
25	Electro Technology I	EE 303	60%	33.33	1	50%	33.33	1	33.33	1.00	
26	Electro Technology I Lab	EE 303L	60%	100.0	3	-	-	-	100	3.00	
27	FOCE	CH 384	60%	100.0	3	50%	33.33	1	55.33	1.66	
28	CPI	CH 385	60%	100.0	3	50%	66.67	2	77.67	2.33	
29	CPI Lab	CH 385L	60%	100.0	3	-	-	-	100.0	3.00	
30	MSCE	CH 386	60%	100.0	3	50%	33.33	1	55.33	1.66	
31	CED	CH 387	60%	100.0	3	-	-	-	100.0	3.00	
32	General Proficiency	CH 388	-	-	-	50%	100	3	100.0	3.00	
33	Sociology & Accountancy	HU 402	60%	66.67	2	50%	33.33	1	44.33	1.33	
34	Comm Skill	HU 403	60%	100.0	3	50%	33.33	1	55.33	1.66	
35	Electro Technology II	EE 404	60%	66.67	2	50%	66.67	2	66.67	2.00	
36	ETII-Lab	EE 404L	60%	100	3	-	-	-	100	3.00	
37	Adv. Maths & Num Analysis	MA 411	50%	33.33	2	50%	33.33	1	44.33	1.33	
38	Process Calculation (PC)	CH 485	60%	66.67	2	50%	33.33	1	44.33	1.33	
39	Energy Engg (EE)	CH 486	60%	33.33	1	50%	33.33	1	33.33	1.00	
40	EE Lab	CH 486L	60%	100	3	-	-	-	100	3.00	
41	Fluid Flow Operation (FFO)	CH 487	60%	100	3	50%	66.67	2	77.67	2.33	
42	FFO Lab	CH 487L	60%	100	3	-	-	-	100	3.00	

43	GP	CH 488	60%	100	3	-	-	-	100	3.00
44	Economics & Principle of Management	HU 501	60%	100	3	50%	33.33	1	55.33	1.66
45	CRE I	CH 582	60%	66.67	2	50%	33.33	1	44.33	1.33
46	CRE Lab	CH582L	60%	100	3	-	-	-	100	3.00
47	MO	CH 583	60%	66.67	2	50%	33.33	1	44.33	1.33
48	MO Lab	CH 583L	60%	100	3	-	-	-	100	3.00
49	CET	CH 584	60%	66.67	2	50%	66.67	2	66.67	2.00
50	CET Lab	CH 584L	60%	100	3	-	-	-	100	3.00
51	Process Utilities	CH 585	60%	66.67	2	50%	100	3	89.0	2.67
52	PI	CH 586	60%	100	3	50%	66.67	2	77.67	2.33
53	PI Lab	CH 586L	60%	100	3	-	-	-	100	3.00
54	GP	CH 587	60%	100	3	-	-	-	100	3.00
55	CRE II	CH 681	60%	66.67	2	50%	33.33	1	44.33	1.33
56	PEEO	CH 682	60%	100	3	50%	100	3	100	3.00
57	MTO-I	CH 683	60%	100	3	50%	66.67	2	77.67	2.33
58	MTO Lab	CH 683L	60%	100	3	-	-	-	100	3.00
59	HTO	CH 684	60%	66.67	2	50%	33.33	1	44.33	1.33
60	HTO Lab	CH 684L	60%	100	3	-	-	-	100	3.00
61	PRP	CH 685	60%	100	3	50%	66.67	2	77.67	2.33
62	PRP Lab	CH 685L	60%	100	3	-	-	-	100	3.00
63	PDC	CH 686	60%	66.67	2	50%	100	3	89.0	2.67
64	PDC Lab	CH 686L	60%	100	3	-	-	-	100	3.00
65	GP	CH 687	60%	66.67	2	-	-	-	66.67	2.00
66	MTO II	CH 781	60%	66.67	2	50%	66.67	2	66.67	2.00
67	BCE	CH 782	60%	100	3	50%	66.67	2	81.0	2.43
68	PED	CH 783	60%	100	3	50%	66.67	2	81.0	2.43
69	EPCE	CH 784	60%	100	3	50%	100	3	100	3.00
70	PSE	CH 785	60%	100	3	50%	66.67	2	81.0	2.43
71	FE	CH 786	60%	100	3	50%	66.67	2	81.0	2.43
72	Factory Training	CH 787	60%	100	3	-	-	-	100	3.00
73	Project I	CH 788	60%	100	3	-	-	-	100	3.00
74	Transport Phenomena (TP)	CH 881	60%	66.67	2	50%	66.67	2	66.67	2.00
75	CPDD	CH 882	60%	100	3	50%	66.67	2	81.0	2.43

76	AST	CH 883	60%	100	3	50%	66.67	2	81.0	2.43
77	PPT	CH 884	60%	100	3	50%	66.67	2	81.0	2.43
78	AER	CH 885	60%	100	3	50%	66.67	2	81.0	2.43
79	Viva-Voce	CH 886	60%	66.67	2	-		-	81.0	2.43
80	Project II	CH 887	60%	100	3	-		-	66.67	2.00

Attainment of Program Outcomes (PO)and Program Specific Outcomes (PSO) (50)

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

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

The assessment tools and processes used to gather the data upon which the evaluation of each of the Program Outcomes and Program Specific Outcomes, indicating the frequency with which these processes are carried out is explained in Table 3.3.1

Table 3.3.1 The assessment tools, processes and frequency of processes

Method	Assessment Tools	Process	Frequency
Direct	Tests	1) Data collected as given in 3.2.1.	1) Class tests are taken twice/thrice every semester.
	Assignments		
	Practicals	2) CO attainment contribution to PO attainment is calculated for every subject	2) Assignments are given every semester
	Semester Examination		
	Presentation/Seminar Case study Project evaluation	Student performance is calculated as per the rubrics fixed and is used to calculate	As per requirement of the course

	Viva voce	CO attainment.	
Indirect	Student exit survey Alumni survey	Feedback forms are customized to an average marking as per levels 1, 2 & 3	On completion of every semester. Every year

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

The overall CO attainment values for all courses as computed in Section 3.2.2 and the CO-PO mapping values as computed in Section 3.1.3 are used to compute the attainment of each PO for all courses. Similarly, the overall CO attainment value as computed in Section 3.2.2 and CO-PSO mapping values as computed in Section 3.1.3 are used to compute the attainment of PSOs.

Sample computation of PO values:

Suppose, overall CO attainment for a particular course CH881 = 2 (Table 3.2.2)

& PO1 for course CH881 = 3 (obtained from Table 3.1.3)

Then, PO1 attainment value for course CH881 = $(2*3)/3 = 2$

- CO attainment contribution to PO attainment is calculated for every course.
- Direct attainment level of a PO & PSO is determined by taking average across all courses addressing that PO and/or PSO.
- Indirect attainment level of PO & PSO is determined based on mainly the outgoing students' feedback regarding the program.
- 90% weightage is given to direct attainment and 10% weightage to indirect attainment.
- Overall PO attainment is calculated using the set weightages of direct and indirect attainment.

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

Table 3.3.2.A: PO Attainment; Curriculum 2013-2017

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PH101	1.67	1.33	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PH101L	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00

CH102	2.02	1.24	0.00	0.00	0.00	0.31	0.47	0.00	0.00	0.00	0.00	0.47
CH102L	2.50	1.75	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
MA103	1.66	1.66	0.66	0.11	0.00	0.00	0.00	0.00	0.11	0.00	0.00	1.11
CE104	0.86	0.73	0.07	0.26	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HU105	0.00	0.78	0.00	0.78	0.00	0.78	0.78	1.03	2.33	1.75	0.00	2.33
CE106	1.66	1.66	1.57	1.42	1.18	1.42	0.55	0.00	0.00	0.00	0.00	0.00
CS107	1.78	2.07	2.67	1.18	1.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ME 108	1.80	1.40	0.00	0.00	0.00	0.00	0.00	1.20	1.80	0.00	0.00	0.00
PH201	0.58	0.44	0.42	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PH201L	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00
CH202	1.24	0.98	0.35	0.00	0.00	0.27	0.27	0.00	0.44	0.44	0.00	0.44
CH202L	2.00	2.00	0.00	1.25	0.00	0.50	1.00	0.00	0.00	1.00	0.00	0.00
MA 203	1.66	1.66	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11
CE 204	0.99	0.74	0.50	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CE 204L	3.00	2.00	0.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EE 205	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EE 205L	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ME 207	2.33	2.33	1.30	0.00	1.55	2.33	0.00	0.00	0.00	0.00	0.00	0.78
ME 208	1.60	2.00	0.00	0.00	0.00	0.00	0.00	1.00	1.60	0.00	0.00	0.00
MA 301	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66
ME 302	2.33	1.55	2.02	1.09	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.78
ME302L	2.00	1.80	2.30	1.80	1.30	0.00	0.00	0.00	0.00	0.00	0.00	1.00
EE 303	1.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
EE 303L	3.00	1.66	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	1.66
CH 384	1.55	1.00	1.11	1.11	0.77	0.66	0.55	0.44	0.00	0.00	0.00	0.55
CH 385	1.55	1.40	1.24	1.24	0.78	1.55	2.02	0.78	0.00	0.78	0.00	1.55
CH 385L	2.00	0.00	0.00	2.00	0.00	1.00	0.00	1.00	3.00	1.00	0.00	1.00
CH 386	0.77	0.33	0.44	0.44	0.00	0.66	0.44	0.44	0.00	0.55	0.00	0.66
CH 387	2.00	0.00	0.00	0.00	1.00	0.00	0.00	2.00	0.00	1.00	0.00	1.00
CH 388	2.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.00	0.00	1.00
MA 411	1.33	1.06	0.71	0.44	0.44	0.00	0.00	0.00	0.44	0.00	0.00	0.62
HU 402	0.00	0.44	0.00	0.00	0.00	0.59	0.44	0.59	0.51	0.44	0.44	1.33
HU 403	0.00	1.00	0.00	0.83	0.00	1.22	0.66	1.00	1.11	1.66	0.00	1.66
EE 404	2.00	1.33	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.93
EE 404L	3.00	1.75	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
CH 485	1.33	0.71	0.71	0.62	0.27	0.18	0.27	0.09	0.18	0.35	0.18	0.53

CH 486	1.00	0.80	0.40	0.53	0.53	0.53	0.40	0.47	0.00	0.00	0.00	0.60
CH486 L	1.00	0.00	0.00	1.60	0.00	0.80	0.00	0.80	1.80	1.00	0.00	1.00
CH 487	1.71	1.09	1.09	0.78	0.78	0.62	0.78	0.47	0.00	0.00	0.47	0.78
CH487 L	2.00	0.00	0.00	3.00	0.00	1.00	0.00	2.00	2.00	1.00	0.00	1.00
CH 488	2.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	2.00	2.00	0.00	1.00
HU 501	0.00	0.55	0.00	0.00	0.00	0.83	0.55	0.83	1.11	0.55	0.55	1.47
CH 582	0.89	0.89	0.89	0.89	0.71	0.44	0.71	0.44	0.00	0.00	0.27	0.44
CH582L	1.33	0.00	0.00	2.00	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00
CH 583	1.15	0.98	0.62	0.62	0.62	0.27	0.35	0.18	0.00	0.00	0.00	0.44
CH 583L	2.00	0.20	0.20	2.00	0.00	1.00	0.00	1.00	2.00	1.00	0.00	1.00
CH 584	2.00	1.60	1.07	0.80	0.93	0.00	0.00	0.67	0.00	0.00	0.00	1.33
CH584L	1.67	0.00	0.00	2.00	0.00	0.33	0.00	1.00	1.67	1.00	0.00	1.00
CH 585	1.96	1.60	1.42	1.42	0.89	1.25	1.78	0.89	0.00	0.00	0.00	1.42
CH 586	2.33	2.02	1.40	1.55	1.09	0.78	0.78	0.47	0.00	0.78	0.00	1.09
CH 586L	2.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	2.00	1.00	0.00	1.00
CH 587	2.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	2.00	3.00	0.00	1.00
CH 681	1.33	1.24	1.15	1.33	0.89	0.80	0.62	0.44	0.00	0.00	0.35	0.89
CH 682	3.00	2.40	2.40	1.60	2.00	1.60	1.20	2.20	0.80	1.20	2.60	2.00
CH 683	2.33	2.02	1.40	1.40	1.09	0.00	1.09	0.31	0.00	0.62	0.00	1.55
CH 683L	2.00	0.00	0.00	2.00	0.00	1.00	0.00	1.00	2.00	1.00	0.00	1.00
CH 684	0.80	1.15	0.62	0.80	0.89	0.44	0.98	0.27	0.00	0.00	0.27	0.44
CH 684L	2.00	2.00	0.00	2.00	0.00	1.00	0.00	1.00	2.00	1.00	0.00	2.00
CH 685	1.86	1.55	1.55	1.40	0.78	1.09	1.09	0.62	0.78	1.09	0.00	1.86
CH 685L	2.00	0.00	0.00	2.00	0.00	2.00	1.00	1.00	2.00	1.00	0.00	1.00
CH 686	2.67	2.67	1.78	1.78	1.96	1.07	0.00	0.89	0.00	0.00	0.00	1.42
CH 686L	2.00	1.25	0.00	2.00	0.60	1.00	0.00	1.00	2.00	1.00	0.00	1.00
CH 687	1.33	0.00	0.00	0.00	0.00	0.67	0.00	0.67	1.33	2.00	0.00	0.67
CH 781	1.73	1.73	1.60	1.47	0.93	0.00	0.40	0.40	0.67	0.80	0.00	0.93
CH 782	1.94	1.62	1.46	0.97	1.13	0.97	1.62	0.32	0.00	0.00	0.00	0.81
CH 783	2.43	1.30	1.78	1.78	0.97	1.62	1.46	1.30	0.00	0.00	0.97	1.30
CH 784	2.80	2.20	1.20	1.20	1.20	1.60	3.00	1.40	0.00	0.00	0.00	1.20
CH 785	1.78	1.78	1.78	1.13	1.46	1.62	1.62	1.46	0.00	0.00	0.00	1.62
CH 786	1.94	1.78	0.97	1.30	0.00	0.49	0.00	0.16	0.00	0.00	0.00	0.97
CH 787	3.00	3.00	2.00	1.00	3.00	2.00	2.00	2.00	2.00	3.00	1.00	3.00
CH 788	3.00	3.00	3.00	3.00	2.00	1.00	2.00	2.00	3.00	2.00	2.00	2.00
CH 881	2.00	1.60	1.07	1.33	1.20	0.67	0.67	0.67	0.00	0.00	0.27	1.07

CH 882	2.43	2.03	2.43	1.82	0.81	1.01	1.22	1.01	0.00	0.00	0.81	0.81
CH 883	2.43	2.11	1.30	0.49	0.97	1.13	0.97	0.81	0.00	0.00	0.00	0.97
CH 884	1.46	1.13	0.97	0.97	0.65	0.81	0.81	0.16	0.00	0.00	0.00	1.46
CH 885	1.94	0.97	1.13	0.65	0.32	1.62	2.43	0.65	0.00	0.00	0.16	2.43
CH 887	2.00	2.00	1.33	0.67	0.67	0.00	0.00	1.33	2.00	2.00	0.00	2.00
Direct Attainment X	1.82	1.46	1.25	1.26	1.07	0.97	1.03	0.88	1.48	1.15	0.74	1.14
Indirect Attainment Y	2.50											
Overall PO Attainment =0.9*X+0.1*Y	1.89	1.56	1.37	1.38	1.21	1.12	1.17	1.05	1.58	1.28	0.91	1.28

PSO attainment is recorded in similar manner in Table 3.3.2.B

Table 3.3.2.B: PSO Attainment; Curriculum 2013-2017

Course	PSO1	PSO2	PSO3
PH101	0.53	0.67	0.00
PH101L	0.33	0.67	0.00
CH102	0.78	0.47	0.00
CH102L	0.75	1.00	0.00
MA103	0.00	1.66	0.00
CE104	0.00	0.00	0.00
HU105	0.00	0.00	0.00
CE106	0.15	0.77	0.00
CS107	0.53	1.78	0.29
ME 108	0.60	0.00	0.00
PH201	0.08	0.42	0.00
PH201L	0.67	1.33	0.00
CH202	0.53	0.27	0.00
CH202L	1.00	0.80	3.00
MA 203	0.00	1.66	0.00
CE 204	0.00	0.33	0.00
CE 204L	0.00	1.00	0.00
EE 205	0.00	0.00	0.00
EE 205L	0.00	0.00	0.00

ME 207	0.62	0.00	0.00
ME 208	0.40	0.00	0.00
MA 301	0.00	0.99	0.00
ME 302	2.17	2.33	0.78
ME302L	2.00	2.00	1.00
EE 303	0.00	0.13	0.00
EE 303L	0.00	0.67	0.00
CH 384	0.55	0.66	0.00
CH 385	1.40	0.00	0.31
CH 385L	2.00	0.00	0.00
CH 386	0.22	0.22	0.00
CH 387	1.00	1.00	0.00
CH 388	0.00	0.00	0.00
MA 411	0.00	1.33	0.00
HU 402	0.00	0.00	0.00
HU 403	0.00	0.00	0.00
EE 404	0.00	0.27	0.00
EE 404L	0.00	0.50	0.00
CH 485	0.53	0.44	0.00
CH 486	0.40	0.13	0.00
CH486 L	1.20	1.50	1.00
CH 487	1.09	0.47	0.00
CH487 L	2.00	1.00	0.00
CH 488	0.00	0.00	0.00
HU 501	0.00	0.00	0.00
CH 582	1.33	0.44	0.00
CH582L	2.00	1.50	0.00
CH 583	0.89	0.00	0.00
CH 583L	1.80	1.00	0.00
CH 584	0.80	0.80	0.00
CH584L	2.00	1.00	0.00
CH 585	1.78	0.00	0.00
CH 586	0.78	0.47	0.00
CH 586L	1.00	0.00	0.00
CH 587	0.00	0.00	0.00
CH 681	0.71	0.89	0.00

CH 682	0.40	0.00	2.20
CH 683	1.40	1.24	0.00
CH 683L	2.00	1.00	0.00
CH 684	0.53	0.35	0.00
CH 684L	2.00	1.33	0.00
CH 685	2.33	0.31	0.00
CH 685L	3.00	0.00	0.00
CH 686	1.42	1.07	0.00
CH 686L	1.00	1.00	0.00
CH 687	0.00	0.00	0.00
CH 781	2.00	1.33	0.00
CH 782	0.97	0.32	0.00
CH 783	1.46	1.30	0.00
CH 784	1.80	0.80	0.20
CH 785	1.13	0.32	0.81
CH 786	1.78	0.16	0.00
CH 787	0.00	3.00	1.00
CH 788	1.00	3.00	1.00
CH 881	0.80	1.33	0.00
CH 882	2.03	1.62	0.00
CH 883	1.46	0.65	0.32
CH 884	2.27	0.97	0.00
CH 885	0.97	0.32	0.32
CH 887	1.33	2.00	0.67
Direct Attainment, X	1.19	0.97	0.92
Indirect Attainment, Y	2.5	2.5	2.5
Overall PSO Attainment =0.9*X+0.1*Y	1.49	1.33	1.00

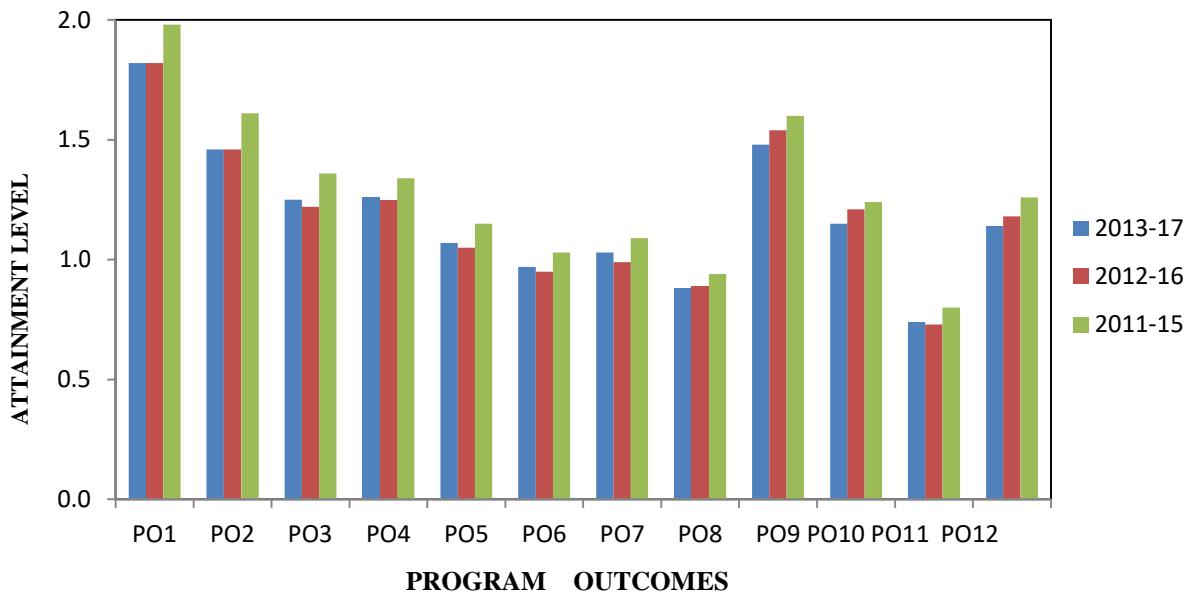


Fig. 3.1 PO ATTAINMENT BY DIRECT METHOD

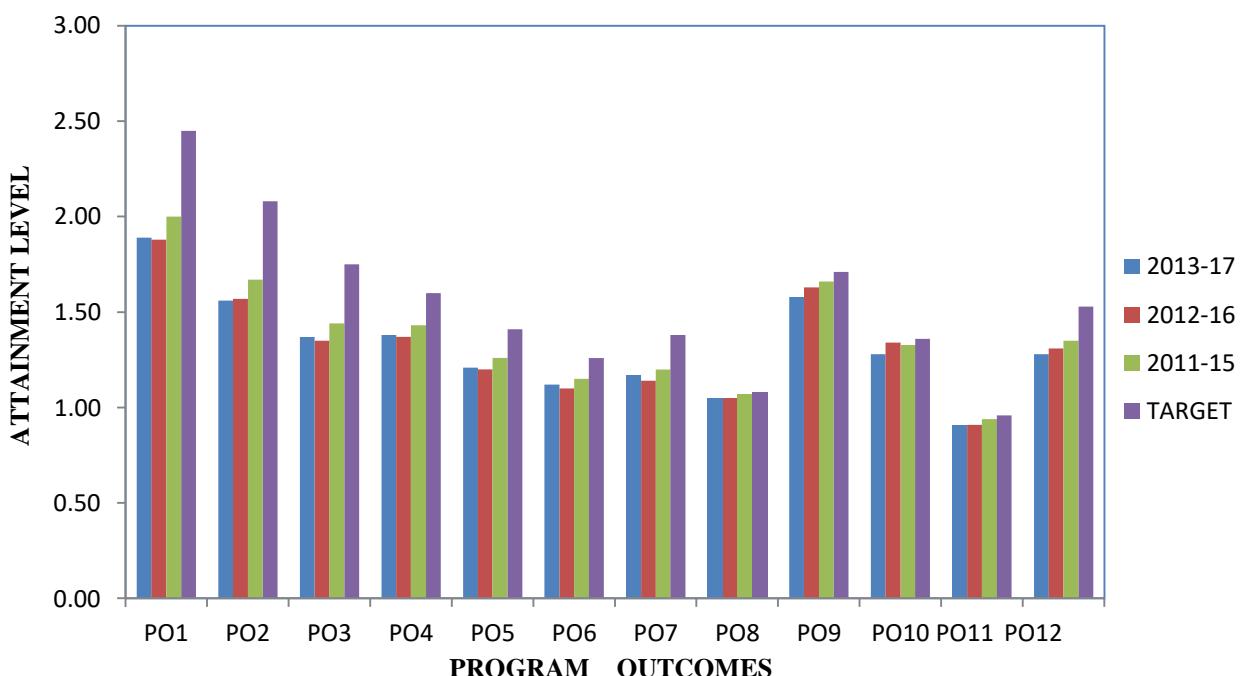


Fig. 3.2 COMPARISON OF OVERALL PO ATTAINMENT FOR CAY, CAYm1, CAYm2 WITH TARGET VALUES

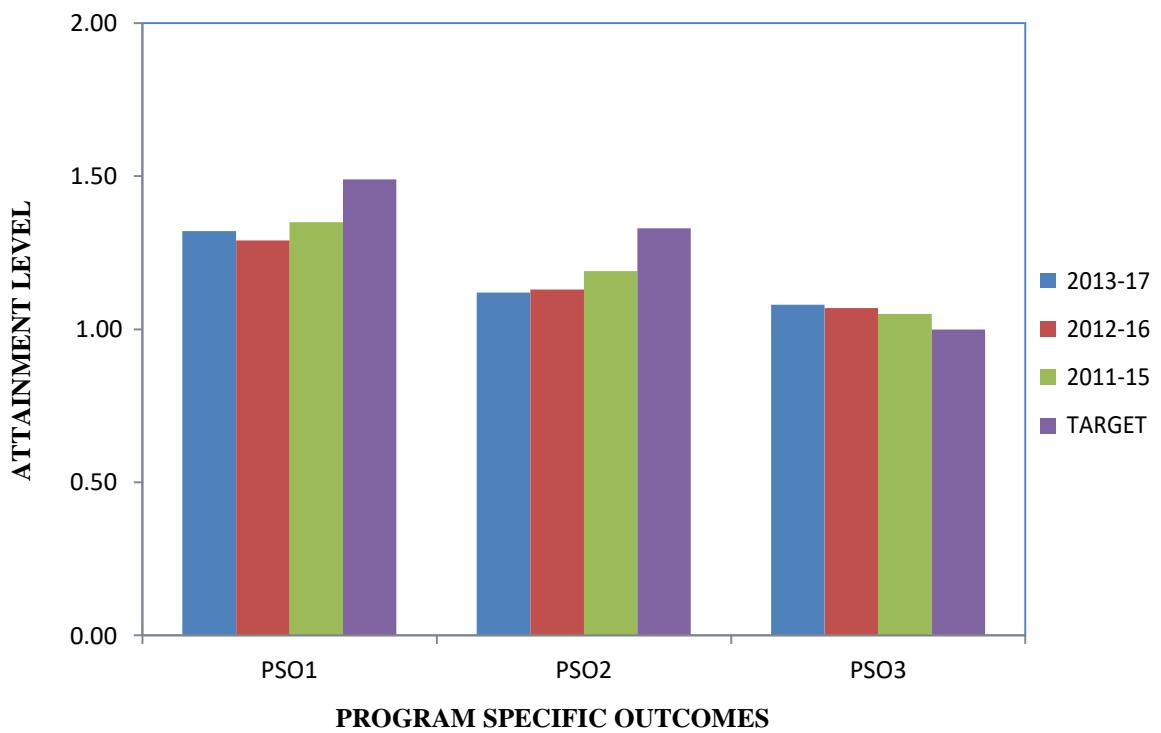


Fig. 3.3 COMPARISON OF OVERALL PSO ATTAINMENT FOR CAY, CAYm1, CAYm2 WITH TARGET VALUES

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

Table B.4a

ITEM (Information to be provided cumulatively with explicit headings, wherever applicable)	CAY (2017-2018)	CAYm1 (2016-2017)	CAYm2 (2015-2016)	CAYm3 (2014-2015)
Student intake of the program (N)	60	60	60	60
Total number of students admitted in first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	57	52	54	53
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	-	6	5	2
Separate division students, if applicable (N3)	Nil	Nil	Nil	Nil
Total number of students admitted in the Program (N1 + N2 + N3)	57	58	59	55

CAY- Current Academic year

CAYm1- Current Academic Year minus 1= Current Assessment Year

CAYm2- Current Academic Year minus 2= Current Assessment Year minus 1

LYG- Last Year Graduate

LYGm1- Last Year Graduate minus 1

LYGm2- Last Year Graduate minus 2

Table B.4a

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester/year of study (Without Backlog means no compartment or failures in any semester/year of study)			
		I Year	II Year	III Year	IV Year
CAY(2017-2018))	57 (57+0+0)				
CAYm1(2016-2017))	58 (52+6+0)	15			
CAYm2 (2015-2016)	59 (54+5+0)	14	14+0		
CAYm3 (2014-2015)	55 (53+2+0)	10	4+0	4+0	
CAYm4 (LYG) (2013- 2014)	64 (58+6+0)	24	12+1	11+0	11+0
CAYm5 (LYGm1) (2012- 2013)	63 (57+6+0)	20	9+0	9+0	9+0
CAYm6 (LYGm2) (2011- 2012)	61 (55+6+0)	25	20+2	19+2	19+1

Table B.4 b

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated (Students with backlog within stipulated period of study)			
		I Year	II Year	III Year	IV Year
CAY(2017-2018)	57 (57+0+0)				
CAYm1(2016-2017)	58 (52+6+0)	03			
CAYm2 (2015-2016)	59 (54+5+0)	21	17+2		
CAYm3(LYG) (2014- 2015)	55 (53+2+0)	31	26+1	21+1	
CAYm4 (LYGm1) (2013-2014)	64 (58+6+0)	31	41+0	39+0	29+1
CAYm5 (LYGm2) (2012-2013)	63 (57+6+0)	35	42+5	43+5	38+5
CAYm6 (LYGm3) (2011-2012)	61 (55+6+0)	24	24+3	31+3	32+4

Enrolment Ratio (20)

Enrolment ratio= N1/N

Table B.4.1

Item	CAYm1 (2016-2017)	CAYm2 (2015-2016)	CAYm3 (2014-2015)
Sanctioned intake of the program (N)	60	60	60
Total number of students admitted in first year <i>minus</i> number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	52	54	53
N1/N in Percentage	86.67	90.00	88.33
Average	88.33		

Item	Marks
(Students enrolled at the First Year Level on average basis during the last three years starting from current academic years)	

>=90% students enrolled	20
>=80% students enrolled	18
>=70% students enrolled	16
>=60% students enrolled	14
>=50% students enrolled	12
Otherwise	0

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

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

Table B.4.2.1

Item	Last Year Graduate LYG (CAYm4) (2013-2017)	Last Year Graduate minus 1, LYGM1 (CAYm5) (2012-2016)	Last Year Graduate minus 2, LYGM2 (CAYm6) (2011-2015)
Number of students admitted in the corresponding First Year + admitted in 2 nd year via lateral entry and separate division, if applicable	64 (58+6)	63 (57+6)	61 (55+6)
Number of students who have graduated without backlogs in the stipulated period	11	9	20
Success Index (SI)	0.17	0.14	0.33
Average SI		0.21	

Success rate without backlogs in any year of study=25 x 0.21= 5.25

Success rate with backlogs 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

Table B.4.2.2

Item	LYG(CAYm4) (2013-2017)	LYGm1(CAYm5) (2012-2016)	LYGm2(CAYm6) (2011-2015)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	64	63	61
Number of students who have graduated in the stipulated period	30	43	36
Success Index (SI)	0.47	0.68	0.59
Average SI		0.58	

Success rate = 15 × Average SI= 15 x 0.58=8.7

Academic Performance in Third Year (15)

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

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

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

Table B.4.3

Academic Performance	CAYm1 (2016-2017)	CAYm2 (2015-2016)	CAYm3 (2014-2015)
Mean of CGPA or Mean Percentage of all successful students (X)	5.75	6.17	6.11
Total no. of successful students (Y)	55	64	63
Total no. of students appeared in the examination (Z)	55	64	63

API = X* (Y/Z)	AP1=5.75	AP2=6.17	AP3=6.11
Average API = (AP1+ AP2 + AP3)/3	6.01		

$$Academic\ Performance = 1.5 \times 6.01 = 9.02$$

Academic Performance in Second Year (15)

Academic Performance = $1.5 * \text{Average API}$ (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)) \times (number of successful students/number of students appeared in the examination)

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

Table B.4.4

Academic Performance	CAYm1 (2016-2017)	CAYm2 (2015-2016)	CAYm3 (2014-2015)
Mean of CGPA or Mean Percentage of all successful students (X)	5.59	5.69	5.46
Total no. of successful students (Y)	55	64	63
Total no. of students appeared in the examination (Z)	55	64	63
API = x* (Y/Z)	AP1=5.59	AP2=5.69	AP3=5.46
Average API = (AP1+ AP2 + AP3)/3	5.58		

$$Academic\ Performance = 1.5 \times 5.58 = 8.37$$

Placement, Higher Studies and Entrepreneurship (40)

Assessment Points = $40 \times$ average placement

Table B.4.5

Item	LYG (CAYm1) 2016-17	LYGm1 (CAYm2) 2015-16	LYGm2 (CAYm3) 2014-15
Total No. of Final Year Students (N)	64	65	56
No. of students placed in companies or Government Sector (x)	32	23	08
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	01	01	00

No. of students turned entrepreneur in engineering/technology (z)	01	00	00
$x + y + z =$	34	24	08
Placement Index : $(x + y + z)/N$	P1 = 0.53	P2 = 0.37	P3 = 0.14
Average placement = $(P1 + P2 + P3)/3$	0.35		

Assessment Points = 40 × 0.35 = 14

Professional Activities (20)

Professional societies/chapters and organizing engineering events (5)

Sl. No.	Name of Professional societies/chapters
1	Indian Institute of Chemical Engineers (IICChE)
2	American Institute of Chemical Engineers (AIChE)
3	The Indian Society for Technical Education (ISTE)

4.6.2 Publication of technical magazines, newsletters etc (5)

Sl. No.	Name of Journal/Magazines / event	Publisher/ Host institute	Title of Paper Publishe / Presented	Year
1	International Journal for Emerging Trends in Engineering and Management Research – Volume II	Webjournal© Newsmag	Cloud Computing and security	2016
2	20 th ISTE Students National Convention 2017	Regional Institute of Science and Technology, Meghalaya	Transformation in Engineering Curriculum	2017

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

Sl. No.	Name of Event	Organizing Institute	Level	Awards	Year
1	Reflux	IIT Guwahati	State	First Prize	2017
2	Headshot	Assam Engg. College	State	First Prize	2017

3	ANIMATRIX	Assam Engg. College	State	Best Concept	2016
4	ARDUINO workshop	Assam Engg. College	State	Third Prize	2016
5	Inter Institute Quiz	Jorhat Institute of Science and Technology	State	Nil	2016
6	Seminar on State of the art in refinery operation	IIT Guwahati	State	Nil	2016
7	CHEMQUIZ	Assam Engg. College	State	Nil	2017
8	Grey Matters	Assam Engg. College	State	Nil	2016
9	VIS a VIS 2016	Assam Engg. College	State	Nil	2016
10	Rebati Mohan Dutta Debate Competition	Assam Engg. College	State	Nil	2016
11	MATLAB workshop	IIT Guwahati	State	Nil	2017
12	AEC- MSME Conference	Assam Engg. College	State	Nil	2016
13	Techxom 2017	Assam Engg. College	State	Nil	2016
14	Quad Copter	IIT Guwahati	State	Nil	2016
15	Cyber scope	Assam Engg. College	State	Nil	2016

CRITERION 5	FACULTY INFORMATION AND CONTRIBUTIONS	200
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CAY 2017-2018

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 Publication	Ph.D Guidance	Faculty Receiving Ph.D during the Assessment Years		
1. Prof Ashok Baruah	M.Tech	IIT B, Mumbai	1992	B.E student 1980					-	-	-	Removal of Arsenic from water under RPS Scheme of AICTE	-
2. Prof Runjun Das	M.S	Tennessee Knoxville US	1991	B.E student 1981	Assoc. Prof.	19-11-1988	Chemical Engg	Chemical Engineering (Polymer Engineering)	-	-	-	-	-
3. Dr Bandana Chakraborty	Ph.D	IIT, Guwahati	2008	B.E student 1984	Assoc. Prof.	15-10-1992	Chemical Engg	Chemical Engineering (Membrane Separation)	9	3	-	-	-
4. Prof Tapan Jyoti Sarma	M.Tech	IITB, Mumbai	1997	B.E student 1985	Assoc. Prof.	02-05-1994	Chemical Engg	Chemical Engineering (Natural and Synthetic Polymers)	-	-	-	-	-
5. Dr. Kabita Chakraborty	PhD	IIT, Guwahati	2010	B.E student 1986	Assoc. Prof.	13-01-1995	Chemical Engg	Chemical Engineering (Membrane based Separation)	8	-	-	-	-

CAY 2017-2018

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 Publication	Ph.D Guidance	Faculty Receiving Ph.D during the Assessment Years		
6.Dr. Ashim Kumar Basumatary	PhD	IIT, Guwahati	2015	08.01.2007	Asst. Prof	08-01-2007	Chemical Engg	Chemical Engineering (Ceramic Composite membrane based Separation)	10	-	-	-	-
7.Dr. Ujwala Hujuri	PhD	IIT Guwahati	2012	B.E student 1998	Asst. Prof	10-03-2011	Chemical Engg	Chemical Engineering (Plastics Engineering)	9				
8.Mr. Chiranjib Das	M.Tech	IIT Guwahati	2014	B.E student 2008	Asst. Prof Contract	01-08-2014	Chemical Engg	Chemical Engineering (Material science and technology)	1				
9. Ms. Dolly Talukdar	M. Tech	Tezpur University	2013	B.E student 2006	Asst. Prof Contract	01-05-2013	Chemical Engg	Chemical Science (Polymer Science & Technology)	-	-	-	-	-
10.Mr. Rabindra Kangsha Banik	M Tech	Tezpur University	2015	B.E student 2007	Asst. Prof Contract	01-08-2015	Chemical Engg	Energy Technology	-	-	-	-	-

CAY 2017-2018

11. Dr. Sanjay Jadav	Ph.D.	IIT Kharagpur	2018	Since 30 Dec. 2017	Asst. Prof under TEQIP-III	30-12-2017	Chemical Engg	Chemical Engineering (Rheology of Complex fluids)	6	-	-	-	-
12. Nivedita Shrotri	M. Tech,	IIT Guwahati	2010	Since 4 Jan 2018	Asst. Prof under TEQIP-III	04-01-2018	Chemical Engg	Chemical Engineering (Fuel cell, catalyst development for electrochemical systems)	7	-	-	1 under IEDC, Indore	-

CAY 2016-2017

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 Publication	Ph.D Guidance	Faculty Receiving Ph.D during the Assessment Years		
1. Prof Ashok Baruah	M.Tech	IIT B, Mumbai	1992	B.E student 1980	Assoc. Prof.	14-03-1988	Chemical Engg	(Chemical Engineering) Petroleum Engineering	-	-	-	Removal of Arsenic from water under RPS Scheme of AICTE	-
2. Prof Runjun Das	M.S	Tennessee Knoxville US	1991	B.E student 1981	Assoc. Prof.	19-11-1988	Chemical Engg	Chemical Engineering (Polymer Engineering)	-	-	-	-	-
3. Dr Bandana Chakrabarty	Ph.D	IIT, Guwahati	2008	B.E student 1984	Assoc. Prof.	15-10-1992	Chemical Engg	Chemical Engineering (Membrane Separation)	9	3	-	-	-
4. Prof Tapan Jyoti Sarma	M.Tech	IITB, Mumbai	1997	B.E student 1985	Assoc. Prof.	02-05-1994	Chemical Engg	Chemical Engineering (Natural and Synthetic Polymers)	-	-	-	-	-
5. Dr. Kabita Chakrabarty	PhD	IIT, Guwahati	2010	B.E student 1986	Assoc. Prof.	13-01-1995	Chemical Engg	Chemical Engineering (Membrane based Separation)	8	-	-	-	-

CAY 2016-2017

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 Publication	Ph.D Guidance	Faculty Receiving Ph.D during the Assessment Years		
6.Dr. Ashim Kumar Basumatary	PhD	IIT, Guwahati	2015	08.01.2007	Asst. Prof	08-01-2007	Chemical Engg	Chemical Engineering (Ceramic Composite membrane based Separation)	10	-	-	-	Conducted National conference and workshop
7.Dr. Ujwala Hujuri	PhD	IIT Guwahati	2012	B.E student 1998	Asst. Prof	10-03-2011	Chemical Engg	Chemical Engineering (Plastics Engineering)	9				
8.Mr. Chiranjib Das	M.Tech	IIT Guwahati	2014	B.E student 2008	Asst. Prof Contract	01-08-2014	Chemical Engg	Chemical Engineering (Material science and technology)	1				
9. Ms. Dolly Talukdar	M. Tech	Tezpur University	2013	B.E student 2006	Asst. Prof Contract	01-05-2013	Chemical Engg	Chemical Science (Polymer Science & Technology)	-	-	-	-	-
10.Mr. Rabindra Kangsha Banik	M Tech	Tezpur University	2015	B.E student 2007	Asst. Prof Contract	01-08-2015	Chemical Engg	Energy Technology	-	-	-	-	-

CAY 2015-2016

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 Publication	Ph.D Guidance	Faculty Receiving Ph.D during the Assessment Years		
1. Prof Ashok Baruah	M.Tech	IIT B, Mumbai	1992	B.E student 1980	Assoc. Prof.	14-03-1988	Chemical Engg	(Chemical Engineering) Petroleum Engineering	-	-	-		
2. Prof Runjun Das	M.S	Tennessee Knoxville US	1991	B.E student 1981	Assoc. Prof.	19-11-1988	Chemical Engg	Chemical Engineering (Polymer Engineering)	-	-	-	-	-
3. Dr Bandana Chakrabarty	Ph.D	IIT, Guwahati	2008	B.E student 1984	Assoc. Prof.	15-10-1992	Chemical Engg	Chemical Engineering (Membrane Separation)	9	3	-	-	-
4. Dr Arup Kr Misra	PhD	Guwahati University	2015	B.E student 1981	Assoc. Prof.		Chemical Engg						
5. Prof Tapan Jyoti Sarma	M.Tech	IITB, Mumbai	1997	B.E student 1985	Assoc. Prof.	02-05-1994	Chemical Engg	Chemical Engineering (Natural and Synthetic Polymers)	-	-	-	-	-
6. Dr. Kabita Chakrabarty	PhD	IIT, Guwahati	2010	B.E student 1986	Assoc. Prof.	13-01-1995	Chemical Engg	Chemical Engineering (Membrane based Separation)	8	-	-	-	-

CAY 2015-2016

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 Publication	Ph.D Guidance	Faculty Receiving Ph.D during the Assessment Years		
7.Dr. Ashim Kumar Basumatary	PhD	IIT, Guwahati	2015	08.01.2007	Asst. Prof	08-01-2007	Chemical Engg	Chemical Engineering (Ceramic Composite membrane based Separation)	10	-	-	-	-
8.Dr. Ujwala Hujuri	PhD	IIT Guwahati	2012	B.E student 1998	Asst. Prof	10-03-2011	Chemical Engg	Chemical Engineering (Plastics Engineering)	9				
9.Mr. Chiranjib Das	M.Tech	IIT Guwahati	2014	B.E student 2008	Asst. Prof Contract	01-08-2014	Chemical Engg	Chemical Engineering (Material science and technology)	1				
10. Ms. Dolly Talukdar	M. Tech	Tezpur University	2013	B.E student 2006	Asst. Prof Contract	01-05-2013	Chemical Engg	Chemical Science (Polymer Science & Technology)	-	-	-	-	-
11.Mr. Rabindra Kangsha Banik	M Tech	Tezpur University	2015	B.E student 2007	Asst. Prof Contract	01-08-2015	Chemical Engg	Energy Technology	-	-	-	-	-

Student-Faculty Ratio (SFR) (20)

(To be calculated at Department Level)

No. of UG Programs in the Department (n): one
PG Programs in the Department (m): nil
No. of Students in UG 2nd Year= u1 = 66

No. of Students in UG 3rd Year= u2 = 66

No. of Students in UG 4th Year= u3 = 66

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

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

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

(The above data to be provided considering all the UG and PG programs of the department)

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

F = Total Number of Faculty Members in the Department
(excluding First Year faculty)

Student Teacher Ratio (STR) = S/F

Year	CAY	CAYm1	CAYm2
u1.1	66	66	66
u1.2	66	66	66
u1.3	66	66	66
UG1	198	198	198
PGm	-	-	-
Total No. of Students in	198	198	198
No. of Faculty in the	12	10	10
Student Faculty Ratio	SFR1=S1/F1=16.5	SFR2= S2/F2=19.8	SFR3= S3/F3=19.8
Average SFR	SFR=(16.5+19.8+19.8)/3=18.7		

Table B.5.1

Note: 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 proportionately 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.

Faculty Cadre Proportion (25)

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

F1: Number of Professors required = $1/9 \times \text{Number of Faculty required to comply with 15:1}$

Student-Faculty ratio based on number of students (N) as per 5.1

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

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

Here,

Number of Faculty required to comply with 15:1 Student-Faculty ratio based on number of students (N) as per 5.1 = F = , Therefore

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY (2017-18)	1	0	3	5	9	7
CAYm1 (2016-17)	1	0	3	5	9	5
CAYm2 (2015-16)	1	0	3	5	9	5
Average Numbers	RF1=1	AF1=0	RF2=3	AF2=5	RF3=9	AF3=5.67

Table B.5.2

$$F1 = 1/9 \times 13 = 1.44, F2 = 2/9 \times 13 = 2.88, F3 = 6/9 \times 13 = 8.67$$

Cadre Ratio Marks $\frac{A1}{1} \frac{A2}{2} \frac{0.6}{3} \frac{A3}{5.67} \frac{0.4}{0.4}$

$$= 15.65$$

Faculty Qualification (25)

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

X is number of regular Faculty with PhD

Y is number of regular Faculty with M Tech

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

Years	X	Y	F	FQ = $2.5 \times [(10X + 4Y)/F]$
CAY (2017-18)	5	7	13	15
CAYm1(2016-17)	4	6	13	12.31
CAYm2(2015-16)	4	6	13	12.31
Average Assessment				13.21

Table B.5.3

Faculty Retention (25)

No. of regular faculty members in CAYm2 (2015-16) =10, CAYm1 (2016-17) = 10, CAY(2017-18) =12

Item	Marks
$\geq 90\%$ of required Faculty members retained during the	25
$\geq 75\%$ of required Faculty members retained during the	20
$\geq 60\%$ of required Faculty members retained during the	15
$\geq 50\%$ of required Faculty members retained during the	10
$< 50\%$ of required Faculty members retained during the	0

Description	2015-16	2016-17	2017-18	Average
No. of faculty retained	10	10	12	100
Total No. of faculty	10	10	12	
% Retention	100	100	100	

Table B.5.4

Innovation by the Faculty in Teaching and Learning (20)

Following are the innovative tools and method used by the Faculty in Teaching and Learning Process

1. Presentations: For certain subjects, at the end of the course, students use power point presentations and explain subject topics on their own which indicates whether they have understood the concepts.
2. Assignments: a. Term Project- Field level survey leading to a case study.
b. Visual Project- Conceptualization in making a short film on the subject matter given

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

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

Faculty as participants in Faculty development/Training Activities/STTPs Academic Year: 2016-17					
Sr No.	Faculty Name	Title of the Course	Duration of the course with Month and Date	Whether approved by AICTE	Name of the Institute & Department where the Course was conducted
1.	Prof Ashok Barua	Sustainable Solid Waste Management practices	2 days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
2	Prof Runjun Das	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
3	Dr Bandana Chakrabarty	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
4	Prof Tapan Jyoti Sarma	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept,	AICTE-NEQIP	Assam Engineering College, Deptt, of

			2017		Chemical Engineering
5	Dr Kabita Chakrabarty	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
6	Dr Ashim Kumar Basumatary	Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
7	Dr Ujwala Hujuri	1. Pedagogy	2Days, 5- 6 May/2017.	AICTE-NEQIP	Assam Engineering College, Dept of Chemical Engineering
		2.TEQIP-III orientation workshop on start-up and innovation	2Days, 22-23 Dec/2017	TEQIP	Centre for Educational Technology, IITG, Guwahati
8	Mr Rabindra K Banik	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
9	Mr Chiranjib Das	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
10	Ms Dolly Talukadar	1.Pedagogy	2 days, 5-6, May/2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
		2.Sustainable Solid Waste Management practices	2 Days, 31 st Aug to 1 st Sept, 2017	AICTE-NEQIP	Assam Engineering College, Deptt, of Chemical Engineering
12	Ms Nivedita Shrotri	1.Waste to wealth: recent trends and advances in development of value added products from waste	2 Days, 01-02 March/2016.	DST, Govt. of M.P.	Department of Chemical Engineering, IES-IPS Academy, Indore (M.P.)

		2. Intellectual Property Rights	2Days, 8-9 April/2016	DST, Govt. of M.P.	Department of Computer Science & Engineering, IES-IPS Academy, Indore (M.P.)
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Academic Year: 2015-16

1.	Prof Ashok Barua	1.Cross-Cultural Analysis and Capacity Building in construction Management practices on Housing and Infrastructure sector in Assam and Australia	4 days , 13 th to 16 th Dec'2016	Yes	Assam Engineering College
2.	Prof Runjun Das	Advances in Renewable Energy and Its Application	One week, 7-11 March/2016.	AICTE-NEQIP	Assam Engineering College, Deptt. of Electrical Engg., Guwahati
3.	Dr Bandana Chakrabarty	1.Advance Materials for Engineering Application	One week, 25 th to 29 th April/2016.	AICTE-NEQIP	Assam Engineering College, Deptt. of Chemical Engineering
		2.Advances in Renewable Energy and Its Application	One week, 7-11 March/2016.	AICTE-NEQIP	Assam Engineering College, Deptt. of Chemical Engineering
4.	Prof Tapan Jyoti Sarma	Advance Materials for Engineering Application	One week, 25 th to 29 th April/2016.	AICTE-NEQIP	Assam Engineering College, Deptt. of Chemical Engineering
5	Dr Kabita Chakrabarty	1.Advance Materials for Engineering Application	One week, 25 th to 29 th April/2016.	AICTE-NEQIP	Assam Engineering College, Deptt. of Chemical Engineering
		2.Advances in Renewable Energy and Its Application	One week, 7-11 March/2016.	AICTE-NEQIP	Assam Engineering College, Deptt. of Chemical Engineering
6	Dr Ashim Kumar Basumatary	1.Surfactant Mediated Pollutant Removal Techniques	One week, 19-23 Jan/2016.	TEQIP	Centre for Educational Technology, IITG, Deptt. of Chemical Engg., IITG
		2.Advances in Renewable Energy and its Applications	One week, 7-11 March/2016.	NEQIP-AICTE	Assam Engineering College, Guwahati, Deptt. of Electrical Engg.
		3.National Course on 'Biological Treatment of Solid Waste'.	3Days, 8-10 February/2016.	TEQIP	Centre for Educational Technology, IITG, Guwahati

Academic Year: 2014-15

1.	Prof Ashok Baruah	Introduction to Numerical, Computational and Experimental Mechanics	One week, 9-13 Dec/2014	AICTE	Assam Engg. College, Dept. Of Mechanical Engg.
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2.	Prof Runjun Das	1. Introduction to Numerical, Computational and Expt. Mechanics	One week, 9-13 Dec/2014	AICTE	Assam Engg. College, Dept. Of Mechanical Engg.
		2. Environmental Impact Assessment: A tool for Sustainable Development.	9 th to 13 th eb' 2015	NEQIP	Assam Engineering College, Jalukbari, Deptt. of Chemical Engg.
3.	Dr Bandana Chakrabarty	1. Introduction to Numerical, Computational and Experimental Mechanics	One week, 9-13 Dec/2014	AICTE	Assam Engg. College, Dept. Of Mechanical Engg.
		2. Environmental Impact Assessment: A tool for Sustainable Development.	9 th to 13 th eb' 2015	NEQIP	Assam Engineering College, Jalukbari, Deptt. of Chemical Engg.
4.	Prof Tapan Jyoti Sarma	Environmental Impact Assessment: A tool for Sustainable Development.	9 th to 13 th eb' 2015	NEQIP	Assam Engineering College, Jalukbari, Deptt. of Chemical Engg.
5.	Dr Kabita Chakrabarty	1. Introduction to Numerical, Computational and Experimental Mechanics	One week, 9-13 Dec/2014	AICTE	Assam Engg. College, Dept. Of Mechanical Engg.
		2. Environmental Impact Assessment: A tool for Sustainable Development.	9 th to 13 th eb' 2015	NEQIP	Assam Engineering College, Jalukbari, Deptt. of Chemical Engg.
6.	Dr Ashim Kumar Basumatary	1. National workshop on 'Technical Writing'	2Days 6-7 December/ 2014	TEQIP	Centre for Educational Technology, IITG, Guwahati
		2. National Course on 'Membrane Technology and Application'	2Days 9-10 December/ 2014	TEQIP	Centre for Educational Technology, IITG, Guwahati
		3. Emerging Micropollutants in the Environment: Occurrence, Transportation Monitoring and Treatment	4Days, 2-5 March/2015	TEQIP	Centre for Educational Technology, IITG, Department of Chemical Engg., IITG.
7.	Dr Ujwala Hujuri	1. National School on Sustainable Polymers	One week, 6-9 Jan, 2014	AICTE	IIT Guwahati
		2. Introduction to numerical computational and experimental mechanics	One week, 9-13 Dec, 2014	AICTE	AEC, Guwahati
		3. Transport processes and optimization techniques in polymers	One week, 15-20 Dec, 2014	AICTE	IIT Guwahati

		4. Recent trends in power Engineering and management	One week, 19-23 Jan, 2015.	AICTE	AEC, Guwahati
		5. Environmental Impact Assessment: A tool for sustainable development	9 th to 13 th eb' 2015	AICTE-NEQIP	Assam Engineering College, Jalukbari, Deptt. of Chemical Engg.
8.	Dr Sanjay Kumar	School on neutron as probes of condensed matter.	One week, 27 th – 31 st Jan, 2015.	Dept. of Atomic Research Centre	Bhaba Atomic Research Centre, Mumbai

Name of Faculty	Max. 5 per Faculty		
	CAYm1	CAYm2	CAYm3
Prof Ashok Baruah	3	3	3
Prof Runjun Das	3	3	5
Dr. Bandana Chakrabarty	3	5	5
Prof Tapan Jyoti Sarma	3	3	3
Dr. Kabita Chakrabarty	3	5	5
Dr. Ashim Kumar Basumatary	3	5	5
Dr. Ujwala Hujuri	3	-	5
Mr. Chiranjib Das	3	-	-
Ms Dolly Talukdar	3	-	-
Mr. Rabindra Kangsha Banik	3	-	-
Nivedita Shrotri	3	-	-
Dr Sanjay Jadav	-	-	3
Sum	33	24	34
RF = Number of Faculty required to comply with 15:1 Student-Faculty	13	13	13
Assessment=3×(Sum/0.5RF)	15.2	11.1	15.7
Average Assessment over three years (Marks limited to 15) = 14			

Table B.5.6

Research and Development (30)

Academic Research (10)

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

- No. of quality publications in refereed/SCI journals, citations, Books/Book Chapters, etc. (6)
- Ph.D. guided/Ph.D. awarded during the assessment period while working in the institute (4)

Research Paper Publications

Academic Year:2017-18					
Sr No.	Faculty Name	Title of the paper	Name of the Journal / Conference	Volume /Issue	Year of Publication
1.	Dr Bandana Chakrabarty	Separation of oil from oily waste water using low cost ceramic membrane	Korean J. Chem. Engineering	34 (10)	2017
Academic Year: 2016-17					
1.	Dr Bandana Chakrabarty	Preparation and Characterization of novel ceramic membranes for micro-filtration applications	Ceramics Internationals	42	2016
2.	Dr Ashim Kumar Basumatary	Performance assessment of MCM-48 ceramic composite membrane by separation of AlCl ₃ from aqueous solution	Ecotoxicology and Environmental Safety	134	2016
3.	Dr Ashim Kumar Basumatary	Fabrication and performance evaluation of Faujasite (FAU) zeolite composite ultrafiltration membrane by separation of trivalent ions from aqueous solution	Environmental Progress & Sustainable Energy	35	2016
4.	Dr Ashim Kumar Basumatary	Cross flow Ultrafiltration of Cr (VI) using MCM-41, MCM-48 and Faujasite (FAU) zeolite ceramic composite membranes	Chemosphere	153	
5.	Dr Ashim Kumar Basumatary	Removal of FeCl ₃ from aqueous solution by ultrafiltration using mesoporous MCM-48 ceramic composite membrane	Separation Science and Technology	51	

6.	Dr Ashim Kumar Basumatary	Removal of trivalent metal ions from aqueous solution via cross flow ultrafiltration system using zeolite membranes	Journal of Water Reuse Desalination	6	
7.	Dr Ashim Kumar Basumatary	Iron(III) removal from aqueous solution using MCM-41 ceramic composite membrane	Membrane Water Treatment	7(6)	

Academic Year: 2015-16

1.	Dr Ashim Kumar Basumatary	Synthesis and characterization of MCM-41-ceramic composite membrane for the separation of chromic acid from aqueous solution	Journal of Membrane Science	475	2015
2.	Dr Ashim Kumar Basumatary	Performance assessment of analcime-C zeolite-ceramic composite membrane by separation of Cr (VI) from aqueous solution	RSC Advances	5	2015
3.	Dr Ashim Kumar Basumatary	Development and characterization of mcm-48 ceramic composite membrane for the removal of Cr (VI) from aqueous solution	ASCE Journal of Environmental Engineering	11	2015

Table 5.7.1.A

Ph.D Awarded

Sr. No.	Faculty name	Year of Award	University/ Institute	Area of Research
1.	Dr Ashim Kumar Basumatary	2015	IIT, Guwahati	Fabrication, Characterization of Zeolite Ceramic Composite Membranes and Their Application in separation of Metal Ions from Aqueous Solution

Table 5.7.1.B**Ph.D Guidance**

Sr. No.	Faculty name	Name of Student	University	Topic of Research	Registration No.	Status
1.	Dr Bandana Chakrabarty	Mr Bipul Das	Gauhati University	Ceramic membrane – Its Synthesis, Characterization and Application in Industrial Waste water treatment	ENGG-01/13	Thesis Writing
2.	Dr Bandana Chakrabarty	Mr Hemanta jeet Medhi	Gauhati University	Investigation of various prospects of Gasifier generated Biomass Tar for utilizing as Activated Carbon and CNT	ENGG-02/13	Ongoing
3.	Dr Bandana Chakrabarty	Ms Dolly Talukdar	Gauhati University	Performance Characteristics of Vegetable oil based Epoxy Nano Composite using different Nano materials	ENGG-01/14	Ongoing

Table 5.7.1.C**Sponsored Research (5)***Funded research:**(Provide a list with Project Title, Funding Agency, Amount and Duration)*

Sl No	Project Title	Funding Agency	Amount (in Rupees)	Duration	Year of sanction
1	Fabrication of Tubular Ceramic membrane	NEQIP	10.65 L	1 year	2017
2	Solid waste management in AEC	ASTEC	10,000	1 year	2017-18

Table 5.7.1.D

Development Activities (10)

Product Development

Sr. No	Name of faculty	Name of Product	Year	Product details
1	Tapan Jyoti Sarma	Distillation Column	2017	<p>A lab distillation set-up was developed. The set-up consists of the following components.</p> <ul style="list-style-type: none"> a) Round bottom flask: capacity=1000ml, two necks, category NO.197/7 b) Fractionating column: category No.281/2, length=400 mm, Socket-B24, Cone-B24 c) Davies condenser: Category No-183, effective length-300mm d) Heating mantle: Capacity=1000ml e) Thermometer: 0-300°C f) Cone fitting : Cone fitting flask-B24, Cone fitting condenser-B19 g) Insulating material: Asbestos wool.
2	Rabindra Kangsha Banik	Solar water heater	2016	<p>Solar water heating system is the conversion of sunlight into useful heat. A parabolic trough solar thermal collector has been developed for water heating.</p> <p>The solar water heating system has two parts;</p> <ul style="list-style-type: none"> a) Solar collector (5ft*2.5ft). Thickness of collector plate (Al Sheet) = 1 mm. b) Supporting stand (5.2ft*2.1ft*2ft), Thickness of the MS bar = 5 mm. <p>Absorber tubes consist of copper pipes (OD = 6mm).</p>
3	Runjun Das	Solar dryer	2015	<p>Solar drying system is the utilization of direct or indirect solar energy as an alternative method for drying. Drying of food items (e.g. betelnut, chilli, ginger) have been performed.</p> <p>The direct solar dryer has these components:</p> <ul style="list-style-type: none"> Drying chamber (52.5cm*36.5cm*30cm) Height of stand = 6 cm, Insulation thickness = 2 cm Cover plate (50.5cm*35.5cm), glass thickness = 3mm Absorber Plate (GI Sheet) coated in black Sieve Tray (10BSS SS) = 48.5cm*33.9cm Reflector (Al Sheet): 4 numbers (Top & Bottom = 52.8cm*50.5cm; Right & Left = 55cm*38cm)

Research laboratories

Final Year Students and Research Scholars do their Project work/Research work in various areas by using following facilities. Equipment and analytical instruments are available in various laboratories for project works. Following facilities are available in the department.

SL No	Major Equipments for project works and its analysis
1	UV –Spectro photometer
2	Atomic Absorption Spectroscopy
3	Sonicator Bath
4	Water analysis kit
5	Step wise microprocessorMuffle Furnace
6	Ceramic Extruder Machine
7	Gas Chromatograph
8	Blow Moulding Machine
9	Injection Moulding Machine

To support research, some regular tools like PH meter, Magnetic Stirrer, Conductivity meter, Electronic Balance, Hot Air Oven, etc are available in the Department.

Instructional Materials

1. Laboratory Manuals
2. Operating manuals for instruments
3. Power point presentation & Class notes
4. Handouts
5. Laboratory Safety Instructions
6. Instructional Sheets for Chemical Plants
7. Display of Plant Layout, Process Equipments, etc.

Working models/charts/monograms, etc.

Charts are displayed in laboratories:

Laboratory	Chart
Mass Transfer Operation	Distillation Column, Packed Bed Column

Heat Transfer Operation	Heat Exchangers
Chemical Reaction Engg	Reactors
Petroleum Refinery and Production	CDU, VDU
Mechanical Operation	Crushers
Fluid Flow Operation	Pumps, Flowmeters
Process Dynamics and Control	Control valve, PID Controller

Activities and external duties performed

Sl No	Faculty Name	Faculty Development Program (FDP)/ Workshop/ Conference Conducted	Responsibilities beyond Institute
1	Dr. Ashim Kumar Basumatary	FDP, Workshop, Conference	Paper Setter for Assam Public Service Commission (APSC) & Meghalaya Public Service Commission Paper examiner for APSC Expert for selection of Lecturer in Polytechnics under Director of Technical Education (DTE)
2	Tapan Jyoti Sarma	FDP	Committee member of DTE, Govt. of Assam, for proposed Engineering College at Golaghat. Paper Setter for Assam Public Service Commission (APSC) & Arunachal Pradesh Public Service Commission (APPSC) Paper examiner for APSC
3	Ms. Runjun Das	FDP, Workshop	Moderator Assam Public Service Commission (APSC) Paper Examiner of APSC Centre-in-charge of CEE conducted by DTE Paper setter for LJEE
4	Dr. Bandana Chakrabarty		Paper Setter for Assam Public Service Commission (APSC) Paper Setter of GET for Numaligarh Refinery Limited Paper examiner for APSC Expert for selection of Lecturer in Polytechnics under Director of Technical Education (DTE)
5	Dr. Kabita Chakrabarty		Paper Setter for Assam Public Service Commission (APSC) Paper Setter for Arunachal Pradesh Public Service Commission (APPSC) Paper Setter of JE for Numaligarh Refinery Limited

			Moderator APSC Expert for Assistant Professor recruitment under TEQIP-III
6	Ashok Baruah	FDP, Workshop	Paper Setter for Assam Public Service Commission (APSC) Paper Setter of GET for Numaligarh Refinery Limited AICTE Expert Visit Committee (EVC) Expert for Assistant Professor recruitment under TEQIP-III

Consultancy (From Industry) (5)

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

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

An effective performance appraisal system for Faculty is vital for optimizing the contribution of individual faculty to Institutional Performance.

(A) Being a Government Institution, there exists a system of taking Faculty Appraisal every year in the form Annual Confidential Reports (ACRs) from all faculties by the Head of the Institution (Principal) which are subsequently forwarded to the Dept. of Higher Education, Govt of Assam. The format is attached in Table 5.8A

Table 5.8A**ANNUAL CONFIDENTIAL REPORTS**

(For ACS & all other Technical/ Non-Technical Class I to III Officers of the State)

[See Rule 4(2) of the Assam Services (Confidential Rolls) Rules, 1990]

Report for the period from: _____

Part-I		<u>PERSONAL DATA</u>	
		(To be filled up the Office)	
1.	Name of the Officer/Employee	:	
2.	Name of the Service to which belongs	:	
3.	Date of Birth	:	
4.	Present Designation	:	
5.	Period absence from duty on leave, Training etc. during the period	:	
6.	Description of work on which engaged during the period	:	
7.	Any special knowledge/ experience/ training/ which facilitate to discharge the allotted work of the officer/ employee	:	

Part-II		ASSESSMENT BY THE REPORTING AUTHORITY	
1.	Name(s) and Designation of the Reporting Authority	:	
2.	Period of Service to the incumbent under the Reporting Authority	:	
3.	State of Health	:	
4.	What is your opinion about his/ her	:	
(a)	Aptitude, initiative, drive and efficiency for	:	
	(i) Arrangement for work	:	
	(ii) Execution for work	:	

	(b)	Intelligence	:	
	(c)	Attendance / Conduct and amenability to Discipline	:	
	(d)	Character, with particular references to Reliability and integrity.	:	
	(e)	Knowledge of laws/ rules and relevant Office procedure	:	
	(f)	Capacity of supervision, inspection and to create team spirit (where applicable)	:	
	(g)	Spirit service for and relationship with public /subordinate staff and superior officers	:	
	(h)	Physical stamina and aptitude for hard touring (where applicable)	:	
	(i)	General remarks, if any	:	
	(j)	What is your opinion about his/her fitness or otherwise for advancement for next higher rank?	:	

(FOR TECHNICAL OFFICERS ONLY)			
	(k)	Professional ability	(i) Preparation of estimates and projects
	(l)	Promptness and correctness	(i) Design
			(ii) Accounts
			(iii) Control of expenditure

Date:

Recording Authority

Part-III		OPINION OF THE REVIEWING AUTHORITY	
1.	Name and designation of the Reviewing Authority		
2.	Period of service the incumbent under the Reviewing Authority		
3.	General opinion of the Reviewing Authority		
4.	Graded		
Date			Reviewing Authority
Part-IV		REMARKS OF THE ACCEPTING AUTHORITY	
.....			
.....			
.....			
.....			
.....			
		<i>Name and Designation of the Accepting Authority</i>	

(B) The Faculty Performance on department basis is evaluated by the HOD for every Academic Year based on the list of attributes given in the **Appraisal Form** shown below:

Table 5.8.B

Faculty Appraisal Form		
		
Rating: 5 - Outstanding. 4 – Very Good. 3 – Good. 2 – Fair. 1 – Poor		
Sl No.	Attributes	Rating
1	Helping Student in Academic and Co-curricular activities	
2	Involvement in departmental activities.	
3	Involvement in Institutional activities	
4	Sense of responsibility	
5	Loyalty towards Department and Institution	
6	Leadership qualities	
7	Responsibility towards society	
9	Relationship with other faculties and staff	
10	Keeping abreast with latest technological	
TOTAL MARKS SECURED		
MAXIMUM MARKS		50
% VALUE		
Comments by the HOD of the Department:		

(C) Student feedback is also considered for faculty appraisal. A sample format is given in **Table 5.8.C**

	Department of Chemical Engineering Assam Engineering College Jalukbari, Guwahati 781013 Assam, India					
Semester _____		Session _____				
**Please <u>fill in the points</u> (rating from 1 to 5) as per your opinion for the subjects below.						
Sl No.	Questionnaire	Subject Name				
		Teachers Name	1-5	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]					

*Rating Points (1= Poor, 2 = Average, 3 = Good, 4 = Very Good, 5 = Excellent)

Table 5.8.C

Visiting/Adjunct/Emeritus Faculty etc. (10)

CRITERION 6	Facilities and Technical Support	80
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6. Facilities and Technical Support (80)

Adequate and well equipped laboratories and technical manpower (30)

Sl. No .	Name of the Laboratory	No. of students per setup (batch size)	Name of the Important equipment	Weekly utilization status (all the courses for which the lab is utilized)	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1.	Computer Programming (Introduction to computer, C++)	1 student per computer 2 batch (batch size 33)	i3 computer with power back up, internet facility in all computers, laser printer. <i>Make : HP</i>	2 class per week (1.30 – 4.20 pm)	1. Mr. Manash Saikia 2. Mr. Prosenjit Saha	Supervising Instructor Guest Faculty	D. C. A. B. E. in Computer Science
2	CHEMCAD (25 Licenses)		i3 computers (no. 5); i5 server (no. 1)	This software is used by 7th, 8th semester students for their project work of process simulation & demonstration	1. Rabindra K Banik 2. Chiranjib Das 3. Dolly Talukdar	Guest Faculty	M Tech in Chemical Engineering
2.	3 rd Semester: Chemical Engineering	1 student per drawing	Drawing tables, capacity = 80	3 hours per week	1. Mr. Tilak Chandra	Senior Instructor	B. E. (Chemical)

	Drawing	board (batch size 66)	black board,		Talukdar 2. Mr. Anwar Hussain 3. Mrs. Hiranmaya yee Barman	Instrument & Mechanics Junior Instructor (Guest)	Diploma (Mechanical) Diploma (Chemical)
3.	3 rd Semester: Chemical Process Industries	4 students per expt. 2 Batches (33 student per batch)	Hot air oven, muffle furnace, Bunsen burner, LPG gas line and glassware •Cement analysis •Iodine value of vegetable oil •Acid value of vegetable oil •Saponificatio n value of vegetable oil •Moisture content of soap	2 classes per week (1.30 – 4.20 pm)	1. Mr. Mohan Lal Das 2. Mrs. Hiranmaya yee Barman	Junior Instructor Junior Instructor (Guest)	Diploma (Chemical) Diploma (Chemical)
4.	4 th Semester: Fluid Flow Operation	5 students per experime nt 2 Batch (33 student per batch)	•Bernoullis Theorem apparatus •Centrifugal Pump Test Rig •Flow measuring	2 classes per week (1.30 – 4.20 pm)	1.Mr. Tilak Chandra Talukdar 2. Mr. Mohan Lal Das	Senior Instructor Junior Instructor	B. E. (Chemical) Diploma (Chemical)

			<p>devices</p> <ul style="list-style-type: none"> • Venturi meter • Orifice meter • Rotameter • Cavitation apparatus <p><i>Make: K.C. Engineers</i></p>		3. Mr. Mrigen Patgiri	Junior Instructor	ITI (Plumbing)
5.	4 th Semester: Energy Engineering	5 per expt. 2 Batch (33 student per batch)	<ul style="list-style-type: none"> • Flash point by Abel apparatus • Flash point by Pensky Marten apparatus • Flash & Fire point by Cleveland apparatus • Viscosity by Redwood Viscometer-I • Viscosity by Redwood Viscometer-II 	2 classes per week (1.30 – 4.20 pm)	1. Mr. Tilak Chandra Talukdar 2. Mrs. Hiranma yee Barman	Senior Instructor Junior Instructor (Guest)	B. E. (Chemical) Diploma (Chemical)
6.	5 th Semester: Mechanical Operation	5 per expt. 2 Batch (33 student per batch)	<ul style="list-style-type: none"> • Screen analysis in vibrating sieve, • Hammer mill • Ball mill • Sedimentation • Cyclone separator • Demonstration of 	2 classes per week (1.30 – 4.20 pm)	1. Mr. Tilak Chandra Talukdar 2. Mrs. Hiranma yee Barman	Senior Instructor Junior Instructor (Guest)	B. E. (Chemical) Diploma (Chemical)

			<ul style="list-style-type: none"> • Jaw crusher • Roll crusher • Study expt on • Plate and frame filter press <i>Make: K.C. Engineers</i> 				
7.	5 th Semester: Chemical Reaction Engineering	5 students per expt 2 Batch (33 student per batch)	<ul style="list-style-type: none"> • Continuous Stirred tank reactor • Plug flow reactor • Combine flow reactor • Cascade flow reactor <i>Make: K.C.Engineers</i> 	2 classes per week (1.30 – 4.20 pm)	1. Mr. Mohan Lal Das 2. Mr. Tilak Chandra Talukdar	Junior Instructor Senior Instructor	Diploma (Chemical) B. E. (Chemical)
8.	5 th Semester: Process Instrumentatio n	5 students per expt 2 Batch (33 student per batch)	<ul style="list-style-type: none"> • Time constant of a first order control system • Response of second order control system • Demonstration of AAS, GC, UV Spectrophotometer. 	1 class per week (1.30 – 4.20 pm)	1.Mr. Mohan Lal Das 2. Mr. Tilak Chandra Talukdar	Junior Instructor Senior Instructor	Diploma (Chemical) B. E. (Chemical)
9.	5 th Semester: Chemical Engineering Thermodynam ics.	5 students per setup 2 Batch (33 student per	<ul style="list-style-type: none"> • Study expt. On Bomb calorimeter • Separating & throttling calorimeter 	2 classes per week (1.30 – 4.20 pm)	1.Mr. Mohan Lal Das 2. Mr. Tilak Chandra	Junior Instructor Senior Instructor	Diploma (Chemical) B. E. (Chemical)

		batch)	•Thermal efficiency •Determination of specific heat of water		Talukdar		
10.	6 th Semester: Petroleum Refining and Petrochemicals	5 students per setup 2 Batch (33 student per batch)	•Smoke point lamp •Aniline point & Diesel index apparatus •Softening point apparatus •Penetration index apparatus	2 classes per week (1.30 – 4.20 pm)	1.Mr. Tilak Chandra Talukdar 2. Mrs. Hiranmaya Barman	Senior Instructor Junior Instructor (Guest)	B. E. (Chemical) Diploma (Chemical)
11.	6 th Semester: Mass Transfer Operation	4 students per setup 2 Batch (33 student per batch)	•Crystallization •Steam Distillation •Solvent Extraction •Ternary liquid equilibria •Differential Distillation •Study expt on - Bubble cap column •Packed bed column •York-Schiebel LLE, •Absorption in packed column. <i>Make: K.C. Engineers</i>	2 classes per week (1.30 – 4.20 pm)	1. Mrs. Hiranmaya Barman 2. Mr. Tilak Chandra Talukdar	Junior Instructor (Guest) Senior Instructor	Diploma (Chemical) B. E. (Chemical)
12.	6 th Semester: Process Dynamic Control Lab	5 students per setup 2 Batch (33	•Interacting & Non Interacting system	2 classes per week (1.30 – 4.20 pm)	1.Mr. Mohan Lal Das	Junior Instructor	Diploma (Chemical)

		student per batch)	<ul style="list-style-type: none"> • Pressure control trainer • Flow trainer • Characteristic of control valve • Demonstration of • PID controller <p><i>Make: K.C. Engineers</i></p>		2. Mr. Tilak Chandra Talukdar	Senior Instructor	B. E. (Chemical)
13.	6 th Semester: Heat Transfer Operation	5 students per setup 2 Batch (33 student per batch)	<ul style="list-style-type: none"> • Pin fin apparatus • Thermal conductivity of metal rod • Drop-wise and Film-wise condensation • Shell & Tube Heat Exchanger • Double-pipe Heat exchanger • Vertical & Horizontal Condenser <p><i>Make: K.C. Engineers</i></p>	2 class per week (1.30 – 4.20 pm)	1. Mr. Mohan Lal Das 2. Mr. Mrigen Patgiri	Junior Instructor Junior Instructor	Diploma (Chemical) ITI (Plumbing)

Technical Manpower Support in the Department

Sl. No.	Name	Qualification	Designation	Experience (in years)	Additional exposure
1.	Mr. Tilak Chandra Talukdar	B.E.	Senior Instructor	29	3 days laboratory training at
2.	Mr. Mohan Lal Das	Diploma	Junior Instructor	27	

3.	Mr. Manash Saikia	D. C. A.	Supervising Instructor	23	Chemical Engineering Department of IIT, Guwahati
4.	Mr. Anwar Hussain	Diploma	Instrument Mechanic	27	
5.	Mr. Mrigen Patgiri	ITI	Junior Instructor	9	
6.	Mrs. Hiranmayee Barman	Diploma	Junior Instructor (Guest)	7	
7.	Mr. Prosenjit Saha	B. E.	Guest faculty	3	
8.	Mr. Biswajit Deb	Class VIII	Lab Bearer	35	
9.	Mr. Jamir Ali	Class VIII	Lab Bearer	23	
10.	Mr. Dinesh Sarma	HSLC	Lab Bearer	23	

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

Sl. No.	Facility Name	Details	Reasons for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
1.	Seminar Hall (Capacity 100)	Equipped with computer, projector, white board, AC, Audio system, internet facility, wifi.	Proper understanding of theoretical and practical concepts in various laboratories. Students can also learn online Web course and Video lectures for laboratory experiments.	2 hours for each laboratory	Seminars on various topics related to laboratories and on the current trend technologies for all students together.	PO: 1,2, 4, 5, 10 PSO: 1, 2

2.	Common internet facility, Speed 1GB By NIC	Wifi connection in the classroom campus for academic purpose.	For students, faculty and staff to access easily.	To access the latest development in science and technology	Apart from curriculum, additional knowledge gain and better understanding about practical.	PO: 1, 2, 3, 4, 5, 10 PSO: 1, 2
3.	Distillation Column	Round bottom flask (1 lit) condenser, fractionating column and heating mantle	To be used as an experiment in MTO Lab for crude oil	6 th semester MTO Lab	Will gain practical knowledge in different cuts of crude oil	PO:1, 2, 4,10 PSO: 1,2
4.	Library	Departmental library comprising of books/ old journals/Chemical Engineering Code books/Research publications/Thesis/Project Reports	For faculty, staff and students. The students will be able to know the content of each lab properly.	For all semester open to utilize	Faculty, students and staff can refer more text books which enhance the understanding capacity.	PO: 1, 2, 3, 4, 10, 11 PSO: 1. 2

Note: Chemical Engineering students are taken to IIT Guwahati for giving exposure to sophisticated instruments and their laboratory facilities.

Laboratories: Maintenance and overall ambiance (10)

1. Laboratory rooms are well ventilated.
2. Lighting system is proper, along with the natural light in every corner of the rooms.
3. Generator (Kirloskar, DG Genset, 30KVA) back up is given to all laboratories.
4. Technical services from other departments' e.g Mechanical, Electrical, Computer Science Engg Department are also available.
5. Each Lab is equipped with writing board, wifi / internet connectivity and other related amenities.
6. Sophisticated instruments such as Atomic Adsorption Spectroscope, Gas chromatograph, UV spectrophotometer, extruder machine for making tubular ceramic membrane and

laboratory facilities, High end Muffle furnace are available for all faculties and students to carry research work as well as project works.

7. Fire extinguishers and first Aid box are available in laboratory.
8. Periodical maintenance is carried out for all the major instruments /equipments for proper functioning [spare parts are also available].
9. AMC/experienced service engineers are called for maintenance of the sophisticated instruments.
10. Sufficient space is available for conducting laboratory classes smoothly for students.
11. Laboratory staff is sent periodically to IIT, Guwahati for updating good laboratory practices.

Project laboratory (5)

Various equipments in the laboratories are used by students of the departments for completion of their projects.

Sl No.	Name of the facilities	Utilization
1.	Chemcad license software (25 user license) Year of Purchase : 2016 Make : Chemcad	This software is used by 7 th , 8 th semester students for their project work of process simulation & demonstration
2.	High purity Millipore water system Year of Purchase : 2015 Make : Merck Millipore	This equipment meets the requirement of high quality water for analysis in laboratory
3.	Atomic Adsorption Spectroscope Make : Thermo Fisher Year of Purchase : 2011	To determine concentration of chemical elements in ppm and ppb level and is used by 7 th semester students for their project works and AICTE sponsored project.
4.	Gas Chromatograph Make : Thermo Fisher Year of Purchase : 2011	Demonstration and project work
5.	Ceramic Extruder machine Make : V.B.Ceramic, Year of Purchase : 2017	7 th semester students get exposure for fabrication of tubular ceramic membrane and are also used for project works and research activities by faculty members.
6.	UV Spectrophotometer	For measurement of unknown concentration and is

	Make : Systronics	used for 7 th semester project works, research scholar and faculty members.
7.	Portable water analysis kits Make : Systronics and VSI Electronics Year of Purchase : 2009 & 2017	This portable analyser is used by 7 th semester students, laboratories staff for water quality measurement in around AEC campus.
8.	Digital conductivity meter Make : EUTECH Year of Purchase : 2017	Used in project works and other related analysis purpose
9.	Injection and blow moulding machine for demonstration and project works. Make : Dave technical Service Year of Purchase : 2015	Used in project works and also demonstrations are given for making PET bottle and other consumer items using different moulds.
10.	High precision step wise micro processor muffle furnace Make : Lab Tech, Year of Purchase : 2017	Used in project works for making ceramic membrane and other high temperature applications.
11.	Sonicator Make :PCI Analytics Year of Purchase : 2016	Used in project work
12.	Mass Transfer Operation Laboratory	Used in project work. Details of the utilities under this lab have been described under Sl. No. 6.1
13.	Mechanical Operation Laboratory	Used in project work. Details of the utilities under this lab have been described under Sl. No. 6.1
14.	Energy Engineering Laboratory	Used in project work. Details of the utilities under this lab have been described under Sl. No. 6.1.
15.	Chemical Process Industries	Used in project work. Details of the utilities under this lab have been described under Sl. No. 6.1.

Safety measures in laboratories (10)

Sl. No.	Name of the laboratory	Safety measures
1.	Chemical Process Industries	<ul style="list-style-type: none"> General Rules of conduct which need to be maintained in laboratories are displayed in the wall. Symbols of prohibition in Chemical laboratory are displayed on the wall. Safety Rules for students are announced before the start of the experiment. First aid box, fire extinguisher & hand gloves are kept in each laboratory. Students are advised to wear goggles to protect against any fume generated in the experiment. The technical supporting staffs, laboratory bearers are well trained. Periodical servicing of the laboratory equipment are carried out. Maintain a clean and hygienic laboratory. Uses of cell phones are prohibited inside the laboratory. Appropriate storage almirah for keeping chemicals and reagents used in the laboratory. Exhaust fans are maintained properly. The students are always asked and advised to enter the laboratory with shoes, hand gloves and apron. All hazardous/toxic chemicals are labeled properly and kept separately from other chemicals. Proper electrification is made with proper earthing to avoid in case of malfunction/short circuit of the equipment etc.
2.	Energy Engineering Laboratory	<ul style="list-style-type: none"> General Rules of Conduct which need to be maintained in laboratories are displayed in the wall Symbols of prohibition in Chemical laboratory are displayed on the wall. Safety Rules and measures for these experiments to students are announced before the start of the experiments. First aid box, fire extinguisher & hand gloves are kept in the laboratory. Technical staff and laboratory bearers are well trained. Checking of gas pipe line/regulator before the start of the experiment and servicing of the lab equipment are carried out. Maintain a clean and hygienic laboratory. Uses of cell phones are prohibited inside the laboratory. Appropriate storage almirah for keeping chemicals and reagents used in the laboratory Exhaust fans are maintained properly. The students are advised not to wear loose dress and to enter the lab room with shoes and hand gloves. Proper electrification with earthing to avoid mal function/short circuit of the equipment etc.
3.	Fluid Flow Operation	<ul style="list-style-type: none"> General Rules of Conduct which need to be maintained in laboratories are displayed in the wall Safety Rules and measures for these experiments to students are

		<p>announced before the start of the experiments.</p> <ul style="list-style-type: none"> First aid box, fire extinguisher & hand gloves are kept in the laboratory. Technical staff and laboratory bearers are well trained. Checking of water flow line in the equipments is carried out before the start of the experiment. Maintain a clean and hygienic laboratory. Uses of cell phones are prohibited inside the laboratory. Tool boxes are stored separately in racks. Loose clothes are not allowed for safety concern inside laboratory. Exhaust fans are maintained properly. Proper electrification with earthing to avoid mal function/short circuit of the equipment etc.
4.	Chemical Reaction Engineering	<ul style="list-style-type: none"> General Rules of Conduct which need to be maintained in laboratories are displayed in the wall. Symbols of prohibition in Chemical laboratory are displayed on the wall. Safety Rules and measures for these experiments to students are announced before the start of the experiments. First aid box, fire extinguisher & hand gloves are kept in each laboratory. Technical staff and laboratory bearers are well trained. Maintain a clean and hygienic laboratory. Uses of cell phones are prohibited inside the laboratory. Appropriate storage almirah for keeping chemicals and reagents used in the laboratory Exhaust fans are maintained properly. The students are advised not to wear loose dress and to enter the lab room with shoes and hand gloves. All hazardous/toxic chemicals are kept separately from other conventional chemicals. Proper electrification with earthing to avoid mal function/short circuit of the equipment etc.
5.	Mechanical Operation	<ul style="list-style-type: none"> General Rules of Conduct which need to be maintained in laboratories are displayed in the wall. Safety Rules and measures for these experiments to students are announced before the start of the experiments. First aid box, fire extinguisher & hand gloves are kept in each laboratory. Technical staff and laboratory bearers are well trained. Checking of water flow line in the equipments is carried out before the start of the experiment. Maintain a clean and hygienic laboratory. Uses of cell phones are prohibited inside the laboratory. Appropriate storage almirah for keeping tool box used in the laboratory Exhaust fans are maintained properly. Proper electrification with earthing to avoid mal function/short circuit of the equipment etc.
7.	Mass Transfer	<ul style="list-style-type: none"> General Rules of Conduct which need to be maintained in laboratories are displayed in the wall.

	Operation	<ul style="list-style-type: none"> • Safety Rules and measures for these experiments to students are announced before the start of the experiments. • First aid box, fire extinguisher & hand gloves are kept in each laboratory. • Technical staff and laboratory bearers are well trained. • Checking of water flow line in the equipments is carried out before the start of the experiment. • Maintain a clean and hygienic laboratory. • Uses of cell phones are prohibited inside the laboratory. • Appropriate storage almirah for keeping tool box used in the laboratory • Exhaust fans are maintained properly. • Proper electrification with earthing to avoid mal function/short circuit of the equipment etc.
8.	Petroleum Refining and Petrochemicals	<ul style="list-style-type: none"> • General Rules of Conduct which need to be maintained in laboratories are displayed in the wall. • Symbols for prohibited in Chemical laboratory is displayed in the wall. • Safety Rules and measures for these experiments to students are announced before the start of the experiments. • First aid box, fire extinguisher & hand gloves are kept in each laboratory. • Highly inflammable materials are not allowed to carry in lab. • Technical staff and laboratory bearers are well trained. • Checking of gas pipe line before the start of the experiment and servicing of the lab equipment are carried out. • Maintain a clean and hygienic laboratory. • Uses of cell phones are prohibited inside the laboratory. • Appropriate storage almirah for keeping chemicals and reagents used in the laboratory. • Exhaust fans are maintained properly. • The students are advised not to wear loose dress and to enter the lab room with shoes and hand gloves. • Proper electrification with earthing to avoid mal function/short circuit of the equipment etc.

Some of logos/ symbols displayed in the laboratories are shown below:

		Harmful substances.
		Substances that can irritate eyes and skin
		Taking food item inside the laboratory is prohibited
		To protect skin and clothing from damage
		Inflammable substances
		First Aid box

SAFETY RULES OF CHEMICAL LABORATORY

1. Know the hazards of the chemicals which you are going to use, and consult instructor how to deal with them.
2. Identify the location of safety equipment (first aid/fire extinguisher) and emergency procedures.
3. Label all chemicals, solutions, wastes, and dispose of all chemicals properly.
4. Wear proper lab coat/apron, shoes, gloves, and safety glasses when handling hazardous chemicals.
5. Do not leave reactions unattended.
6. Use a fume hood when work with volatiles and hazardous chemicals.
7. Do not work with hazardous chemicals at night, or weekends especially when you are alone in the laboratory.
8. Maintain clear access to exits, showers, and eyewashes. Be aware of all emergency procedures including building evacuation plans.
9. Keep the laboratory and work area clean and uncluttered. Store the flammable substance in safety separately.
10. Wash promptly when a chemical has contacted skin.
11. While at the lab bench, do not eat, drink, chew gum, apply cosmetics, or pipette by mouth.
12. Prohibit unauthorized individuals from entering inside the laboratory.

CRITERION 7	Continuous Improvement	50
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7. Continuous Improvement

Actions taken based on the results of evaluation of each of the POs &

PSOs (20) POs Attainment Levels and Actions for improvement – CAY

(2013-17)

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	2.45	1.89	<p>Attainment is low; The reasons are:</p> <ul style="list-style-type: none"> • Performance of students was poor in end semester examination • Students seem to find difficulty in core subjects like FOCE, PC, HTO, CRE which need thorough concepts of mathematics and science • Students may find it difficult to correlate the theoretical concepts of Maths and Science with applications
Extra efforts need to be carried out to make students practise more in these subjects by arranging extra classes.			
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	2.08	1.56	<p>Attainment is low;</p> <ul style="list-style-type: none"> • The problem solving and analyzing skills are not up to the mark. • Students seem to find it difficult to analyze & solve problems in certain subjects where sound knowledge on Mathematics is essential. • Mistakes on the part of the students in identifying problems leads to low attainment.

More efforts should have been taken by the students to derive formulae and solve problems.

<p>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.</p>			
PO3	1.75	1.37	Attainment is low; Performance of students was not up to the mark in University exam. In the project works assigned to the students, these issues are focussed to a very limited extent.
<p>More design and drawing practices to be done in the class. Students will be motivated to include all standard parameters and constraints according to National and International safety norms and to address environmental concerns in their projects.</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	1.60	1.38	Attainment is slightly lower; Students were found to be weak in analysis and interpretation of data to design a reactor.
<p>More assignments and tests to be designed.</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	1.41	1.21	Attainment is low; Students' knowledge on use of modern IT tools for solving problems is poor.
<p>It was decided to hold more numbers of workshops on use of softwares like MATLAB and procure new softwares. Students will be motivated to use modern equipments like GC, AAS, UV Spectrometer, etc. for project works.</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	1.26	1.12	Attainment is satisfactory;
<p>More number of Projects will be given to the students which are related to society so that they become more aware to all issues related to society.</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	1.38	1.17	<p>Attainment is low;</p> <p>Students perform well as they were prepared to give PPT presentation on different topics.</p> <p>Group discussions under the guidance of the experts also help them to realize this.</p>
<p>Same approach will be implemented for the next batch of students.</p>			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			
PO8	1.08	1.05	<p>Attainment is quite satisfactory;</p> <p>Target level needs to be raised for the following batch of students</p>
<p>Lectures on ethics and commitment towards responsibilities need to be conducted.</p>			
<p>PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>			

PO9	1.71	1.58	Attainment is slightly lower; Students performed well because Projects were given to them and they were evaluated as a group. PPTs were prepared by the students in groups.
Similar practice is to be continued. Students will be motivated to share and discuss problems assigned to them.			
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	1.36	1.28	Attainment is satisfactory ; Students perform well as seminar presentation/group discussions are conducted with the help of experts recommended by the Training & Placement Cell to enhance students' overall aptitude, presentation & communication capability.
Similar activities will be continued.			
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	0.96	0.91	Attainment is satisfactory
Target level needs to be raised for the next batch. Awareness can be created among the students regarding managing projects by undertaking projects of low budget.			
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	1.53	1.28	Attainment is low; Students are observed to lag behind to cope up with

			technological changes in various fields.
			<p>Students would be encouraged to correlate their theoretical knowledge with real life applications through conduction of seminars and workshops.</p> <p>Lectures need to be conducted which include new technological developmental tools and knowledge of new Products.</p>

PSOs Attainment Levels and Actions for improvement – CAY (2013-17)

PSOs	Target level	Attainment level	Observations
PSO 1: With the technical skills acquired, the graduates will be able to apply them in industrial practices e.g. in effective separation and purification in petroleum refineries and petrochemical industries, unit operations and processes in various chemical and allied industries and would be ready for any challenges in chemical engineering and technology work field and research			
PSO1	1.49	1.32	<p>Attainment is low;</p> <p>Students were not being able to correlate theoretical knowledge to the Chemical Engg work field</p>
More numbers of industrial exposure to students have to be made.			
PSO2: Graduates will be able to participate in critical thinking and problem solving related to chemical engineering that requires analytical and design competences in different industries.			
PSO2	1.33	1.12	<p>Attainment is poor;</p> <p>Students are lagging behind in analytical and design competency.</p>
Students would be advised for more practice of numerical.			
PSO3: Graduates will be equipped to pursue entrepreneurial activities to face the			

challenging and emerging needs of our society.			
PSO3	1.00	1.08	<p>Attainment is good;</p> <p>Scope needs to be created in the curriculum to make the students ready for carrying out the entrepreneurial activities so that target level can be raised.</p>
Short term training/mentoring sessions should be conducted; business plan competition can be held in association with college entrepreneurship cell. Regular lectures may be conducted by inviting successful entrepreneurs.			

TableB.7.1

POs Attainment Levels and Actions for improvement – CAY (2012-16)

POs	Target level	Attainment level	Observations
<p>PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.</p>			
PO1	2.45	1.88	<p>Attainment is low; The reasons are:</p> <ul style="list-style-type: none"> • Performance of students was poor in end semester examination • Students seem to find difficulty in core subjects like FOCE, PC, HTO, CRE which need thorough concepts of mathematics and science • Students may find it difficult to correlate the theoretical concepts of Maths and Science with applications
Extra efforts need to be carried out to make students practise more in these subjects by arranging extra classes.			
<p>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.</p>			
PO2	2.08	1.57	<p>Attainment is low;</p> <ul style="list-style-type: none"> • The problem solving and analyzing skills are not up to the mark. • Students seem to find it difficult to analyze & solve problems in certain subjects where sound knowledge on Mathematics is essential. • Mistakes on the part of the students in identifying problems leads to low achievement.

More efforts should have been taken by the students to derive formulae and solve problems.			
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	1.75	1.35	<p>Attainment is low;</p> <p>Performance of students was not up to the mark in University exam.</p> <p>In the project works assigned to the students, these issues are focussed to a very limited extent.</p>
<p>More design and drawing practices to be done in the class.</p> <p>Students will be motivated to include all standard parameters and constraints according to National and International safety norms and to address environmental concerns in their projects.</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			
PO4	1.60	1.37	<p>Attainment is not good ;</p> <p>Students were found to be weak in analysis and interpretation of data to design a reactor.</p>
More assignments and tests to be designed.			
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	1.41	1.20	<p>Attainment is low;</p> <p>Students' knowledge on use of modern IT tools for solving problems is poor.</p>
It was decided to hold more numbers of workshops on use of software like MATLAB and procure new software. Also students need to be encouraged to use modern equipments like AAS, GC, etc for analyzing purpose in their project works.			

<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	1.26	1.10	Attainment is satisfactory;
<p>More number of Projects will be given to the students which are related to society so that they become more aware to all issues related to society.</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	1.38	1.14	<p>Attainment is satisfactory;</p> <p>Students perform well as they were prepared to give PPT presentation on different topics.</p> <p>Group discussions under the guidance of the experts also help them to realize this.</p>
<p>Same approach will be implemented for the next batch of students.</p>			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			
PO8	1.08	1.05	<p>Attainment is satisfactory;</p> <p>Target level needs to be raised for the following batch of students</p>
<p>Lectures on ethics and commitment towards responsibilities need to be conducted.</p>			
<p>PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>			
PO9	1.71	1.63	<p>Attainment is good;</p> <p>Students performed well because Projects were given to them and they were evaluated as a group. PPTs were prepared by the students in groups.</p>

Similar practice should be continued.

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	1.36	1.34	<p>Attainment target is achieved;</p> <p>Students perform well as seminar presentation/group discussions are conducted with the help of experts recommended by the Training & Placement Cell to enhance students' overall aptitude, presentation & communication capability.</p>
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Similar steps will be continued.

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	0.96	0.91	Attainment is satisfactory;
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Target level needs to be raised for the next batch. Awareness can be created among the students regarding managing projects by undertaking projects of low budget.

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	1.53	1.31	<p>Attainment is low;</p> <p>Students are observed to lag behind to cope up with technological changes in various fields.</p>
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Students would be encouraged to correlate their theoretical knowledge with real life applications through conduction of seminars and workshops. Lectures need to be conducted which include new technological developmental tools and knowledge of new Products.

PSOs Attainment Levels and Actions for improvement – CAY (2012-16)

PSOs	Target level	Attainment level	Observations
PSO 1: With the technical skills acquired, the graduates will be able to apply them in industrial practices e.g. in effective separation and purification in petroleum refineries and petrochemical industries, unit operations and processes in various chemical and allied industries and would be ready for any challenges in chemical engineering and technology work field and research			
PSO1	1.49	1.29	Attainment is low; Students were not being able to correlate theoretical knowledge to the Chemical Engg work field
More numbers of industrial exposure to students have to be made.			
PSO2: Graduates will be able to participate in critical thinking and problem solving related to chemical engineering that requires analytical and design competences in different industries.			
PSO2	1.33	1.13	Attainment is poor; Students are lagging behind in analytical and design competency.
Students would be advised for more practice of numerical.			
PSO3: Graduates will be equipped to pursue entrepreneurial activities to face the challenging and emerging needs of our society.			
PSO3	1.00	1.07	Attainment is poor; There is not much scope in the curriculum to make the students ready for carrying out the entrepreneurial activities.
More lectures on entrepreneurship need to be conducted and students should be encouraged to visit to successful enterprises.			

Table B.7.2**POs Attainment Levels and Actions for improvement – CAY (2011-15)**

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	2.45	2.00	<p>Attainment is low; The reasons are:</p> <ul style="list-style-type: none"> • Performance of students was poor in end semester examination • Students lagged behind in subjects like Physics, Maths, which indicates their poor knowledge in fundamentals of mathematics & Science. • Students seem to find difficulty in core subjects like FOCE, PC, HTO, CRE which need thorough concepts of mathematics.
Extra efforts need to be carried out to make students practise more in these subjects by arranging extra classes.			
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	2.08	1.67	<p>Attainment is low;</p> <ul style="list-style-type: none"> • Students could not apply the problem solving and analyzing skills gained through first year courses in real life application. • Students seem to find it difficult to analyze & solve problems on matrices & partial differentiation • Mistakes on the part of the students in identifying problems leads to low achievement.
More efforts should have been taken by the students to derive formulae and solve problems.			
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	1.75	1.44	Attainment is not up to the mark; Performance of students was not up to the mark in University exam.
More design and drawing practices to be done in the class.			
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	1.60	1.43	Attainment is slightly lower; Students were found to be weak in analysis and interpretation of data to design a reactor.
More assignments and tests to be designed.			
PO5:Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.			
PO5	1.41	1.26	Attainment is low; Students' knowledge on use of modern IT tools for solving problems is poor.
It was decided to hold more numbers of workshops on use of software like MATLAB and procure new software.			
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	1.26	1.15	Attainment is satisfactory;
More number of Projects will be given to the students which are related to society so that they become more aware to all issues related to society.			

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	1.38	1.20	Attainment is satisfactory; Students perform well as they were prepared to give PPT presentation on different topics. Group discussions under the guidance of the experts also help them to realize this.
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Same approach will be implemented for the next batch of students.

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

PO8	1.08	1.07	Attainment is quite satisfactory; Target level needs to be raised for the following batch of students
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Lectures on ethics and commitment towards responsibilities need to be conducted.

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

PO9	1.71	1.66	Attainment is good; Students performed well because Projects were given to them and they were evaluated as a group. PPTs were prepared by the students in groups.
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Same practice should be continued.

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	1.36	1.33	Attainment target almost achieved; Students perform well as seminar presentation/group discussions are conducted with the help of experts recommended by the Training & Placement Cell to enhance students' overall aptitude, presentation & communication capability.
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Similar steps will be continued.

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	0.96	0.94	Attainment is good; Target level needs to be raised for the next batch.
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	1.53	1.35	Attainment is low; Students are observed to lag behind to cope up with technological changes in various fields.
Students would be encouraged to correlate their theoretical knowledge with real life applications through conduction of seminars and workshops.			

PSOs Attainment Levels and Actions for improvement – CAY (2011-15)

PSOs	Target level	Attainment level	Observations
PSO 1: With the technical skills acquired, the graduates will be able to apply them in industrial practices e.g. in effective separation and purification in petroleum refineries and petrochemical industries, unit operations and processes in various chemical and allied industries and would be ready for any challenges in chemical engineering and technology work field and research			
PSO1	1.49	1.35	Attainment is low; Students were not being able to correlate theoretical knowledge to the Chemical Engg work field
More numbers of industrial exposure to students have to be made.			
PSO2: Graduates will be able to participate in critical thinking and problem solving related to chemical engineering that requires analytical and design competences in different			

industries.			
PSO2	1.33	1.19	Attainment is low; Students are lagging behind in analytical and design competency.
Students would be advised for more practice of numerical.			
PSO3: Graduates will be equipped to pursue entrepreneurial activities to face the challenging and emerging needs of our society.			
PSO3	1.00	1.05	Attainment is reached; There is not much scope in the curriculum to make the students ready for carrying out the entrepreneurial activities.
Students need to be exposed to lectures on entrepreneurship.			

Table B.7.3

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

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

Improvement in Placement, Higher Studies and Entrepreneurship (10)

Assessment is based on improvement in

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

Item	CAY (2013-17)	CAYm1 (2012-16)	CAYm2 (2011-15)
Total No. of Final Year Students(N)	64	65	56
No. of Students Placed in Companies or Government Sector (X)	32	23	08
No. of Students admitted to higher studies with valid qualifying scores (GATE or Equivalent State or National Level Tests, GRE, GMAT, etc.)(Y)	01	01	00
No. of students turned entrepreneur in engineering / technology(Z)	02	00	00
X+Y+Z =	34	24	08
Placement Index: (X+Y+Z)/N	P1 = 0.53	P2 = 0.37	P3 = 0.14
Average placement = (P1 + P2 + P3)/3	0.35		

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

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

Item		CAY	CAYm1	CAYm2
National Level Entrance (Name of the entrance examination)	No of Students admitted	-	-	-
	Opening Score/Rank	-	-	-
	Closing Score/Rank	-	-	-
State/University/Level Entrance Examination/Others Common Entrance Examination (CEE)	No of Students admitted	57	56	55
	Opening Score/Rank	163	167	191
	Closing Score/Rank	90	93	81
Name of the Entrance Examination for Lateral Entry or Lateral entry details Joint Lateral Entrance Examination (JLEE)	No of Students admitted	6	6	6
	Opening Score/Rank	198	192	190
	Closing Score/Rank	136	129	125
Average CBSE/Any other Board Result of admitted students	Physics	78.7	74.4	72.6
	Chemistry	81.1	78.6	74.8
	Mathematics	71.3	72.7	68.7

TableB.7.4

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

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

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

Data for first year courses to calculate the FYSFR:

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 = $(5 \times 5) / \text{Average}$		3.93	

Table B.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

Table B.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)	-	55.54	59.83
Total no. of successful students (Y)	-	54	52
Total no. of students appeared in the examination (Z)	-	54	52
API = x* (Y/Z)	-	55.54	59.83
Average API = (AP1 + AP2 + AP3)/3	(55.54+59.83)/2= 57.69		

Table B.8.3

Attainment of Course Outcomes of first year courses (10)

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

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

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	80.8	50
1.1 P	PH101L	Engg. Physics Lab	61.5	50
1.2 TS	CY102	Engg. Chemistry	69.2	60
1.2 P	CY102L	Engg. Chemistry Lab	94.2	60
1.3 TS	MA103	Mathematics-I	55.8	50
1.4 TS	CE114	Mechanics of Solids	55.8	50
1.5 TS	HU105	Technical Report Writing	92.3	50
1.6 PS	CE117	Engineering Graphics-I	73.1	50
1.7 TS	CS106	Computer Programming	76.9	50
1.7 P	CS106L	Computer Programming Lab	69.2	50
1.8 P	ME108	Workshop Practice	88.5	60
2.1 TS	PH201	Engg. Physics-II	65.4	50
2.1 P	PH201L	Engg. Physics-II Lab	76.9	50
2.2 TS	CY202	Engg. Chemistry-II	76.9	50
2.2 P	CY202L	Engg. Chemistry-II Lab	96.2	60
2.3 TS	MA203	Mathematics-II	42.3	50
2.4 TS	ME224	Engineering Mechanics I	88.5	50
2.4 P	ME224L	Engineering Mechanics I Lab	80.8	60
2.5 TS	EE245	Basic Electrical Engg. & Electronics	63.5	50
2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	65.4	50
2.6 TS	HU206	Sociology	82.7	50
2.7 PS	ME227	Engineering Graphics-II	57.7	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-PSO mapping of 1sr year course

CO-PO mapping of 1st year course short Code	Long Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1.1 TS	PH101	Engg. Physics	2.50	2.00										
1.1 P	PH101L	Engg. Physics Lab	2.00											
1.2 TS	CY102	Engg. Chemistry	2.60	1.80	1.80			0.80	1.40					1.60
1.2 P	CY102L	Engg. Chemistry	2.00	1.80		1.00					1.20	1.80		
1.3 TS	MA103	Mathematics-I	3.00	3.00	1.20	0.20					0.20			2.00
1.4 TS	CE114	Mechanics of Solids	2.00	1.40	0.80	0.80	0.20		0.20					0.60
1.5 TS	HU105	Technical Report Writing		0.60	0.60	0.80		1.40	1.00	1.40	1.60	2.80	1.00	3.00
1.6 PS	CE117	Engineering Graphics-I	3.00	3.00	2.42	2.57	2.14	2.57	0.71					
1.7 TS	CS106	Computer Programming	2.00	1.80	2.40	1.20	1.20							
1.7 P	CS106L	Computer Programming Lab	2.00	1.80	2.40	1.20	1.20							
1.8 P	ME108	Workshop Practice	1.60	2.00							1.00	1.60		
2.1 TS	PH201	Engg. Physics-II	2.50	2.00										
2.1 P	PH201L	Engg. Physics-II Lab	2.00											
2.2 TS	CY202	Engg. Chemistry-II	2.80	1.80	1.60	1.00		1.80	1.00		1.60	1.80		1.00

CO-PSO mapping of 1sr year course														
CO-PO mapping of 1 st year course short Code	Long Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
2.2P	CY202L	Engg. Chemistry-II Lab	2.00	2.00				1.25	1.25		1.00	1.00		
2.3 TS	MA203	Mathematics-II	3.00	3.00	2.00									2.00
2.4 TS	ME224	Engineering Mechnaics I	3.00	2.00	2.00	2.50	1.80							1.00
2.4 P	ME224L	Engineering Mechnaics I Lab	3.00	1.50	1.30	1.80	1.30							1.00
2.5 TS	EE245	Basic Electrical Engg. & Electronics	3.00	3.00	3.00	2.00	1.60	1.00	3.00	0.40	1.00			3.00
2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	3.00	3.00		1.00					3.00	0.70		3.00
2.6 TS	HU206	Sociology		1.00				2.00		2.00	1.00	1.00	1.00	3.00
2.7 PS	ME227	Engineering Graphics-II	3.00	3.00	1.00		0.40	0.60						1.00

Table B.8.5.1

Sl No.	Short Code	Long Code	Course Name	PSO1	PSO2	PSO3
1	1.1 TS	PH101	Engg. Physics	0.80	1.00	
2	1.1 P	PH101L	Engg. Physics Lab	1.00	2.00	
3	1.2 TS	CY102	Engg. Chemistry	1.00	0.60	
4	1.2 P	CY102L	Engg. Chemistry Lab	0.75	1.00	
5	1.3 TS	MA103	Mathematics-I		3.00	
6	1.4 TS	CE114	Mechanics of Solids			
7	1.5 TS	HU105	Technical Report Writing			
8	1.6 PS	CE117	Engineering Graphics-I	0.28	1.40	
9	1.7 TS	CS106	Computer Programming	0.60	2.00	0.33
10	1.7 P	CS106L	Computer Programming Lab	0.60		
11	1.8 P	ME108	Workshop Practice	0.25	1.25	
12	2.1 TS	PH201	Engg. Physics-II	1.00	2.00	
13	2.1 P	PH201L	Engg. Physics-II Lab	1.20	0.60	
14	2.2 TS	CY202	Engg. Chemistry-II	1.00	0.80	3.00
15	2.2P	CY202L	Engg. Chemistry-II Lab		3.00	
16	2.3 TS	MA203	Mathematics-II		1.00	
17	2.4 TS	ME224	Engineering Mechnaics I		1.00	
18	2.4 P	ME224L	Engineering Mechnaics I Lab			
19	2.5 TS	EE245	Basic Electrical Engg. & Electronics			
20	2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	0.80		
21	2.6 TS	HU206	Sociology	0.40		
22	2.7 PS	ME227	Engineering Graphics-II		3.00	

Table B.8.5.2

PO attainment for the batch 2016-17

Sl 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	2.02	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.1 P	PH101L	Engg. Physics Lab	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	1.2 TS	CY102	Engg. Chemistry	1.80	1.25	1.25	0.00	0.00	0.55	0.97	0.00	0.00	0.00	0.00	1.11
4	1.2 P	CY102L	Engg. Chemistry Lab	1.88	1.70	0.00	0.94	0.00	0.00	0.00	0.00	1.13	1.70	0.00	0.00
5	1.3 TS	MA103	Mathematics-I	1.67	1.67	0.67	0.11	0.00	0.00	0.00	0.00	0.11	0.00	0.00	1.12
6	1.4 TS	CE114	Mechanics of Solids	1.12	0.78	0.45	0.45	0.11	-	0.11	-	-	-	-	0.33
7	1.5 TS	HU105	Technical Report Writing	-	0.55	0.55	0.74	-	1.29	0.92	1.29	1.48	2.58	0.92	2.77
8	1.6 PS	CE117	Engineering Graphics-I	2.19	2.19	1.77	1.88	1.56	1.88	0.52	-	-	-	-	-
9	1.7 TS	CS106	Computer Programming	1.54	1.38	1.85	0.92	0.92	-	-	-	-	-	-	-
10	1.7 P	CS106L	Computer Programming Lab	1.38	1.25	1.66	0.83	0.83	-	-	-	-	-	-	-
11	1.8 P	ME108	Workshop Practice	1.42	1.77	-	-	-	-	-	0.89	1.42	-	-	-
12	2.1 TS	PH201	Engg. Physics-II	1.64	1.31	-	-	-	-	-	-	-	-	-	-
13	2.1 P	PH201L	Engg. Physics-II Lab	1.54		-	-	-	-	-	-	-	-	-	-
14	2.2 TS	CY202	Engg. Chemistry-II	2.15	1.38	1.23	0.77	0.00	1.38	0.77	0.00	1.23	1.38		0.77
15	2.2P	CY202L	Engg. Chemistry-II Lab	1.92	1.92	-	-	-	1.20	1.20	0.00	0.96	0.96		0.00
16	2.3 TS	MA203	Mathematics-II	1.27	1.27	0.85	-	-	-	-	-	-	-	-	0.85
17	2.4 TS	ME224	Engineering Mechnaics I	2.66	1.77	1.77	2.21	1.59	-	-	-	-	-	-	0.89
18	2.4 P	ME224L	Engineering Mechnaics I Lab	2.42	1.21	1.05	1.45	1.05	-	-	-	-	-	-	0.81
19	2.5 TS	EE245	Basic Electrical Engg. & Electronics	1.91	1.91	1.91	1.27	1.02	0.64	1.91	0.25	0.64	-	-	1.91
20	2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	1.96	1.96	-	-	-	-	-	-	-	0.46	-	-
21	2.6 TS	HU206	Sociology	-	-	-	-	-	-	-	1.65	0.83	0.83	0.83	2.48
22	2.7 PS	ME227	Engineering Graphics-II	1.73	1.73	0.58	-	-	-	-	-	-	-	-	0.58
			Direct attainment	1.77	1.47	1.20	1.02	0.91	1.12	0.91	1.02	1.08	1.32	0.88	1.30

Table B.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

Sl No.	Short Code	Long Code	Course Name	PSO1	PSO2	PSO3
1	1.1 TS	PH101	Engg. Physics	0.65	0.81	0.00
2	1.1 P	PH101L	Engg. Physics Lab	0.62	1.23	0.00
3	1.2 TS	CY102	Engg. Chemistry	0.69	0.42	0.00
4	1.2 P	CY102L	Engg. Chemistry Lab	0.71	0.94	0.00
5	1.3 TS	MA103	Mathematics-I	0.00	1.67	0.00
6	1.4 TS	CE114	Mechanics of Solids	0.00	0.00	0.00
7	1.5 TS	HU105	Technical Report Writing	0.00	0.00	0.00
8	1.6 PS	CE117	Engineering Graphics-I	0.20	1.02	0.00
9	1.7 TS	CS106	Computer Programming	0.46	1.54	0.25
10	1.7 P	CS106L	Computer Programming Lab	0.42	0.00	0.00
11	1.8 P	ME108	Workshop Practice	0.22	1.11	0.00
12	2.1 TS	PH201	Engg. Physics-II	0.65	1.31	0.00
13	2.1 P	PH201L	Engg. Physics-II Lab	0.92	0.46	0.00
14	2.2 TS	CY202	Engg. Chemistry-II	0.77	0.62	2.31
15	2.2P	CY202L	Engg. Chemistry-II Lab	0.00	2.89	0.00
16	2.3 TS	MA203	Mathematics-II	0.00	0.42	0.00
17	2.4 TS	ME224	Engineering Mechanics I	0.00	0.89	0.00
18	2.4 P	ME224L	Engineering Mechanics I Lab	0.00	0.00	0.00
19	2.5 TS	EE245	Basic Electrical Engg. & Electronics	0.00	0.00	0.00
20	2.5 P	EE245L	Basic Electrical Engg. & Electronics Lab	0.52	0.00	0.00
21	2.6 TS	HU206	Sociology	0.33	0.00	0.00
22	2.7 PS	ME227	Engineering Graphics-II	0.00	1.73	0.00
Direct attainment				0.60	1.07	0.85

Table B.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	1.77	Target value achieved
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	1.5	1.47	Target value almost achieved
Action 1:			
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	1.20	Target value almost achieved
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	1.5	1.02	Attainment is low
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	1.5	0.91	Attainment is low
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	1.5	1.12	Attainment is low
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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	1.5	0.91	Attainment is poor
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Action 1:

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

PO8	1.5	1.02	Attainment is low
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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	1.5	1.08	Attainment is low

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	1.5	1.32	Attainment almost achieved
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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	1.5	0.88	Attainment is low
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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	1.5	1.30	Attainment almost achieved
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Action 1:

Similar information is provided for PSOs

PSOs	Target Level	Attainment Level	Observations
PSO1	1.5	0.6	Not many subjects will contribute to this PSO at first year level

Action 1:

PSO2: Graduates will be able to participate in critical thinking and problem solving related to Chemical Engineering that requires analytical and design competences.

PSO2	1.5	1.07	Not many subjects will contribute to this PSO at first year level
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Action 1:

PSO3: Graduates will be equipped to pursue entrepreneurial activities to face the challenging and emerging needs of our society.

PSO3	1.5	0.85	Not many subjects will contribute to this PSO at first year level
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Action 1:

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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 subject teachers of the department are instructed to inform the mentors, regarding the attendance and performance of the mentees. Any alarming condition is preventively taken care of by the mentors. If the mentors find the matter to be not conclusive at his/her end, then the matter is forwarded to the senior professors/mentors or the HOD. If required the parents/guardians of the mentees are also contacted for discussion regarding the attendance and performance related issues.

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

1. To monitor his/her attendance in class and if found irregular discuss the problems with the student and try to find out the solutions.
2. To monitor his/her academic performance in class and if found non-satisfactory, advise the student for improvement. If necessary arrange for remedial classes for the weak subjects in consultation with TEQIP coordinator.
3. Can guide them to do student research project with innovative ideas, write research papers, encourage them to join different national level competitions, encourage and help them to appear for competitive examinations like GATE, UPSC exams etc.
4. To motivate for co-curricular activities like development of different types of hobbies, membership of different clubs, social activities like helping unprivileged and differently abled sections of the society, environmental protection, blood donation, social services etc.

5. Motivate the students to maintain a healthy life by involving themselves with any kind of physical sports and taking balance diet.
6. Ultimately help them to grow as a responsible citizen of the nation and a good human being.

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

Frequency of meeting: The frequency of meeting between a mentor and the student is twice in a month. 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 they hate most about the course and any suggestion for the junior batch. The course instructor then evaluates the feedback forms himself and answers the students if any is required. However, the second feedback form, which is on the course instructor are collected anonymously from the students and the course instructor can't see his/her feedbacks directly. The HoD goes through the feedbacks and take necessary action, if any is required.

DEPARTMENT OF CIVIL ENGINEERING
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.

SI 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 concrete examples	0 1 2 3 4	
4	Active student performance ensured in the class	0 1 2 3 4	
5	Questions posed at proper levels	0 1 2 3 4	
6	Students free to raise doubts/as 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	Prepares/Indicates up 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 punctuality	0 1 2 3 4	

Date:

Semester:

Fig. 9.2.1 Sample Feedback survey sheet on teacher

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

2. About the course

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

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

4. Any suggestion: (write overleaf)

Fig. 9.2.3 Sample Feedback form of ME department

Electrical Engineering department

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


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

STUDENT FEEDBACK FORM

1. Name: _____ 2. Roll No.: _____

3. Year of Admission: _____

4. Please rate the following according to the scale given below (✓ mark)

1. Strongly Disagree	2. Disagree
3. Somewhat Agree	4. Agree
5. Strongly Agree	
Not Applicable	

5. **Items**

S. No.	Items	Strongly Agree				
		Agree	Somewhat Agree	Disagree	Strongly Disagree	Not Applicable
1	Laboratory and computational facilities fulfilled the needs for undergraduate course and career	5	4	3	2	1
2	Faculty members were available for all assistance					
3	Faculty was supportive and provided constructive guidance					
4	Faculty are competent and well abreast of the course material					
5	Questions were always encouraged in the classroom					
6	Soft skills and computational ability were enhanced through classroom teaching, project works and laboratory					
7	Lectures delivery in the class were adequate and helpful for competitive examinations					
8	Laboratory facilities were adequate to promote research					
9	Academic environment of the department was conducive and motivating towards learning					
10	Course curriculum has helped in developing communication and presentation skills					

What are the strengths of the department:

What are the weaknesses of the department:

Fig. 9.2.4 Sample course end survey form

COURSE FEEDBACK FORM

Academic year	Term	Course No.	Course Title
1. Information on the Respondent (Tick ✓ if Appropriate)			
1. Percentage of classes attended			
0-20	20-40	40-60	60-100
2. The expectations of the students from the course are (Tick ✓ if Appropriate)			
a) Enhance my skill base in the area of specializations			
b) Get exposed to a relevant subject			
c) Curiosity			
d) Better Employment Opportunities			
e) Complete Course requirement			
f) Improve CGPA percentage			
3. About the Instructor (Tick ✓ if Appropriate)			
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 expectation			
12. Level of interaction			
13. Accessibility outside the class			
Overall rating 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 Sample feedback form on teacher

Chemical Engineering department

Feedback collected from the students in the department of Chemical Engineering are consist of three different types. The first one is on the course and second one is on the facilities. The course end survey is filled by graduating students are third type of feedback that will cover PO attainment at end of program. The first type of feedback emphasis mainly on pedagogy methods, while second one stress on overall facilities and filled by alumni. The HOD then evaluates the

feedback forms himself and discusses among faculties the outcome of feedback and improvements in weak sections.

 <p>Department of Chemical Engineering Assam Engineering College Jalukbari, Guwahati 781013 Assam, India</p>				
Semester _____ Session _____				
**Please fill in the points (rating from 1 to 5) as per your opinion for the subjects below.				
Sl. No.	Questionnaire	Subject Name		
		Teachers Name		
		Points	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]			
*Rating Points (1 = Poor, 2 = Average, 3 = Good, 4 = Very Good, 5 = Excellent)				

 <p>Department of Chemical Engineering Assam Engineering College Jalukbari, Guwahati 781013 Assam, India</p>					
FEEDBACK FORM ON ATTAINMENT OF PROGRAM OUTCOMES					
Batch: _____ Dated: _____					
Sl. No.	QUESTIONNAIRE				Rating (1-5)
	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, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering science.				
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.	Conducting experiments and analysis 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 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 explain complex reports and design documentation, in a clear manner.				
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.				

Fig. 9.2.6 Feedback sheet for Chemical Engg. Dept.

COURSE FEEDBACK FORM																																																																																													
Academic year	Semester	Course No.	Course title																																																																																										
<p>I. Information on the Respondent: (Tick (✓) Appropriately)</p> <p>1. Percentage of classes attended</p> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td></tr> </table> <p>2. The expectations of the students from the course are</p> <ul style="list-style-type: none"> (a) Enhance by skill base in the area of specializations (b) Get exposed to a relevant subject (c) Curiosity (d) Better Employment Opportunity (e) Complete Course requirements (f) Improve CGPA/percentage <p>III About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)</p> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr> <tr><td>1. Coverage of the syllabus</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2. Organization of the Course</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3. Emphasis on fundamentals</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4. Availability of text book/study materials</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5. Usefulness of tests and assignments</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6. Benefit you derived from the course?</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7. Pace of the Teaching lecture</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8. Comment of the Subject</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>9. Clarity of expression</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>10. Level of preparation</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>11. Level of interaction</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>12. Accessibility outside the class</td><td></td><td></td><td></td><td></td><td></td></tr> <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>					0-20	20-40	40-60	60-80	80-100		A	B	C	D	E	1. Coverage of the syllabus						2. Organization of the Course						3. Emphasis on fundamentals						4. Availability of text book/study materials						5. Usefulness of tests and assignments						6. Benefit you derived from the course?						7. Pace of the Teaching lecture						8. Comment of the Subject						9. Clarity of expression						10. Level of preparation						11. Level of interaction						12. Accessibility outside the class						Overall rating of the Course	A: Excellent	B: Very Good	C: Good	D: Satisfactory	E: Poor
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GOVERNMENT OF ASSAM
ASSAM ENGINEERING COLLEGE
ELECTRONICS & TELECOMMUNICATION ENGINEERING
DEPARTMENT
Jalukbari, Guwahati-13, ASSAM

STUDENT FEEDBACK FORM

1. Name _____ 2. Roll No. _____
3. Year of Admission _____ 4. Branch _____
5. Please rate the following according to the scale given below: (✓ mark)
 1: Strongly disagree 2: Disagree
 3: Somewhat agree 4: Agree
 5: Strongly agree Not applicable

Sl. No.	Items	Strongly disagree	Agree	Somewhat disagree	Agree	Strongly disagree	Not applicable
		5	4	3	2	1	

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) Academic environment of the department was conducive and motivate towards learning

j) Course curriculum helped you in developing communication and presentation skills

6. What are the strengths of the department:

7. What are the weaknesses of the department:

(Cut off along the perforated line and submit it 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 are collected at departmental level too.

Civil Engineering Department

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

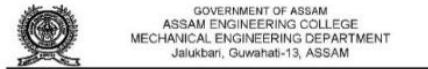
FEEDBACK ON FACILITIES		
Department of Civil Engineering Assam Engineering College		
Particular	Marks on available facilities (out of 10)	Suggestion to improve the facility
Classrooms		
Environmental Engg. Lab		
Transportation Engg. Lab		
Geotechnical Engg. Lab		
Strength of Materials Lab		
Surveying Lab		
Departmental Computer Centre		
Drawing Hall		
Departmental office		
Wifi / Internet		
T&P support in Civil Engineering Department		
Mentoring system		
Departmental library		
Others:-		

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.



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	RATING				
		Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
5	4	3	2	1	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)	Academic environment of the department was conducive and motivates 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

Chemical 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 feedback is assessed and considered for future action. A sample feedback survey form of the same is shown below-

Department of Chemical Engineering
 Assam Engineering College
 Jalukbari, Guwahati 781013
 Assam, India

Departmental Feedback form for the SessionBatch.....

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 numbers of practical conducted to illustrate important topics of the course content?					

Fig. 9.3.3 sample feedback survey sheet on facilities for CHE department

Similarly, the system is there for other departments.

FEEDBACK ON FACILITIES		
Department of Electrical Engineering Assam Engineering College		
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&F support in Electrical Engineering Department Mentoring System		
Others (Specify)		

Roll No.	Name:
Date	Current Semester

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

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

TPC has the following facility:

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

- Reception

Career guidance including 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	
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	

2017-18												
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total	
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												
Sl	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	
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	

2016-17											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
19	SAP (Core)	-	-	-	-	0	-	-	-	-	0
20	Amazon (Others)	0	0	0	0	1	0	0	0	0	1
22	IOCL (Core)	-	5		4	-	-	3	-	-	12
23	Huawei (Core)	-	-	-	-	0	0	-	-	-	0
24	ITC Foods (Core)		0	0	-	-	-	-	-	-	0
25	RVNL (Core)	0	-	5	-	1	-	-	-	-	6
26	Dalmia Cements (Core)		P	P	P			P	P		P
27	Josh Technologies (Core)	-	-	-	-	0	0	-	-	0	0
28	ABCI Infrastructures (Passed Out) (Core)	5	-	-	-	-	-	-	-	-	5
29	Genpact (Others)	0	0	0	0	0	0	0	0	0	0
30	ABCI Infrastructures (current Batch) (Core)	1	--	--	-	-	-	-	-	-	1
31	Century Ply (Core)	-	-	-	2	-	-	-	-	-	3
32	Zaloni Technologies(Core)	-	-	-	-	0	0	-	-	-	0
33	WSP Parsons Brinckerhoff (Core)	0	0	0	-	-	-	-	-	-	0
34	BCPL (Core)	-	-	1	10	-	-	1	-	-	12
35	BYJU'S (Others)	0	2	3	1	1	0	0	0	0	7
36	Power Grid (Core)	-	-	3	-	-	-	-	-	-	3
37	BPCL (Core)	-	2	-	-	-	-	1	-	-	3
38	OYO Rooms (others)	0	0	0	0	0	1	0	0	0	1
39	Technowell Services Pvt Ltd. (core)	-	-	-	-	-	1	-	-	-	1
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	-	-	-	2	-	-	-	-	-	2

2015-16											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
	(Passed out)										
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
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

2014-15											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
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- "E THNITI 2017" which is the mega event of the session comprising talk shows by multiple personalities in Entrepreneurial field like Mr. Hironmoy Gogoi, Mr. Amlan Jyoti Khanikar, Mr. Tanushree Hazarika, Mr. Sanjeev Sarma, Mr. Aditya Jain and many more. It included other events like CREATOVATE phase-II, Bull and Bears (Virtual stock Market), IPL Auction, Business Quiz.
- Orientation program for the newly joined students have been conducted every year to mark the beginning of the new session.
- Josh talks was organized in AEC for the first time and EDC played a vital role in organizing the event. (2018)
- A General Enterprise Tendency Test (GETT) was held to see the tilt of the students of the 6th and 8th semester students towards entrepreneurship. (2018)
- IDEATION BOOT CAMP by NRL was held in the chemical auditorium (2018)
- An awareness workshop on startup activities was held on 7th February 2018

Success stories

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

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

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

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

Co-curricular and Extra-curricular Activities (10)

NCC

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

NSS

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

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

Other activities-

SOVIC- It is a social service organisation started off with an initiative by a group of enthusiastic and socially committed group of engineering students from Assam Engineering College Guwahati,

hailing from diverse backgrounds with a common vision of "A better tomorrow for the backward & less-privileged children".

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

Red Ribbon society

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

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

College week

Assam Engineering College organizes its annual college week in the later half of the month of January. During the college week various competitions in various disciplines of sports, cultural and literature are held. Various outdoor sports competitions such as Cricket, Football, Tennis, Volleyball, Basketball, Badminton and Athletics are held. These competitions are monitored by the Cricket Secretary, Football Secretary, General Sports Secretary, Minor Games Secretary etc who are the members of the union body and are selected by the student community. Various indoor sports competitions such as carom, table tennis etc are also held during the college week. These competitions are monitored by Boys Common Room Secretary. Cultural events such as solo singing, Chorus, Qawali, Jikir, Borgeet, Drama, Group Dance, Bihu competition etc are held. Cultural secretary arranges these competitions. Debate competition and Quiz Competitions are also organized during college week and it is being hosted by the Debating and Publicity Secretary. Salad Dressing Competition and Flower Decoration Competition are held 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 iders' 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, Kahilipara. College activities and policy decisions regarding academic matters are taken by the Academic Council of the college. Members of the Academic Council are Principal (Chairman), Heads of all Departments and Senior Professors.

Functions of Key Administrative Positions

The functions of various key positions are depicted in Table below-

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

Position	Functions
	<ul style="list-style-type: none"> • Define quality policy and objectives • Prepare annual budget • Conduct periodic meeting of various bodies such as LMC, Standing Committee and Grievances Redressal Committee etc • 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

Position	Functions
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 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
	<ul style="list-style-type: none"> Facilitate career guidance to students Assist students suffering from psychological disorders

Position	Functions
I/C Counseling Cell	<ul style="list-style-type: none"> • 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
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. Apurba kumar kalita a_kalita@rediffmail.com
	Electronics and Telecommunications	Mr. Apurba kumar kalita 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. Binoy Sarma	bcsbinoy@gmail.com
Training and Placement Officer	Dr. Navajit Saikia 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	Dr. Amrita Ganguly	aganguly.ele@aec.ac.in

Position	Name	Contact Details
Activities		
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

Sl. No.	Name of the Member	Position	Designation
3.	Ms. Jyotika Devi	Member Secretary	Librarian
4.	Dr. Jayanta Pathak	Member	Professor
5.	Dr. Kalyan Kalita	Member	Associate Professor
6.	Dr. Aroop Bardoloi	Member	Associate Professor
7.	Prof. Runjun Das	Member	Associate Professor
8.	Dr. Navajit Saikia	Member	Associate Professor
9.	Prof. Reeta Goswami	Member	Associate Professor
10.	Dr. Utpal Nath	Member	Associate Professor
11.	Dr. J. K. Nath	Member	Associate Professor
12.	Dr. Farhana Parveen	Member	Associate Professor
13.	Dr. Maushumi Barooah	Member	Associate Professor

MEMBERS OF THE STUDENTS UNION OF ASSAM ENGINEERING COLLEGE, GUWAHATI (2017-18)

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
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 OOM SECRETARY	Gourab Hazarika	8255022271
12	DEBATING AND PUBLICITY SECRETARY	Bishal Pratim Nath	7035913337
13	TENNIS SECRETARY	Udipta Bharali	8822418699
14	GYMNASIUM & KABADI	Prandeep Saikia	7663096092

S. No	Portfolio	Name	Phone No
	SECRETARY		
15	GI LS' 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 SECRETARY	JADOB KRO	8486760867
15.	GI LS'COMMON ROOM SECRETARY	HIMASHREE DEKA	9859042648

PROFESSOR IN CHARGE OF AECSU (2017-18)

Sl. No.	Position	Name of the Member	Designation
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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 Ganguli	Asstt. Professor E&TC, AEC Associate Prof. EE, AEC
10	Football Section	Prof. Madhurjya Boruah	Asstt. Professor ME, AEC
11	Boy's Common Room Section	Prof. Biswanath Dekaraja	Asstt. Professor EE, AEC
12	Debating & Publicity Section	Dr. S.K. Deb	Professor ME, AEC
13	Gymnasium Section	Prof. Deba Kr. Mahanta	Asstt. Professor EE, AEC
14	Tennis Section	Dr. Jutika Goswami	Asstt. Professor Chemistry, AEC
15	General Sports Section	Prof. Sasanka Borah	Asstt. Professor CE, AEC
16	Girls Common Room	Prof. Barnali Gogoi	Asstt. Professor MCA, AEC

COMMITTEE OF COUNSELORS FOR STUDENTS (2015-18)

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) 8

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 und’ 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, 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 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)

Sl 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)

Sl No.	Name	Designation	Position	Contact Number
1	Dr. Atul Bora	Principal	Chairman	
2	Dr. Sudip Kr. Deb	Professor	Vice Chairman	9435105142
3	Dr. Aroop Bardalai	Professor	Chief Coordinator	9854206603
4	Dr. Palash Jyoti Hazarika	Professor	Member	9864023851
5	Dr. Ranjit Kumar Dutta	Professor	Member	8011397494
6	Dr. Damodar Agarwalla	Professor	Member	9954048758
7	Prof. Ashok Baruah	Professor	Member	9864044510
8	Prof. Apurba Kr Kalita	Professor	Member	9706074262
9	Dr. M. Baruah	Professor	Member	9864036044
10	Prof. Bhaskarjyoti	Asst.	Member	9864093762

Sl No.	Name	Designation	Position	Contact Number
	Das	Professor		
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

Sl No.	Name	Designation
1	Dr. Atul Bora	Principal
2	Dr. Maushumi Barooah	Professor, MCA
3	Dr. Runumi Sarma Bordoloi	Professor, EE
4	Prof. Runjun Das	Associate Professor, CHE

5	Prof. Purabi Patowary	Associate Professor, EE
6	Prof. Rashi Borgohain	Assistant Professor, E&T
7	Mrs. Nilima Boro	Junior Assistant, AEC office
8	Dr. Sudip Kumar Deb	Professor, ME
9	Dr. Jayanta Pathak	Professor, CE

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.

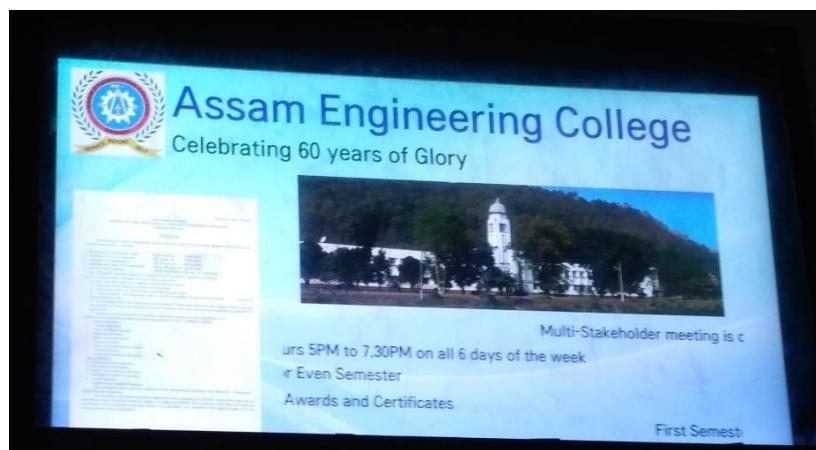


Fig. 10.1.5 LCD display screen at Main Building Entrance

Criteria for student scholarships, faculty awards etc. are informed well in advance so that equal opportunity is given to all individuals concerned.

At the beginning of every academic year the college brings out a calendar, which contains all the information, including contact numbers of all the faculty members and Head of the Departments. Information about every activity in the college is sent to all staff and students through e-mail as well as departmental notice board.

All the required information about the college is made available, as per directions of AICTE, in the college website: www.aec.ac.in.

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
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

For 2014-15

Total Income (in Rs.)				Actual Expenditure (in Rs.)			Total No. of students
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 expenses in 2017-18	Budgeted in 2016-17	Actual expenses in 2016-17	Budgeted in 2015-16	Actual expenses in 2015-16	Budgeted in 2014-15	Actual expenses 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 Consumables	45,72,500	45,72,500	46,17,500	46,17,500	47,27,500	47,27,500	48,17,500	48,17,500
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	Budgeted in 2017-18	Actual expenses in 2017-18	Budgeted in 2016-17	Actual expenses in 2016-17	Budgeted in 2015-16	Actual expenses in 2015-16	Budgeted in 2014-15	Actual expenses in 2014-15
Laboratory Equipment	2,45,000	2,00,961	-	-	80,000	80,000	71,000	67,936

Items	Budgeted in 2017-18	Actual expenses in 2017-18	Budgeted in 2016-17	Actual expenses in 2016-17	Budgeted in 2015-16	Actual expenses in 2015-16	Budgeted in 2014-15	Actual expenses in 2014-15
Software	14,50,000	14,39,600	-	-	-	-	-	-
Laboratory Consumables	45,72,500	45,72,500	4617500	4617500	47,27,500	47,27,500	48,17,500	48,17,500
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	8408500	8370336	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
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

Table B.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 24x7 in the academic buildings as well in the hostels.

Internet access in labs, classrooms, library and offices of all Departments:

Wi Fi routers are there in classrooms, library and other strategic positions in such a way that Wi Fi signal comes anywhere in the institute. There are more than 40 access points in the entire academic complex of the institute. 22 nos. are there in the main building, 16 nos. are there in the academic building and 4 nos. in the Canteen building.

Civil Engineering Department has three Wi Fi access points viz. at Departmental office, at Hydraulics Laboratory and Strength of Materials Laboratory.

All the 8 hostels are connected with LAN network with 1 Gbps speed and are managed centrally.

Security arrangements: The Wi Fi facility is secured with user ID authentication and passwords. Separate passwords are set for faculties, staff and students. Firewall server is there at the doorstep of the Central Computer Centre and the internet connectivity is filtered before sending to the departments or hostels.

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.

Date: 30/05/2018

Place: Guwahati



Signature & Name

Head of the Institution with seal

Principal
Assam Engineering College
Guwahati-781013

