



NATIONAL BOARD OF ACCREDITATION

SELF ASSESSMENT REPORT (SAR) FORMAT

UNDERGRADUATE ENGINEERING PROGRAMS (TIER-II)

FIRST TIME ACCREDITATION

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

NBCC Place, 4th Floor East Tower, Bhisham Pitamah Marg, Pragati Vihar New Delhi 110003

Phone: +91(11)24360620-22, 24360654

Fax: +91(11) 24360682

E-mail: membersecretary@nbaind.org Website: www.nbaind.org (June, 2015)

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PART A: Institutional Information

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

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

a) Gauhati University, Jalukbari, Guwahati, Assam

b) Assam Science and Technology University, Jalukbari, Guwahati, Assam

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

4. **Type of the Institution:**

University

☐

Deemed University

☐

Government-Aided

☐

Autonomous

☐

Affiliated

☒

5. **Ownership Status:**

Central Government

☐

State Government

☒

Government-Aided

☐

Self-financing

☐

Trust

☐

Society

☐

Section 25 Company

☐

Any Other (Please specify)

☐

Provide Details: Owned by Government of Assam

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

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

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

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

Sl No.	Program Name	Name of the Department	Year of Start	Intake	Increase in intake	Year of increase	AICTE Approval	Accreditation Status*
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 (2017-18)		CAYm1 (2016-17)		CAYm2 (2015-16)	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M	59	59	58	58	58	58
	F	21	21	25	25	25	25
Faculty in 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

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

Items		CAY		CAY _{m1}		CAY _{m2}	
		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:

Bachelors in Engineering/Undergraduate programs			
Item	CAY (2017-18)	CAY _{m1} (2016-17)	CAY _{m2} (2015-16)
Total no. of boys	322	324	320
Total no. of girls	98	99	104
Total no. of students	420	423	424
Masters in Engineering/Postgraduate programs			
Item	CAY (2017-18)	CAY _{m1} (2016-17)	CAY _{m2} (2015-16)
Total no. of boys	53	58	43
Total no. of girls	16	15	20
Total no. of students	69	73	63
Masters in Computer Application			
Item	CAY (2017-18)	CAY _{m1} (2016-17)	CAY _{m2} (2015-16)
Total no. of boys	23	17	21
Total no. of girls	6	10	8
Total no. of students	29	27	29

Table A.10

11. Vision of the Institution:

To be an institution for promoting and supporting sustainable development

12. Mission of the Institution:

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

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

i. Head of the Institution

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

ii. NBA coordinator, if designated

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

PART B: Criteria Summary

Name of the program: Electronics & Telecommunication Engineering

Criteria	No.	Criteria Mark/Weightage
Program Level Criteria		
1.	Vision, Mission and Programme Educational Objectives	
2.	Program Curriculum and Teaching – Learning Processes	
3.	Course Outcomes and Program Outcomes	
4.	Students' Performance	
5.	Faculty Information and Contributions	
6.	Facilities and Technical Support	
7.	Continuous Improvement	
Institute Level Criteria		
8	First year Academics	
9.	Students support systems	
10	Governance, Institutional Support and Financial Resources	
Total		

CRITERIA 1	VISION, MISSION AND PROGRAMME EDUCATIONAL OBJECTIVES	60
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1. VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES

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

Vision of the Institute: To be an institution for promoting and supporting sustainable development.

Mission of the Institute:

- 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.

Vision of the Department: To be the favoured destination for quality education in electronics and communication engineering.

Mission of the Department:

- M1 (Mission 1):** To impart quality education for producing skilled manpower in Electronics and Telecommunication engineering to cater for the need of the country and the society as a whole.
- M2 (Mission 2):** To encourage research and innovation in Electronics and Telecommunication with industry- academia interaction.
- M3 (Mission 3):** To maintain an environment for shared learning, team work and professional development.
- M4 (Mission 4):** To promote the human values and ethics for sustainable environment and society.

State the Program Educational Objectives (PEOs) (5)

PEO 1: To provide the theoretical knowledge and the practical experience of electronics and communication to make the students competent for pursuing a career in an industry or a research-and-development organization or higher studies.

PEO 2: To facilitate innovation and entrepreneurship as well as to generate awareness for creation of intellectual property.

PEO 3: To imbibe human values, team work and social and professional ethics for building a better environment and society.

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

The places where the Vision, Mission of the institute are published and disseminated among stakeholders are

- College website *www.aec.ac.in*
- Entrance of the college (main building)
- Office entrance
- Library entrance
- Training and Placement cell
- Auditorium
- Canteen
- Hostels

The places where the Vision, Mission and PEOs of the department are published and disseminated among stakeholders are

- College website *www.aec.ac.in*
- Department Notice Boards
- HoD's Chamber
- Faculty Chambers
- Department Laboratories

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

The Vision and Mission statements of the department were defined by involving various stakeholders after thorough consideration of the institutional Mission & Vision statements. A series of discussions were conducted simultaneously among Electronics & Telecommunication Engineering faculty members, alumni representatives, industry experts, parents and Departmental Advisory Board (DAB) members consecutively to finalize the Vision and Mission of the department. A detailed survey on websites of various educational institutes was also done to frame our Vision and Mission. By summarizing the series of discussions and collected information, the departmental meeting formulated the Vision and Mission of the department. The process involved for defining the Vision and Mission of the department is shown in the flow diagram given in Fig. 1.1.

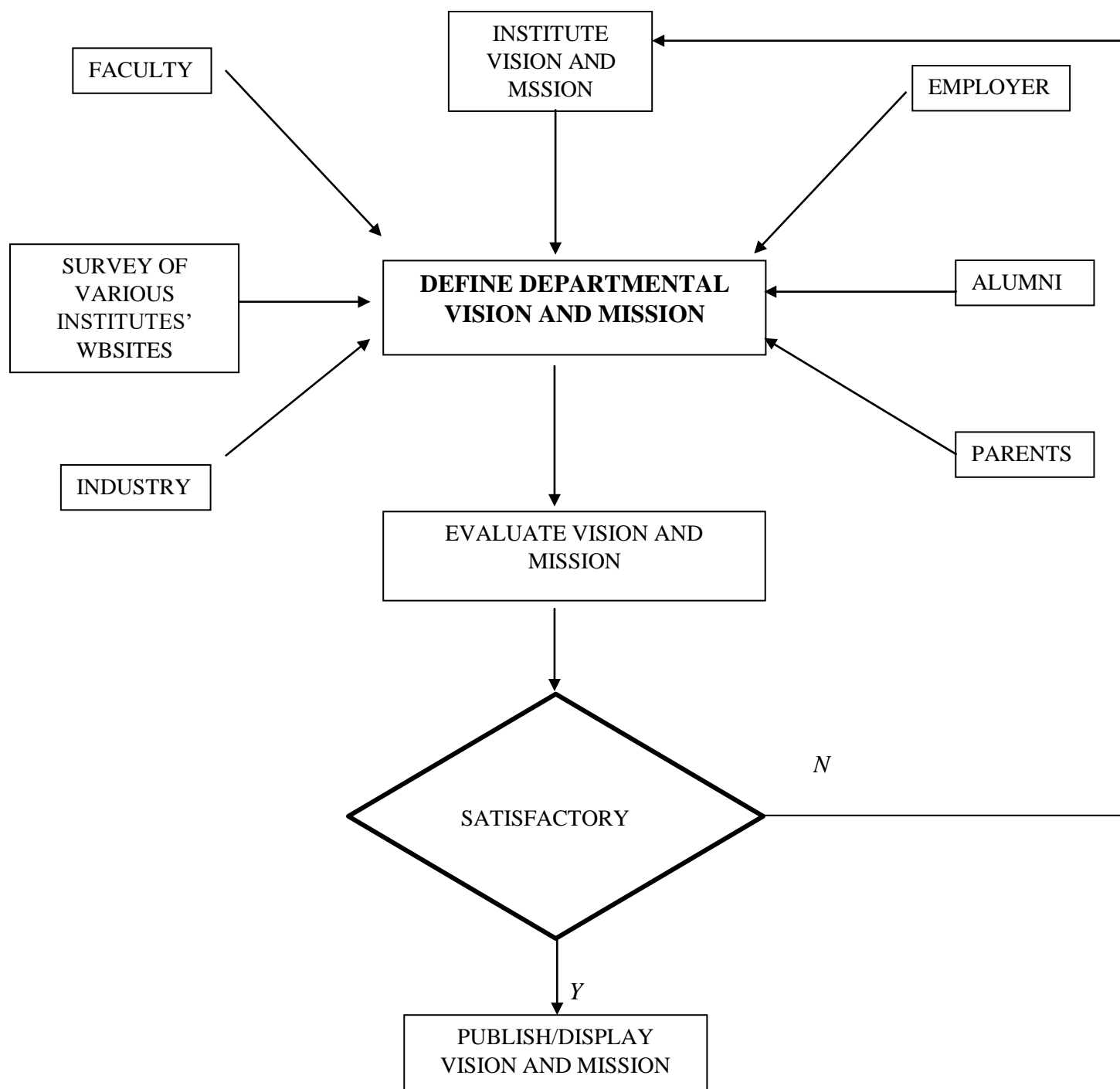


Fig. 1.1 Process for defining Vision and Mission of the Department

For developing the PEOs of the program, SWOT analysis was done by taking views from all the stakeholders both internal and external.

A series of discussions were conducted simultaneously among Electronics & Telecommunication Engineering faculty, alumni representatives, industry experts and Departmental Advisory Board (DAB) members consecutively to finalize the PEOs for the department.

The process involved for defining the PEOs of the department is shown in the flow diagram given in Fig. 1.2.

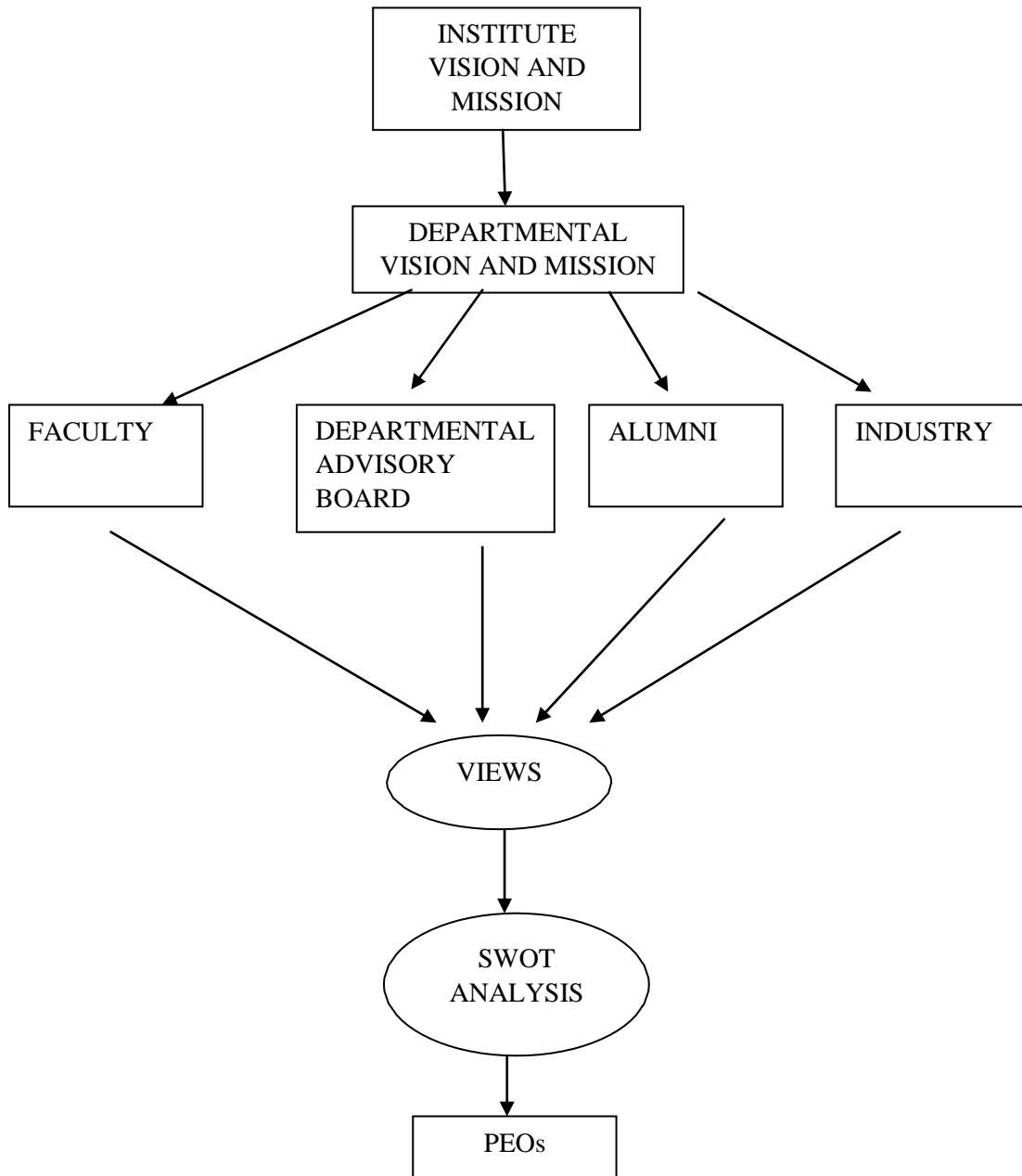


Fig. 1.2 Process for defining PEOs of the Department

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

Consistency of PEOs with the Mission statements of the department is shown in the mapping table B1.1.and the justifications for the mappings are shown in table B1.2.

Table B.1.1: PEO – Mission mapping table

PEO	M1	M2	M3	M4
PEO 1	3	2	-	-
PEO 2	-	3	1	1
PEO 3	-	-	2	3

3-High

2-Medium

1-Low

Table B.1.2: PEO – Mission mapping -----Justification

Justification	
PEO 1	<ul style="list-style-type: none">• PEO 1 is strongly mapped to M1, because, theoretical and practical knowledge together can produce skilled man power in engineering.• PEO 1 is moderately mapped to M2, because, theoretical and practical experience producing competent engineers can contribute towards research and innovation.
PEO 2	<ul style="list-style-type: none">• PEO 2 is strongly mapped to M2, because, facilitating innovation and entrepreneurship encourages research with industry- academia interaction.• PEO 2 is mapped to M3, because, innovation and entrepreneurship requires team work and shared learning.• PEO 2 is also mapped to M4, because, innovators and entrepreneurs often need to consider human values and professional ethics for contributing towards a better society.
PEO 3	<ul style="list-style-type: none">• PEO 3 is moderately mapped to M3, because, human values and team work are essential ingredients of shared learning and professional development.• PEO 3 is strongly mapped to M4, because, professional ethics are essential requirements for contributing towards a sustainable environment and society.

CRITERIA 2	PROGRAM CURRICULUM AND TEACHING – LEARNING PROCESSES	120
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2. PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES

Program Curriculum (20)

BE course structure
Table B.2.1: 1st Semester

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

Total Marks: 1100

Total Periods: 38

Total Credits: 30

Table B.2.2: 2nd Semester

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

Total Marks: 1200

Total Periods: 40

Total Credits: 34

Table B.2.3: 3rd Semester

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
			L	T	P	Sessional Marks			ESE	Total Marks	Credit
						TA	CT	Total			
1	MA301	Mathematics-III	3	1		30	20	50	100	150	4
2	CS372	Advanced Computing	3	1		30	20	50	100	150	4
3	ET 363	Network Theory-I	3	1		30	20	50	100	150	4
4	ET 364	Electronic Devices	3	1		30	20	50	100	150	4
5	EE 342	Electrical Engg Materials	3	1		30	20	50	100	150	4
6	ME 305	Basic Thermodynamics	3	1		30	20	50	100	150	4
Practical/Drawing/Design											
7	ET 364L	Electronic Devices			3	30	20	50		50	2
8	ET 363L	Network Theory-I			3	30	20	50		50	2
9	CS 372L	Advanced Computing			3	30	20	50		50	2
10	ET 367	Mini Project			3	30	20	50		50	2
11	ET 368	General Proficiency							50	50	2
Total			18	6	12						

Total Marks: 1150**Total Periods: 36****Total Credits: 34****Table B.2.4: 4th Semester**

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
			L	T	P	Sessional Marks			ESE	Total Marks	Credit
						TA	CT	Total			
1	MA401	Mathematics-IV	3	1		30	20	50	100	150	4
2	ET 464	Electronic Circuits	3	1		30	20	50	100	150	4
3	ET 465	Signals & Systems	3	1		30	20	50	100	150	4
4	ET 466	Network Theory-II	3	1		30	20	50	100	150	4
5	IE 651	Electrical Machines	3	1		30	20	50	100	150	4
6	HU 402	Sociology and Accountancy	3	1				75	150	225	4
	HU 403	Comm Skill									
Practical/Drawing/Design											
7	ET464L	Electronic Circuits			3	30	20	50		50	2
8	ET465L	Signals & Systems			3	30	20	50		50	2
9	EE455L	Electrical Machines			3	30	20	50		50	2
10	ET 467	General Proficiency							25	25	2
Total			18	6	9						

Total Marks: 1150**Total Periods: 36****Total Credits: 32**

Table B.2.5: 5th Semester

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
			L	T	P	Sessional Marks			ESE	Total Marks	Credit
						TA	CT	Total			
1	ET 562	Digital Electronic Circuits	3	1		30	20	50	100	150	4
2	EE 543	Control System-I	3	1		30	20	50	100	150	4
3	ET 564	Instrumentation & Electronic Measurements	3	1		30	20	50	100	150	4
4	ET 565	Analogue Communication	3	1		30	20	50	100	150	4
5	ET 566	Power Electronics	3	1		30	20	50	100	150	4
6	HU 501	Economics and Principles of Management	3	1		30	20	50	100	150	4
Practical/Drawing/Design											
7	ET 562L	Digital Electronic Circuits			3	30	20	50		50	2
8	ET 564L	Instrumentation & Electronic Measurements			3	30	20	50		50	2
9	ET565L	Analogue Communication			3	30	20	50		50	2
10	EE 543L	Control System-I			3	30	20	50		50	2
11		General Proficiency							50		2
Total			18	6	12						

Total Marks: 1150**Total Periods: 36****Total Credits: 34****Table B.2.6: 6th Semester**

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
			L	T	P	Sessional Marks			ESE	Total Marks	Credit
						TA	CT	Total			
1	EE 641	Electro Magnetic Field	3	1		30	20	50	100	150	4
2	ET 662	Digital communication	3	1		30	20	50	100	150	4
3	ET 663	Microprocessor And Embedded Systems	3	1		30	20	50	100	150	4
4	ET 664	Microwave Engineering	3	1		30	20	50	100	150	4
5	ET 665	Computer Communication Networks	3	1		30	20	50	100	150	4
6	ET 666	Data Structure	3	1		30	20	50	100	150	4
Practical/Drawing/Design											
7	ET 662L	Digital communication			3	30	20	50		50	2
8	ET 664L	Microwave Engineering			3	30	20	50		50	2
9	ET 663L	Microprocessor And Embedded Systems			3	30	20	50		50	2
10	ET 666 L	Data Structure			3	30	20	50		50	2
11		General Proficiency							50		2
Total			18	6	12						

Total Marks: 1150**Total Periods: 36****Total Credits: 34**

Table B.2.7: 7th Semester

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
			L	T	P	Sessional Marks			ESE	Total Marks	Credit
						TA	CT	Total			
1	ET 761	Analogue System Design	3	1		50	25	75	100	175	4
2	ET 762	Computer Architecture and Organization	3	1		50	25	75	100	175	4
3	ET 763	Digital Signal Processing	3	1		50	25	75	100	175	4
4	ET 764	Mobile Communication	3	1		50	25	75	100	175	4
5	ET 765	Elective-I	3	1		50	25	75	100	175	4
6	ET 766	Elective-II (Open)	3	1		50	25	75	100	175	4
7	ET 767	Training			2					50 *	2
8	ET 768	Project I			8					100 **	4
Total			18	6	10						

Total Marks: 1200**Total Periods: 34****Total Credits: 30****Electives:**

Elective I: IC Technology/Communication System engg./ Optimization techniques/ Micro Electro Mechanical Systems

Elective II: Acoustics & Sound Engineering /Telecommunication switching and transmission System/Multimedia Theory and Applications

* Training Report: 20 Marks

Seminar cum Viva: 30 Marks

** TA: 40 Marks Report: 30 Marks Seminar cum Viva: 30Marks

Table B.2.8: 8th Semester

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					
			L	T	P	Sessional Marks			ESE	Total Marks	Credit
						TA	CT	Total			
1	ET 861	Digital System Design	3	1		50	25	75	100	175	4
2	ET 862	Antenna and Wave Propagation	3	1		50	25	75	100	175	4
3	ET 863	VLSI technology	3	1		50	25	75	100	175	4
4	ET 864	Elective-III	3	1		50	25	75	100	175	4
5	ET 865	Elective-IV (open)	3	1		50	25	75	100	175	4
6	ET 866	Viva								75	2
7	ET 868	Project II			12					150 **	8
Total			15	5	12						

Total Marks: 1100**Total Periods: 20****Total Credits: 20****TA: Teachers' assessment****CT: Class Test****ESE: End Semester Exam****Electives:**

Elective III: Digital Image Processing/Wireless Communications and Networking/Reliability Engg/ Statistical Signal Processing

Elective IV: Optical Communication/Biomedical Engineering/Satellite Communication/Advanced Processor Architecture

** TA: 60 Marks Report: 40 Marks Presentation: 50 (Midsem: 25

Endsem: 25)

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

The curriculum of Electronics and Telecommunication Engineering department of Assam Engineering College is affiliated to Gauhati University, Guwahati, Assam. There is a Committee of Courses for the Electronics and Telecommunication Engineering branch which primarily decides the composition of the course contents and the syllabi as a whole. The curriculum comprises of General, Basic Science and Professional subjects related and relevant to electronics and communication engineering.

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

- Identification of Course Outcomes(CO) for each subject
- Mapping of each CO with POs and PSOs
- If any one of the course outcome is not mapped with the POs and PSOs or if the attainment of a particular course outcome is poor then it is discussed in the departmental meeting for necessary revision of the syllabus for that particular course. The suggestions of the meeting on the course content are communicated/ presented before the Committee of Courses, Electronics & Telecommunication Engineering, Gauhati University for consideration appropriately and further necessary action.
- It might also happen that some of the POs or PSOs cannot be achieved entirely. In that case, to meet the gap of the curriculum seminar, workshop, educational tour, etc. are arranged.
- Sometimes, with the feedback from the recruiters or to meet the industry requirements, necessity for revision of syllabus or inclusion of new courses are discussed at departmental meeting. If the meeting opines for any revision of syllabus or introduction of new course, the same is communicated/ presented before the Committee of Courses, Electronics & Telecommunication Engineering, Gauhati University for consideration and further necessary action.

The identified curricular gaps are

- Parallel Computing
- Microcontrollers and Embedded System
- Robotics & Artificial Intelligence
- Satellite Communication and Weather forecasting
- Computer Networks and Security
- Internet of Things
- Soft Skills

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

Following courses were organised in the department to meet the gaps identified in section 2.1.1.

Table B.2.9: CAY (2017-2018)

SL. No	Gap Identified	Action Taken	Date	No. of students	Resource Person With Designation	Relevance To POs
1	Parallel Computing	Expert talk on High Performance Computing	29/01/2018	54	Dr. Aryabartta Sahu, Associate Prof. CSE Department IITG	1,2,5
2	Network Security	Expert talk on RFID	29/01/2018	54	Dr. Subhasish Dhal, Assistant Professor, Department of CSE, IITG	1,2,5,6,8
3	IoT	Expert talk on Internet of Things	10/02/18	58	Dr. Shayamanta M. Hazarika, Professor, Department of Mechanical Engineering, IITG	1,2,3,4,5,6,8
4	Microcontrollers	Hands on training on Microcontrollers & Embedded Systems	5 th to 7 th April'2018	33	Dr. D. Sivaraj, Assistant Professor and Mr. M. Alagappan, Assistant Professor of PSG College of Technology, Coimbatore, Tamilnadu	1,2,3,4,5
5	Soft Skill	Training for facing an interview which included Group discussions, Aptitude and Reasoning	Both odd and even semester	56	Resource person from TIME	9,10,11,12

Table B.2.10: CAY m1 (2016-2017)

SL. No	Gap Identified	Action Taken	Date	No. of students	Resource Person With Designation	Relevance To Pos
1	Embedded System	20 days workshop on Integrated Embedded System	22/06/16 to 15/07/16	33	Mr. Tapan Das, Technical Head, DeAS technologies.	1,2,3,4,5
2	Satellite Communication and Weather forecasting system	An educational tour to NESAC, Borapani, Meghalaya under NEQIP – AICTE.	24/03/17	58	NESAC Shillong	1,9
3	Soft Skill	Training for facing an interview which included Group discussions, Aptitude and Reasoning	Both odd and even semester	58	Resource person from IMS	9,10,11,12

Table B.2.11: CAY m2 (2015-2016)

SL. No	Gap Identified	Action Taken	Date	No. of students	Resource Person With Designation	Relevance To Pos
1	Robotics	An educational tour to Tezpur University under NEQIP – AICTE program to make students familiar with robotics and its recent development.	21/04/16	59	Dr. Nayan M. Kakati, Associate Professor, Department of ECE, Tezpur University	1,9
2	Soft Skill	Training for developing presentation skills	Both odd and even semester	58	Resource person from IMS	9,10,11,12

Teaching-Learning Processes (100)**Describe Processes followed to improve quality of Teaching & Learning (25)**

The department adopts various methodologies from time to time to enhance the teaching learning experiences and qualities to build an effective knowledge environment in the department. The following techniques are primarily used to cater the students in the best possible way for effective Teaching and Learning in addition to the regular chalk and talk process.

a. Adherence to Academic Calendar:

- Departmental academic calendar is prepared well in advance before the commencement of the semester based on college calendar of events. It consists of the activities planned for the semester which includes internal test dates, display of

internal marks, conduction of events like organizing guest lectures, conferences etc.

- Subject allotment is done well in advance for the staff to prepare lesson plans, course plan, soft and hard copies of the lecture notes.

b. Use of pedagogical techniques

Faculties use various ICT techniques as pedagogical initiative to improve teaching and learning, like

- **Power point presentation** to increase the visual impact of the course content being taught.
- **Animations** to better describe theories wherever possible or engineering processes
- **Standard online course material** like NPTEL or others maintained by reputed institutions are followed as supporting resource.
- **Selected Video Lectures** as an additional resource to bring clarity in understanding. These lectures may also be used to understand various dimensions of engineering skills required to handle situations as an engineer.
- **Web based courses** are used from time to time as additional resources. This may also help the students to learn about various related topics.
- **Electronic teaching materials** created while taking a course may be made available so that the students can access if they want to refer to.

c. Use of other instructional methods

- **Expert talks** on recent topics are arranged to make students aware of the latest advancements in various technological fields and in allied fields. Eminent persons from academia, industry and society are invited from time to time by looking at technological need and the interest of the students.
- **Special lecture** are arranged in related fields of a course for better/ complete understanding of various concepts and aspects in a subject by the students. The special lectures are also arranged to motivate the students in the field of the course. These lectures are delivered by the concerned course teacher or by invited experts.

- **Hands on Trainings** are organized in the department for providing better practical knowledge to the students.
- **Workshops** are organized to help the students to understand concepts beyond curriculum.
- **Educational tours** to research laboratories of different organizations are conducted at least once a year to encourage students towards R&D.
- **One-to-one discussion and interaction** between Professors and students are encouraged to increase confidence levels of the students.

d. Methodologies to support academically weak students & encourage bright students.

Bright & Weak students are identified based on their previous overall performance, orientation towards academics, feedback from course instructors, class teacher & observations by the mentor in consultation with HOD.

- **Supporting academically weak students**
 - Tutorial/Remedial classes are conducted for the weak students. They are motivated to attend tutorials which help them to solve problems.
- **Encouraging bright students**
 - Class toppers are honoured with cash prizes and certificates by the college authority.
 - Best out-going and Best Achiever awards are given to those final year students who excel in academics as well as co-curricular activities by the college authority.
 - Encouraged to attend workshops, publish papers and participate in technical competitions with financial assistance.

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

Initiatives and Implementation details for improving the quality of Internal Semester Question papers (Internal Assessment Test)

- The department conducts three internal assessment tests out of which two are objective and one is subjective.
- The tests cover all the course outcomes (COs) of a syllabus.
- The maximum marks for objective test is 20 and subjective test is 50.
- The duration of the objective test is 20 minutes and that of subjective test is 2 hours. Question papers are set to make the student to learn time management.

I. Question Papers:

- For each subjects, question bank is prepared.
- While setting the question paper all previous university exam papers are taken into consideration.
- According to level of toughness the questions are prepared (viz., analysing the problems, implementation of modern tools, formulating the problems etc.),
- The questions will be of three categories:
 - One third of the questions is straight and can be answered by all students.
 - One third of the questions need analysis and use of content covered as per syllabus.
 - Remaining one third of the questions is not straight. Certain amount of thinking, analysis and mathematical knowledge are required to resolve.

II. Assignments:

- Assignment issue and submission dates are announced by the respective faculty members.
- Assignment questions are prepared to determine the proficiency of knowledge of basic concepts, application, analysis, evaluation and synthesis among students.

III. Evaluation:

- The faculties, after every internal assessment test, explain the solution of the questions in the class to enable them to perform well in the final examination.
- For any genuine reasons, if a student was unable to perform well in the given three internal assessment tests, improvement test is given to him/her.
- The average of the marks obtained from any best two test is chosen for the award of internal assessment marks.
- If a candidate remains absent for all the tests conducted, the Internal assessment marks are marked as “Absent” in the result.
- Evaluation of internal assessment is based on class test, class performance, assignments and attendance. 40 % weightage is given to class tests, 20 % weightage is given to class performance, 10 % weightage is given to assignments and 30% weightage is given to attendance.

2.2.2.2 Impact analysis

- Consistency of performance in Internal and External examinations.
- Based on percentage of students graduating with honours, placement in the final year.
- Students securing admission into higher studies.
- Success in competitive examinations.

Sample Question papers for both internal and Final Exam are enclosed in ANNEXURE II.

Initiatives and implementation details of improving Quality of Laboratory Experiments (Assignments)

- The departmental Laboratories are conducted in a session of 3 hours, in each session the faculty explains the logic/circuit and (or) algorithm/design of the program/circuit to be experimented.
- The students used to write the complete circuit/program in the observation book.

- The Laboratories are evaluated by the faculties for 50 marks based on their performance during the semester, attendance, record submission, practical examination and viva-voce examination.

The rubric for evaluation of laboratories is shown in table B.2.12.

Table B.2.12

Rubrics	Marks (50)
Attendance	10
Laboratory notebook	10
Number of experiments performed	10
Performance in Laboratory examination	10
Viva	05
Laboratory examination copy	05

Impact analysis

- Good results in laboratory examination.
- Improvement in analytical abilities of students thus improves the placement.

Quality of student projects (25)

Initiatives

- The student's projects are selected on the basis of interaction with faculty members from the department and from other reputed institutes like IIT Guwahati, interaction and exchange of ideas with industry experts, participation in technical festivals, seminars, journals, etc.
- Students are provided with brief idea of various fields for selecting the project ideas.
- The faculties encourage the students to carry out in house projects and support is provided with all necessary software and hardware.

- The faculties encourage students to participate in project exhibitions. The project exhibition is aimed to provide common platform to exhibit their innovations and their work towards excellence in latest technology.
- The faculties encourage students to publish their project work in reputed journals/conferences.
- The faculties encourage students to avail the external funding schemes for their project work.

Evaluation

- The student projects are evaluated at end of the semester by organizing seminar cum viva.
- Progress presentation cum viva is organized at the middle of the semester.
- External examiners from reputed institutes like IIT, NIT, IIIT, Tezpur University are invited for the seminar cum viva.
- Break up of marks allotted to each student for the project is as follows

○ Supervisor's assessment	60 marks
○ Report	40 marks
○ External examiner's assessment	
▪ Seminar	20 marks
▪ Viva	20 marks
▪ Demonstration	10 marks
○ Total marks	150 marks

- Supervisor's assessment (60) is based on the rubric shown in table B.2.13.

Table B.2.13

Reviews	Stages of the projects	Rubrics	Teacher's Assessment (60)
Review 1	Initiation	<ul style="list-style-type: none"> • Need Analysis • Identifying the problem • Understanding of professional ethics Copy right, plagiarism • Problem definition and Application in societal context • Literature survey • Identifying multiple solutions • Selecting the one solution with justifications 	15
Review 2	Planning	<ul style="list-style-type: none"> • Distribution of work among team members by leader & team work • Identification of steps for implementation • Functional block diagram • Selecting the appropriate components, hardware and software tools as applicable 	10
Review 3	Execution	<ul style="list-style-type: none"> • Detailed block diagram with all specifications/algorithms • Integrating the functional blocks, debugging details and Partial demonstration of results. • Draft of the work 	25
Review 4	Termination	<ul style="list-style-type: none"> • Implementation, demonstration of results • Analysis of results • Report submission 	10

- Project report is evaluated on the basis of the rubric shown in table B.2.14.

Table B.2.14

Rubrics	Marks (40)
Problem definition and project roadmap	10
Literature review	5
Methodology	10
Result analysis	10
Conclusion and references	5

Initiatives related to industry interaction (15)

To strengthen interaction with industries and to keep the students updated with the latest trends in electronics & communication engineering, the Department has organised many events in association with industries. The events organized at different times are stated in the table B2.15.

Table B2.15

Sl. No	Event	Name of the Organization	Date/ Period	Status
1	One day seminar on Electronic System Design and Manufacturing—	Entuple Technologies private limited, Bangalore	9/11/2017	Completed
2	Two days workshop on Intel Microcontroller	Intel	18/1/2016 & 19/1/2016	Completed
3	Setting-up of a High Performance Computing Lab	C-DAC, Pune	10/02/ 2016	Completed
4	Short term Course on High Performance Computing.	C-DAC, Pune	18/12/2015 to 22/12/2015	Completed

Initiatives related to industry internship/summer training (15)

The students are encouraged to take up internship programs during their semester break. Training and Placement Cell of the college and faculty members of the department give them suggestions and scope and some contact details for an internship. They also help the students by interacting with the industrial experts, provide the students recommendation letters and other necessary supports. The Training and Placement Cell and Department interact with alumni who are working in the industries and request them to provide necessary guidelines and supports for their junior's internship. The majority of the students do their internship/ summer training in the organizations shown in table B.2.16.

Table B.2.16

Sl No.	Name of the Organization
1	BSNL
2	AAI
3	BARC
4	MSME
5	AIR
6	Railway
7	OIL
8	IOCL
9	HP
10	Reliance Jio

CRITERIA 3	COURSE OUTCOMES AND PROGRAM OUTCOMES	120
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3. COURSE OUTCOMES AND PROGRAM OUTCOMES

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 modelling to complex engineering activities with an understanding of the limitations.
- 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

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

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

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

Program Specific Outcomes (PSO) of the Department of Electronics & Telecommunication Engineering, AEC

PSO 1: Students will be able to demonstrate software skills with competence to work and deliver in industry or research.

PSO 2: Students will be competent to design applications and automation by using modern engineering tools with multi-disciplinary concepts.

3.1.1. Course Outcomes (COs) (5)

At the end of the course the student should be able to

Table: B.3.1 Course Name: ET364 (Electronic Devices)

ET364.1	Describe the behavior of semiconductor devices
ET364.2	Analyze the functioning of various solid- state devices, including diodes, BJTs and FETs.
ET364.3	Analyse the biasing techniques for BJTs and FETs.
ET364.4	Design amplifier circuits using BJTs and FETs.

Table: B.3.2 Course Name: ET465 (Signals and Systems)

ET465.1	Classify continuous time (CT) and discrete time (DT) signals and systems.
ET465.2	Describe the properties of CT and DT LTI systems.
ET465.3	Represent CT and DT systems in the frequency domain using Fourier Analysis tools like CTFS, CTFT, DTFS and DTFT.
ET465.4	Describe the effects of sampling a CT signal.
ET465.5	Analyze CT and DT systems using Laplace transforms and Z Transforms respectively.
ET465.6	Describe the behavior of random signals and systems.

Table: B.3.3 Course Name: ET565 (Analog Communication)

ET565.1	Analysis of baseband and random signals in time & frequency domain.
ET565.2	Demonstrate understanding of various analog modulation and demodulation techniques.
ET565.3	Analyse and evaluate the impact of noise in different modulation schemes.
ET565.4	Describe PAM, PWM and PPM modulation schemes.

Table: B.3.4 Course Name: ET662 (Microprocessor & Embedded System)

ET662.1	Develop the understanding of architecture and instruction set of 8085 Microprocessor.
ET662.2	Analyse instruction cycle, machine cycle and T-state for 8085 instructions.
ET662.3	Demonstrate the knowledge of interfacing peripheral devices with the 8085 Microprocessor.
ET662.4	Write assembly language programs for different applications.
ET662.5	Develop real time systems using micro-controllers.

Table: B.3.5 Course Name: ET761 (Analog System Design)

ET761.1	Develop understanding of op-amp's basic construction, characteristics, parameter limitations, various configurations and countless applications.
ET761.2	Analyze and design linear and non-linear circuits, active filters and data converters.
ET761.3	Analyze and design voltage regulators and voltage references using op-amp.
ET761.4	Design signal generators to produce different types of waveforms.
ET761.5	Apply the concepts in real time applications.

Table B.3.6 Course Name: ET862 (Antenna & Wave Propagation)

ET862.1	Apply principles of electromagnetic theory for understanding antenna radiations.
ET862.2	Identify basic antenna parameters.
ET862.3	Design and analyze antenna arrays.
ET862.4	Design practical antennas for both HF and Microwave range.
ET862.5	Identify the characteristics of radio-wave propagation.

3.1.2 CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (5)

Table B.3.7 Course Name: ET364 (Electronic Devices)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	---	---	---	---	---	---	---	---	---	---
CO2	3	3	---	---	---	---	---	---	---	---	---	---
CO3	---	3	---	---	---	---	---	---	---	---	---	---
CO4	---	3	---	---	---	---	---	---	---	---	---	---

Table B.3.8 Course Name: ET465 (Signals and Systems)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	---	---	---	---	---	---	---	---	---	---	---
CO2	2	---	---	---	---	---	---	---	---	---	---	---
CO3	---	3	---	---	---	---	---	---	---	---	---	---
CO4	2	---	---	---	---	---	---	---	---	---	---	---
CO5	---	3	---	---	---	---	---	---	---	---	---	---
CO6	2	---	---	---	---	---	---	---	---	---	---	---

Table B.3.9 Course Name: ET565 (Analog Communication)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	---	---	---	---	---	---	---	---	---	---
CO2	3	2	---	---	---	---	---	---	---	---	---	---
CO3	2	3	---	---	---	---	---	---	---	---	---	---
CO4	2	2	---	---	---	---	---	---	---	---	---	---

Table B.3.10 Course Name: ET662 (Microprocessor & Embedded System)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	3	---	---	---	---	---	---	---	---	---	---	---
C02	---	3	---	---	---	---	---	---	---	---	---	---
C03	---	3	---	---	---	---	---	---	---	---	---	---
C04	---	---	2	---	---	---	---	---	---	---	---	---
C05	---	---	2	---	---	---	---	---	---	---	---	---

Table B.3.11 Course Name: ET761 (Analog System Design)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	3	---	---	---	---	---	---	---	---	---	---	---
C02	---	3	3	---	---	---	---	---	---	---	---	---
C03	---	3	2	---	---	---	---	---	---	---	---	---
C04	---	---	3	---	---	---	---	---	---	---	---	---
C05	---	---	2	---	---	---	---	---	---	---	---	---

Table B.3.12 Course Name: ET862 (Antenna & Wave Propagation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	3	---	---	---	---	---	---	---	---	---	---	---
C02	---	3	---	---	---	---	---	---	---	---	---	---
C03	---	3	2	---	---	---	---	---	---	---	---	---
C04	---	3	2	---	---	---	---	---	---	---	---	---
C05	3	---	---	---	---	---	---	---	---	---	---	---

3.1.3. Program level Course-PO matrix of all courses from 1st to 8th semester (10)

Table B.3.13

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PH101	2.50	1.75	1.50									1.00
CY102	2.60	1.60				1.00	1.50					1.00
MA103	3.00	3.00	1.20	1.00					1.00			2.00
CE104	2.60	2.20	0.20	0.80	0.60							
HU105		1.00		1.00		1.00	1.00	1.33	3.00	2.25		3.00
CE106	3.00	3.00	2.42	2.57	2.14	2.57	0.71					
CS107	2.00		3.00	2.67	2.00							
ME108	1.80	1.40						1.20	1.80			
PH101L	2.00								1.00			
CY102L	2.50	1.75		1.00						1.00		
PH201	1.75	1.00	1.25		1.00							1.00
CY202	2.80	2.20	1.33			1.00	1.00		1.00	1.00		1.00
MA203	3.00	3.00	2.00									2.00
ME204	3.00	2.00	2.00	2.50	1.80							1.00
CE205	3.00	3.00	2.00	1.00								
EE206	3.00	3.00										
ME207	3.00	3.00	1.67		2.00	3.00						1.00
ME208	1.60	2.00						1.00	1.60			
PH201L	2.00								1.00			
CY202L	2.00	2.00	1.67	1.40	1.00	1.00	1.50		1.00	1.00	1.00	1.00
ME204L	3.00	1.50	1.30	1.80	1.30							1.00
CE205L	3.00	2.00		3.00	3.00							
EE206L	3.00	3.00		1.00					3.00	1.67		3.00
MA301	3.00	3.00										2.00
CS372	3.00	3.00										
ET 363	3.00	3.00										
ET 364	3.00	2.75										
EE342	2.20	2.20										
ME305	3.00	2.80	0.40	0.20	0.20		0.20					
CS372L				2.50								
ET363L				2.50								
ET364L				2.50								
ET367					2.00	2.00	2.00	2.33	3.00	3.00	1.00	2.00
ET368								2.00	3.00	3.00		

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
MA401	3.00	2.40	1.60	1.00	1.00				1.00			1.40
ET 464	3.00	3.00	3.00									
ET 465	2.00	3.00										
ET 466		3.00										
EE455	2.00	2.00										
HU402		1.00				1.33	1.00	1.33	1.16	1.00	1.00	3.00
HU403		1.80		1.50		2.20	1.20	1.80	2.00	3.00		3.00
ET464L				3.00								
ET465L				3.00								
EE455L				2.00								
ET467								2.00	3.00	3.00		
HU501		1.00				2.00	1.00	1.00	2.00	1.00	1.00	2.66
ET 562	3.00	3.00	2.00									
EE 543	2.75	3.00										
ET 564	2.50	2.50										
ET 565	2.50	2.50										
ET566	2.40	2.60										
ET562L				2.50								
ET564L				3.00								
ET565L				2.50								
EE543L				2.50								
ET567									2.00	2.00		
EE641	3.00	3.00										
ET 662	3.00	2.50										
ET 663	3.00	3.00	2.00									
ET 664	2.50	2.50										
ET 665	2.50	2.50										
ET 666	3.00	3.00	2.25									
ET662L				3.00								
ET663L				3.00								
ET664L				3.00								
ET666L				3.00								
ET667									3.00	3.00		
ET 761	3.00	3.00	2.50									
ET 762	3.00	3.00	2.75									
ET 763	3.00	3.00	2.00									
ET 764	2.50	2.50										
ET 767					2.30	2.00	2.00	3.00	2.00	2.50	2.00	2.00

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
ET 768					3.00	2.00	3.00	3.00	2.80	3.00	3.00	3.00
ET 861	3.00	2.40	3.00									
ET 862	3.00	3.00	2.00									
ET 863	3.00	3.00	2.00									
ET866	3.00								2.00	3.00		2.00
ET868					3.00	2.00	3.00	3.00	2.80	3.00	3.00	3.00
Avg	2.69	2.45	1.88	2.08	1.76	1.78	1.47	1.92	2.01	2.20	1.71	1.91

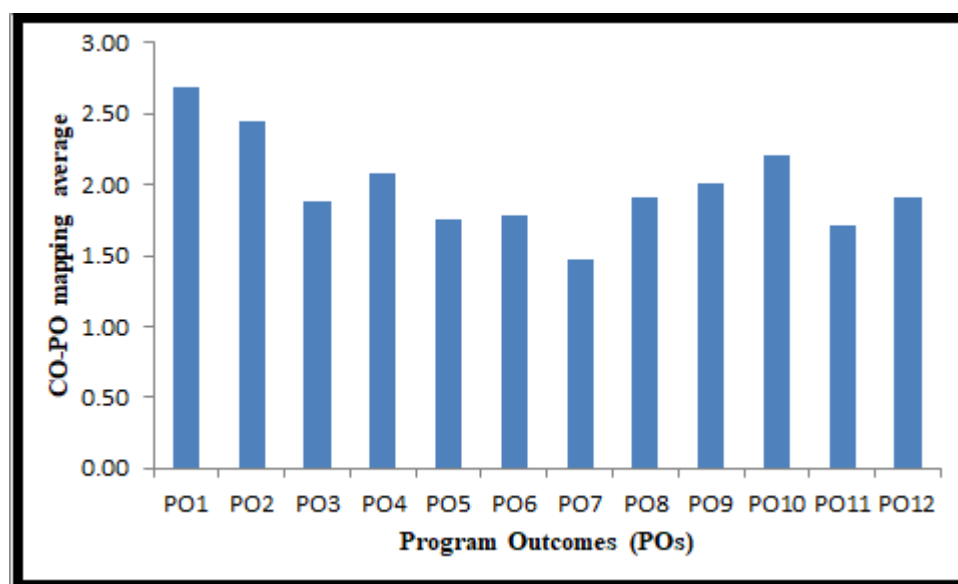


Fig. 3.1 CO-PO mapping average against Program Outcomes

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

Table B.3.14

Course	PSO1	PSO2
PH101		
CY102		
MA103		
CE104		
HU105		
CE106		
CS107	2.00	
ME108		
PH101L		

Course	PSO1	PSO2
CY102L		
PH201		
CY202		
MA203		
ME204		
CE205		
EE206		
ME207		
ME208		
PH201L		
CY202L		
ME204L		
CE205L		
EE206L		
MA301		
CS372	2.00	
ET 363		
ET 364		
EE342		
ME305		
CS372L	2.00	
ET363L		
ET364L		
ET367		2.00
ET368		
MA401		
ET 464		
ET 465	2.00	
ET 466		
EE455		
HU402		
HU403		
ET464L		
ET465L	2.00	
EE455L		
ET467		
HU501		

Course	PSO1	PSO2
ET 562		
EE 543	2.00	
ET 564		2.00
ET 565	2.00	
ET566		
ET562L		
ET564L		2.00
ET565L	2.00	
EE543L		
ET567		
EE641		
ET 662		
ET 663		2.00
ET 664		
ET 665		
ET 666	2.00	
ET662L		
ET663L		2.00
ET664L		
ET666L	2.00	
ET667		
ET 761		
ET 762		
ET 763		
ET 764		
ET 767		
ET 768	3.00	3.00
ET 861		
ET 862		
ET 863		
ET866		
ET868	3.00	3.00
Avg	2.17	2.29

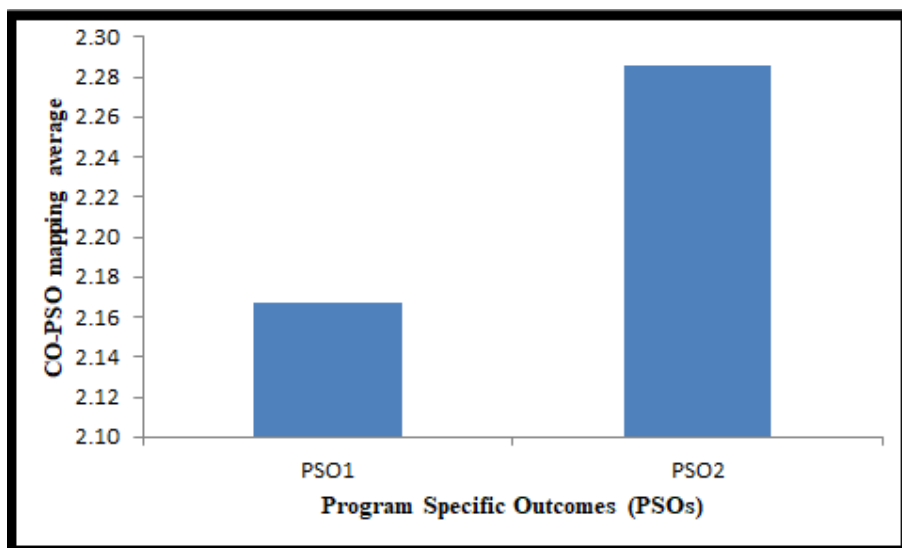


Fig. 3.2 CO-PSO mapping average against Program Specific Outcomes

Attainment of Course Outcomes (50)

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

CO Assessment Processes:

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

Assam Engineering College is affiliated to Gauhati University. Hence, the BE program of this Department adheres to the regulations as laid down by the University. The end semester examination is conducted by the University and the University collects all the answer-scripts from different centres immediately after examination. The answer-script evaluation is managed and monitored by the University. Hence, a faculty taking a particular course does not necessarily set the question paper or evaluate the answer-scripts of the students of this Department. Since the college cannot retain the answer-scripts of university examination, question wise distributions of marks scored by the candidates are not available. Hence, calculation of 'CO Wise attainment' for the end semester examination could not be carried out. Also, all the evaluated answer-scripts for continuous internal assessment have already been returned to the students till 2017. Hence for

the calculation of the course attainment, 50% of the weightage has been considered from the continuous internal assessment (sessional) and 50 % weightage from the end semester university examination.

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

Attendance: 30 % of the total marks

Class Test: 40 % of the total marks

Assignments: 10 % of the total marks

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

CO assessment processes for different components of the program are given below in table B.3.15

Table B.3.15

Sl.no	Components of the courses	Method Description
1.	Theory	<ul style="list-style-type: none"> • Semester Examination: Semester examination is the metric to assess whether all the course outcomes framed by the concerned teacher are attained or not. It is more focused on attainment of course outcomes and uses a descriptive exam. 50% weightage is given to the semester examination. • Internal Assessment: The internal assessment mark is based on three tests generally conducted at the end of 4, 8 and 12 weeks of each semester. An improvement test may be conducted for the weak students before the end of the semester to give an opportunity to such students to improve their Internal Assessment Marks. It is a metric to continuously assess the attainment of course outcomes w.r.t course objectives. Average of the better marks obtained from any two tests is the Internal Assessment Marks for the relevant subject. 50% weightage is given to Internal Assessment.
2.	Practical Exam	Practical examination is one of the measuring criteria to mainly assess student's practical knowledge and skills. Practical examination assessment is based on performance in the semester examination, Laboratory copy and viva- voce on that particular subject.
3.	General Proficiency, Mini Project, Industrial Training, Major Project	The internal assessment marks in these components is based on the evaluation at the end of the semester by the project guide/faculty in-charge.
4.	Project Work Viva-voce	Viva-voce examination of project work is conducted batch-wise in presence of an external examiner.

CO attainment levels:

CO attainment levels for End semester theory examination and Practical examinations are

Attainment Level 1: If 20% students score 50% marks or above.

Attainment Level 2: If 50% students score 50% marks or above.

Attainment Level 3: If 80% students score 50% marks or above.

CO attainment levels for Internal assessment, General Proficiency, Mini Project, Major Project, Training and Viva-voce exam are

Attainment Level 1: If 20% students score 60% marks or above.

Attainment Level 2: If 50% students score 60% marks or above.

Attainment Level 3: If 80% students score 60% marks or above.

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

Table B.3.16 Course Outcome Attainment for ET364

ET 364	Assessment	Course Outcome Attainment												Total CO
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	Final	2	2											2.5
	Internal	3	3											
CO2	Final	2	2											2.5
	Internal	3	3											
CO3	Final		2											2.5
	Internal		3											
CO4	Final		2											2.5
	Internal		3											

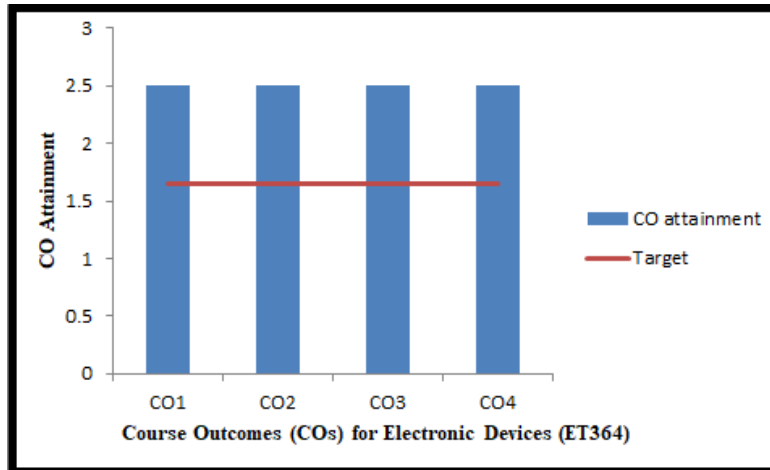


Fig 3.3: Attainment of Course Outcome of subject: ET 364

Table B.3.17 Course Outcome Attainment for ET465

ET465	Assessment	CO attainment												Total CO
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	Final	2												2
	Internal	2												
CO2	Final	2												2
	Internal	2												
CO3	Final		2											2
	Internal		2											
CO4	Final	2												2
	Internal	2												
CO5	Final		2											2
	Internal		2											
CO6	Final	2												2
	Internal	2												

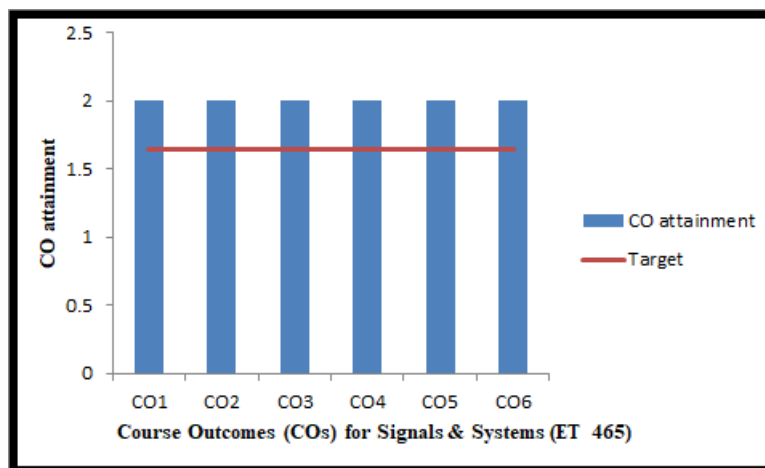


Fig 3.4: Attainment of Course Outcome of subject: ET 465

Table B.3.18 Course Outcome Attainment for ET565

ET 565	Assessment	Course Outcome Attainment												Total CO
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	Final	2	2											2.5
	Internal	3	3											
CO2	Final	2	2											2.5
	Internal	3	3											
CO3	Final	2	2											2.5
	Internal	3	3											
CO4	Final	2	2											2.5
	Internal	3	3											

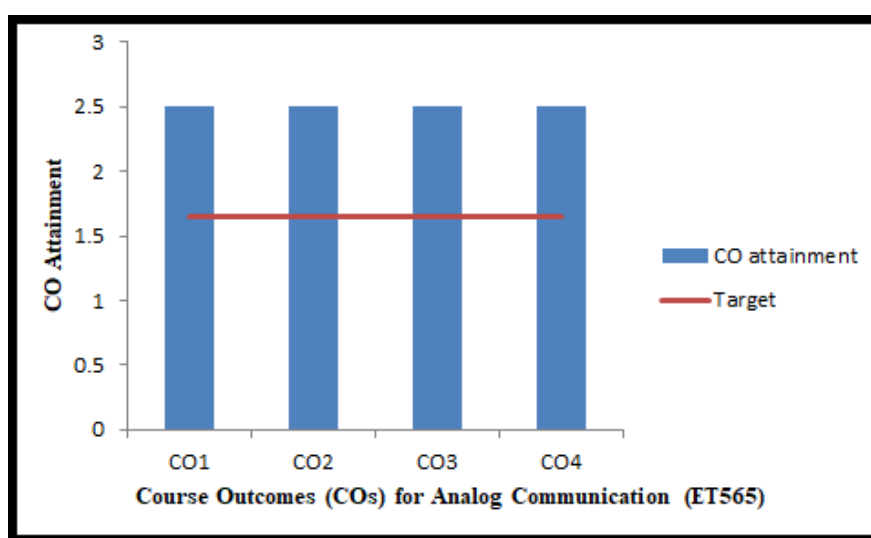


Fig 3.5: Attainment of Course Outcome of subject: ET 565

Table B.3.19 Course Outcome Attainment for ET663

ET 663	Assessment	Course Outcome Attainment												Total CO
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	Final	2												2.5
	Internal	3												
CO2	Final		2											2.5
	Internal		3											
CO3	Final		2											2.5
	Internal		3											
CO4	Final			2										2.5
	Internal			3										
CO5	Final			2										2.5
	Internal			3										

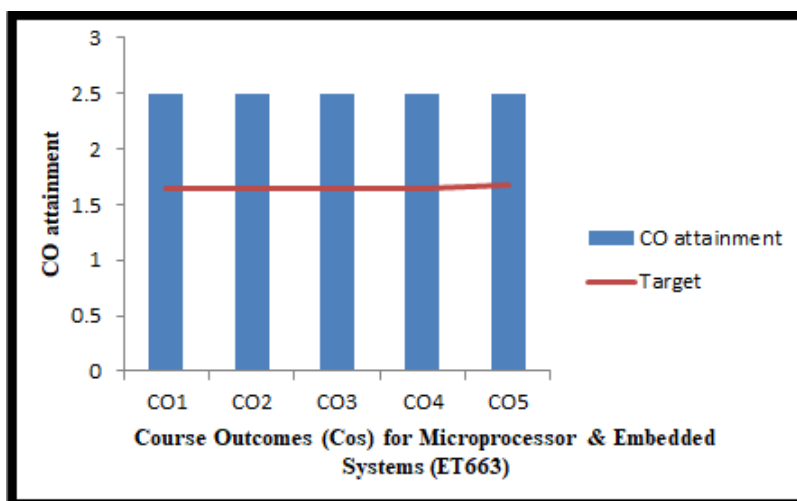


Fig 3.6: Attainment of Course Outcome of subject: ET 663

Table B.3.20 Course Outcome Attainment for ET761

ET 761	Assessment	Course Outcome Attainment												Total CO
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	Final	1												2
	Internal	3												
CO2	Final		1	1										2
	Internal		3	3										
CO3	Final		1	1										2
	Internal		3	3										
CO4	Final			1										2
	Internal			3										
CO5	Final			1										2
	Internal			3										

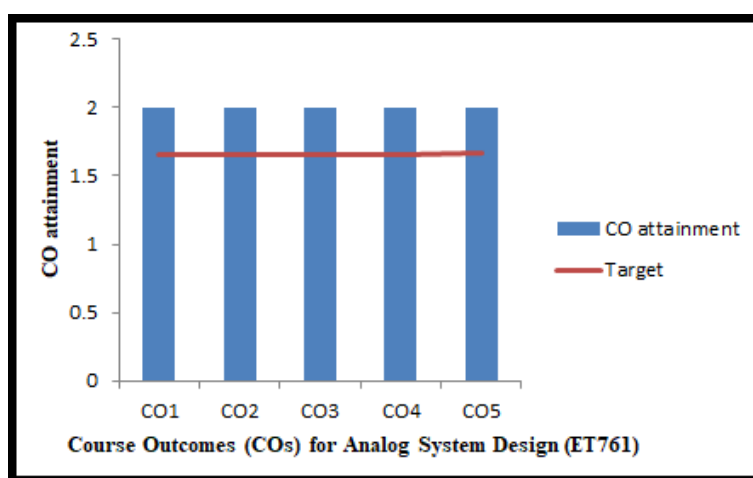


Fig 3.7: Attainment of Course Outcome of subject: ET 761

Table B.3.21 Course Outcome Attainment for ET862

ET 862	Direct Assessment	Course Outcome Attainment												Total CO
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	Final	2												2.5
	Internal	3												
CO2	Final		2											2.5
	Internal		3											
CO3	Final		2	2										2.5
	Internal		3	3										
CO4	Final		2	2										2.5
	Internal		3	3										
CO5	Final	2												2.5
	Internal	3												

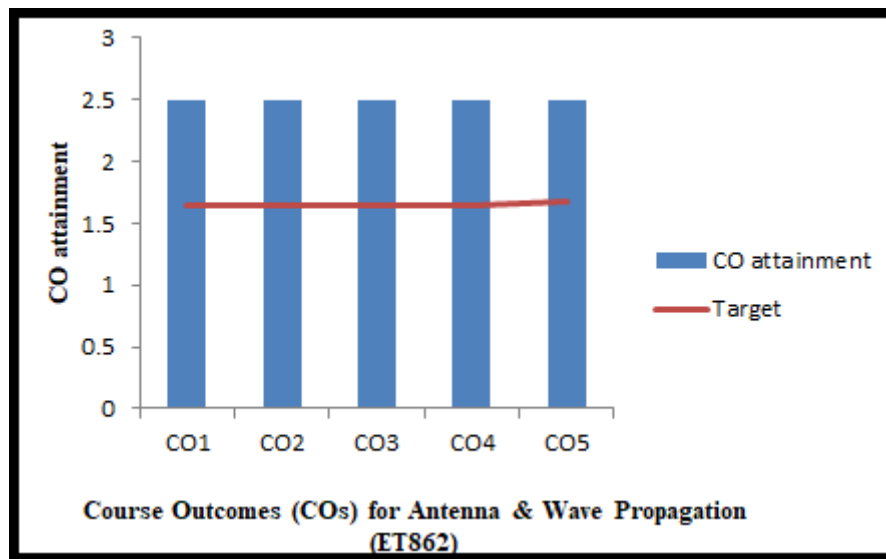


Fig 3.8 Attainment of Course Outcome of subject: ET 862

Sample calculation for CO attainment:

For ET364:

CO attainment level for Final Examination: 2 (i.e. 50 % students scored 50% or above)

CO attainment level for Internal Assessment: 3 (i.e. 80% students scored 60% or above)

Total CO attainment = 50% of CO attainment level for Final Examination + 50% of CO attainment level for Internal Assessment

= 50% of 2 + 50% of 3

= 2.5

Attainment of Program Outcomes and Program Specific Outcomes (50)

Describe assessment tools and processes used for measuring the attainment of each PO and PSO (10)

Assessment tools for attainment of Program Outcomes (POs) and Program Specific Outcomes (PSOs) are categorized into two methods: Direct assessment method and Indirect assessment method.

- **Direct Assessment method:** Direct method which is discussed in section 3.2.1 shows the students' knowledge and skills from their performance in the continuous internal assessment tests, semester examinations, seminar, viva, class room and laboratory assignments, etc. These procedures provide a sampling of what students know and/or can do and provide strong evidence of student learning. 80% weightage is given to direct method. All the components of the program are mapped to the POs and PSOs to determine the PO attainment and PSO attainment.
- **Indirect Assessment method:** In this method Exit survey (students' feedback), Alumni survey (questionnaire) and Employer survey (questionnaire) are conducted and which display overall assessment of the program. 20% weightage is given to indirect method.

Forms for Exit survey, Alumni survey and Employer survey are enclosed in ANNEXURE III, IV, V respectively.

PO attainment (40)

PO attainment for 2013-2017 batch (CAYm4) is given in table B.3.22

Table B.3.22

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PH101	1.67	1.17	1.00									0.67
CY102	1.73	1.07				0.67	1.00					0.67
MA103	2.38	2.38	2.38	2.38					2.38			2.38
CE104	2.17	1.83	0.17	0.67	0.50							
HU105		2.42		2.42		2.42	2.42	2.42	2.42	2.42		2.42
CE106	2.00	2.00	1.61	1.71	1.43	1.71	0.47					
CS107	1.67		2.5	2.23	1.67							
ME108	1.80	1.40						1.20	1.80			
PH101L	0.67								0.33			
CY102L	2.50	1.75		1.00						1.00		
PH201	1.17	0.67	0.83		0.67							0.67
CY202	1.40	1.10	0.67			0.50	0.50		0.50	0.50		0.50
MA203	2.48	2.48	2.48									2.48
ME204	2.00	1.33	1.33	1.67	1.00	2.00						0.67
CE205	2.00	2.00	1.33	0.67								
EE206	1.50	1.50										
ME207	3.00	3.00	1.67		2.00	3.00						1.00
ME208	1.60	2.00						1.00	1.60			
PH201L	1.33								0.67			
CY202L	2.00	2.00		1.25		0.50	1.00			1.00		
ME204L	3.00	1.50	1.30	1.80	1.30							1.00
CE205L	3.00	2.00		3.00	3.00							
EE206L	2.00	2.00		0.67					2.00	1.11		2.00
MA301	1.96	1.96										1.96
CS372	2.00	2.00										
ET 363	2.00	2.00										
ET 364	2.50	2.29										
EE342	1.11	1.11										
ME305	2.50	2.33										
CS372L				1.67								
ET363L				2.50								
ET364L				1.67								

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
ET367					2.00	2.00	2.00	2.33	3.00	3.00	1.00	2.00
ET368								2.00	3.00	3.00		
MA401	2.34	2.34	2.34	2.34	2.34				2.34			2.34
ET 464	2.00	2.00	2.00									
ET 465	1.33	2.00										
ET 466		3.00										
EE455	1.00	1.00										
HU402		2.37				2.37	2.37	2.37	2.37	2.37	2.37	2.37
HU403		2.10		2.10		2.10	2.10	2.10	2.10	2.10		2.10
ET464L				2.00								
ET465L				3.00								
EE455L				1.33								
ET467								2.00	3.00	3.00		
HU501		2.43				2.43	2.43	2.43	2.43	2.43	2.43	2.43
ET 562	2.00	2.00	1.33									
EE 543	2.29	2.50										
ET 564	2.08	2.08										
ET 565	2.08	2.08										
ET566	1.60	1.73										
ET562L				2.50								
ET564L				3.00								
ET565L				2.50								
EE543L				2.50								
ET567									2.00	2.00		
EE641	2.00	2.00										
ET 662	2.50	2.08										
ET 663	2.50	2.50	1.67									
ET 664	1.67	1.67										
ET 665	1.25	1.25	1.25									
ET 666	2.50	2.50	1.88									
ET662L				3.00								
ET663L				3.00								
ET664L				3.00								
ET666L				3.00								
ET667									3.00	3.00		
ET 761	2.00	2.00	1.67									
ET 762	3.00	3.00	2.75									
ET 763	2.50	2.50	1.67									

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
ET 764	2.08	2.08										
ET 767					2.30	2.00	2.00	3.00	2.00	2.50	2.00	2.00
ET 768					3.00	2.00	3.00	3.00	2.80	3.00	3.00	3.00
ET 861	2.50	2.50	1.67									
ET 862	2.50	2.50	1.67									
ET 863	2.50	2.50	1.67									
ET866	3.00								2.00	3.00		2.00
ET868					3.00	2.00	3.00	3.00	2.80	3.00	3.00	3.00
Direct Assessment	2.05	2.00	1.62	2.09	1.86	1.84	1.86	2.24	2.12	2.26	2.30	1.79
Indirect Assessment	2.59	2.63	2.32	2.64	2.44	2.69	2.66	2.75	2.83	2.68	2.70	2.70
Total	2.16	2.13	1.76	2.20	1.98	2.01	2.02	2.34	2.26	2.34	2.38	1.97

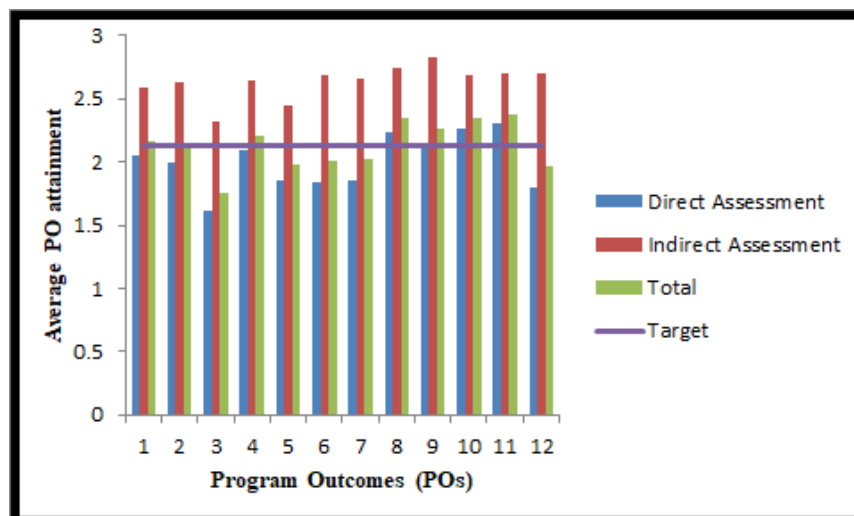


Fig. 3.9 PO attainment

Sample calculation of PO attainment:

Direct Assessment Method:

PO1 attainment for ET364

CO attainment = 2.5

CO-PO1 mapping average = 3.0

PO1 attainment for ET 364 = (CO attainment X CO-PO1 mapping average)/3
= (3.0 X 2.5)/3.0 = 2.5

Average of PO1 attainment = 2.05 (considering all the subjects in the program)

Indirect Assessment Method:

Average PO1 attainment = 2.59 (considering all the indirect assessment methods)

$$\begin{aligned}\text{Total PO attainment} &= 80\% \text{ of Direct Assessment} + 20\% \text{ of Indirect Assessment} \\ &= 80\% \text{ of } 2.05 + 20\% \text{ of } 2.59 \\ &= 2.15\end{aligned}$$

PSO attainment:

PSO attainment for 2013-2017 batch (CAYm4) is given in table B.3.23

Table B.3.23

Course	PSO1	PSO2
PH101		
CY102		
MA103		
CE104		
HU105		
CE106		
CS107	1.67	
ME108		
PH101L		
CY102L		
PH201		
CY202		
MA203		
ME204		
CE205		
EE206		
ME207		
ME208		
PH201L		
CY202L		
ME204L		
CE205L		
EE206L		

MA301		
CS372	1.33	
ET 363		
ET 364		
EE342		
ME305		
CS372L	1.33	
ET363L		
ET364L		
ET367		2.00
ET368		
MA401		
ET 464		
ET 465	1.33	
ET 466		
EE455		
HU402		
HU403		
ET464L		
ET465L	2.00	
EE455L		
ET467		
HU501		
ET 562		
EE 543	1.33	
ET 564		1.67
ET 565	1.67	
ET566		
ET562L		
ET564L		2.00
ET565L	2.00	
EE543L		
ET567		
EE641		
ET 662		
ET 663		1.67
ET 664		
ET 665		
ET 666	1.67	
ET662L		

ET663L		2.00
ET664L		
ET666L	2.00	
ET667		
ET 761		
ET 762		
ET 763		
ET 764		
ET 765		
ET 766		
ET 767		
ET 768	3.00	3.00
ET 861		
ET 862		
ET 863		
ET 864		
ET 865		
ET866		
ET868	3.00	3.00
Average PSO attainment	1.86	2.19

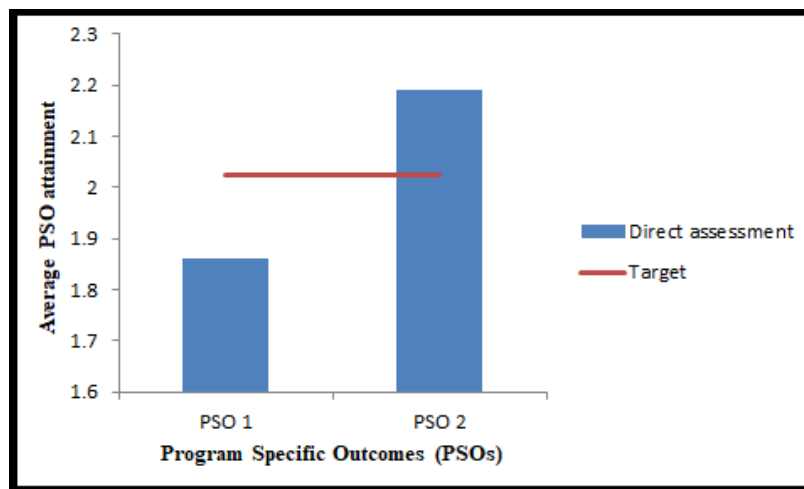


Fig. 3.10 PSO attainment

CRITERIA 4	STUDENTS' PERFORMANCE	150
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4. STUDENTS' PERFORMANCE

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY (2017-2018)	CAYm1 (2016-2017)	CAYm2 (2015-2016)	CAYm3 (2014-2015)
Sanctioned intake of the program (N)	60	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)	60	37	50	52
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	0	7	6	6
Separate division (N3)	NIL	NIL	NIL	NIL
Total number of students admitted in the Program (N1 + N2 + N3)	60	44	56	58

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester/year of study			
		I Year	II Year	III Year	IV Year
CAY(2017-2018)	60	Xxxxx	xxxxx	xxxxx	Xxxxx
CAYm1(2016-2017)	44	14	xxxxx	Xxxxx	Xxxxx
CAYm2 (2015-2016)	56	17	13	Xxxxx	Xxxxx
CAYm3 (2014-2015)	58	25	7	5	Xxxxx
CAYm4 (2013-2014) / LYG	59	32	17	12	10
CAYm5(2012-2013) / LYGm1	63	24	14	11	11
CAYm6(2011-2012) / LYGm2	65	34	23	21	21

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated (Students with backlog in stipulated period of study)			
		I Year	II Year	III Year	IV Year
CAY(2017-2018)	60	Xxxxx	xxxxx	Xxxxx	Xxxxx
CAYm1(2016-2017)	44	19	xxxxx	Xxxxx	Xxxxx
CAYm2 (2015-2016)	56	37	24	Xxxxx	Xxxxx
CAYm3 (2014-2015)	58	51	42	33	Xxxxx
CAYm4 (2013-2014) / LYG	59	46	40	46	35
CAYm5(2012-2013) / LYGm1	63	54	48	39	29
CAYm6(2011-2012) / LYGm2	65	55	53	59	53

Enrolment Ratio (20)

Enrolment Ratio= $N1/N = 77.22$

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)	37	50	52
N1/N in Percentage	61.67	83.33	86.67
Average	77.22		

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	
>=80% students enrolled	
>=70% students enrolled	
>=60% students enrolled	
>=50% students enrolled	
Otherwise	

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

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

Item	Last Year Graduate LYG (CAYm4)	Last Year Graduate minus 1, LYGm1 (CAYm5)	Last Year Graduate minus 2, LYGm2 (CAYm6)
Number of students admitted in the corresponding First Year + admitted in 2 nd year via lateral entry and separate division, if applicable	53+6	57+6	59+6
Number of students who have graduated without backlogs in the stipulated period	10	11	21
Success Index (SI)	0.1695	0.1746	0.3231
Average SI	0.2224		

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

$$= 25 \times 0.2224$$

$$= 5.56$$

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

Item	Last Year Graduate LYG (CAYm4)	Last Year Graduate minus 1, LYGm1 (CAYm5)	Last Year Graduate minus 2, LYGm2 (CAYm6)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	53+6	57+6	59+6
Number of students who have graduated with backlog in the stipulated period	35	29	53
Success Index (SI)	0.5932	0.4603	0.8154
Average SI	0.623		

Success rate with backlog in stipulated period of study = 15 x Average SI

$$= 15 \times 0.623$$

$$= 9.345$$

Academic Performance in Third Year (15)

Academic Performance	CAYm3	CAYm4	CAYm5
Mean of CGPA or Mean Percentage of all successful students (X)	6.7	6.65	6.95
Total no. of successful students (Y)	33	46	39
Total no. of students appeared in the examination (Z)	56	58	62
API = $x^* (Y/Z)$	3.95	5.27	4.37
Average API = $(AP1 + AP2 + AP3)/3$	4.53		

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

$$= 1.5 \times 4.53$$

$$= 6.8$$

Academic Performance in Second Year (15)

Academic Performance	CAYm3	CAYm4	CAYm5
Mean of CGPA or Mean Percentage of all successful students (X)	6.3	6.6	6.7
Total no. of successful students (Y)	42	40	48
Total no. of students appeared in the examination (Z)	56	59	63
API = x^* (Y/Z)	4.73	4.47	5.1
Average API = (AP1 + AP2 + AP3)/3	4.77		

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

$$= 1.5 \times 4.77$$

$$= 7.15$$

Placement, Higher Studies and Entrepreneurship (40)

ITEM	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Total No. of Final Year Students (N)	59	63	65
No. of students placed in companies or Government Sector (x)	22	28	31
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	8	7	8
No. of students turned entrepreneur in engineering/technology (z)	-	-	2
$x + y + z =$	30	35	41
Placement Index : $(x + y + z)/N$	0.51	0.56	0.63
Average placement = $(P1 + P2 + P3)/3$	0.57		

Assessment Points = 40 x average placement

$$= 40 \times 0.57$$

$$= 22.8$$

Professional Activities (20)

Professional societies/chapters and organizing engineering events (5)

The department of Electronics & Telecommunication organised the following engineering events.

CAY (2017-2018)

SL No	Event	Date	Resource Person With Designation
1	One day seminar on Electronic System Design and Manufacturing—	9/11/2017	r. anoj umar, Application Engineer, Entuple Technologies Pvt. Ltd.
2	Expert talk on High Performance Computing	29/01/2018	Dr.AryabarttaSahu, Associate Prof. CSE Department IITG
3	Expert talk on RFID	29/01/2018	Dr.Subhasish Dhal, Assistant Professor, Department of CSE, IIITG
4	Expert talk on Internet of Things	10/02/18	Dr.Shayamanta M. Hazarika, Professor, Department of Mechanical Engineering, IITG
5	Hands on training on Microcontrollers & Embedded Systems	5 th to 7 th April'2018	Dr. D. Sivaraj, Assistant Professor and Mr. M. Alagappan, Assistant Professor of PSG College of Technology, Coimbatore, Tamilnadu

CAY m1 (2016-2017)

SL. No	Event	Date	Resource Person With Designation
1	20 days workshop on Integrated Embedded System	22/06/16 to 15/07/16	Mr.Tapan Das, Technical head, DeAS technologies.

CAY m2 (2015-2016)

SL. No	Event	Date	Resource Person With Designation
1	Workshop on Advances in Communication and Computing (WACC) in association with Robotics Club of Assam Engineering College conducted a two days robot making, learning and programming, , supported by Network Bulls.	October 2015	Prof. Ratnajit Bhattacharjee IITG
2	One week Short Term Course under NEQIP on Microcontrollers & Embedded System	19.1.16 to 23.1.16	1.Mr.Sainath Shanbhag Technical Project Manager, Intel Higher Education 2. Mr. Gitu Das, Assistant Professor, Dept of EEE ,School of Technology, Assam Don Bosco University

CAY m3 (2014-2015)

SL. No	Event	Date	Resource Person With Designation
1	'National Workshop on Advances in Communication and Computing (WACC) 2014'	26-27 September 2014.	<ol style="list-style-type: none"> 1. Prof. Gautam Barua, Mentor Director of IIIT Guwahati 2. Dr. Pradeep K Sinha, Senior Director (Corporate Strategy and R&D), Senior Director (High Performance Computing) and Chairman (Academic Council) of C-DAC, Pune 3. Prof. Prabin Kr Bora, IITG
2	A two days workshop on Open Source software by experts from IITs and industries followed by hands-on session and competition.	February 2015	Research Scholars from IITG
3	A two days practical session on computer network and device handling has been conducted by Network Bull in association with IIT Kanpur	April 2015	Prateek Sharm Trainer from Network Bull

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

The department of Electronics & Telecommunication Engineering published the following technical magazine as the Proceedings of 2014 National Workshop on Advances in Communication and Computing.

Name	Editors	Publishers
Proceedings of 2014 National Workshop on Advances in Communication and Computing (26 th -27 th September, 2014)	<ol style="list-style-type: none"> 1. Prof. Prabin K. Bora, IITG 2. Prof. S.R. Mahadeva Prasanna, IITG 3. Dr. Kandarpa Kumar Sarma, Gauhati University 4. Dr. Navajit Saikia, Assam Engineering College 	Springer

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

PARTICIPATION IN NATIONAL LEVEL COMPETITION

Sl. No	Participants	Event	Date	Performance
1	Sumit K Banik Subham Pareek Suman Bhargav	Ideathon2017 held at IIT Delhi organised by GoI	27 th October 2017	2 nd Runner-Up
2	Joy Dutta	Smart India Hackathon 2018 organised by GoI	30 th -31 st March 2018	KPIT innovation award (most technical and innovative project)

STUDENT PAPER PRESENTATION (CONFERENCE)

National				
Sl. No	Participants	Paper Title	Presented At	Date
1	Joydeep Devnath Atrayee Neog Jishuraaj Nath Raj Jyoti Sarmah	Pixel count based yield estimation model, to reduce input feature required in machine learning system for major agricultural crop	National Conference on Environmental Remote Sensing	13-14 December 2016
International				
1	Saddam Hossain Mustafijur Rahman Ranjita Das Shubhankar Goswami	Study on sheet resistance variation in ZnO nanorod arrays upon exposure to LPG at room temperature	Energy, Power and Environment: Towards Sustainable Growth (ICEPE), 2015	12-13 June, 2015
2	Devangan Sharma Rishikalpa Nath Karamjit Das Prabaha Biswas Prasenjit Boro	Implementation of Energy Detection Spectrum Sensing Using USRP N210 and GNU Radio	International Conference on Recent Innovations in Electrical, Electronics, Computer and Mechanical Engineering (ICRIEECME)	13 March, 2016

STUDENT PAPER PUBLICATION (JOURNAL)

National				
Sl. No	Participants	Paper Title	Published At	Date
1	Tonmoy Mazumdar Sriparna Bhowmik Hemanga Sarma Anindya Patowary Yashna Daolagupu	Detection of Zn ²⁺ ion with UV light activated ZnO nanorods	ADBU Journal	2016

CRITERIA 5	FACULTY INFORMATION AND CONTRIBUTIONS	200
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5. FACULTY INFORMATION AND CONTRIBUTIONS

Table B.5.1

Name of the faculty member	Qualification			Association with the institution (years)	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 year		
Apurba Kr. Kalita	BE(Hon s)	BITS Pilani	1984	33	Associate Prof	23/02/85	Electronics & Telecom. Engg.	Electronic Circuits & Networks	-				
Dinesh Shankar Pegu	M.Tech.	IITG	1993	24	Associate Prof	01/10/94	Electronics & Telecom. Engg.	Signal Processing	1				
Navajit Saikia	Ph.D	IITG	1993	19	Associate Prof	27/01/99	Electronics & Telecom. Engg.	Signal Processing	13	3		1	
Rashi Borgohain	Ph.D	ADBU	2018	10	Assistant Prof.	03/10/07	Electronics & Telecom. Engg.	Sensors, Nanotechnology	9		Y		
Bijoy Goswami	M.Tech	NITS	2009	6	Assistant Prof.	09/06/11	Electronics & Telecom. Engg.	VLSI, Micro Electronics	7				

Ruchira Mazumdar	M.Tech	ADBU	2013	8	Guest lecturer	13/04/10	Electronics & Telecom. Engg.	Microcontroller and embedded systems	-				
Jogananda Goswami	M.Sc.	GU	1998	6	Guest lecturer	04/03/13	Electronics & Telecom. Engg.	Electronics	-				
Kabindra Bhagawati	M.Tech	GU	2015	2	Guest lecturer	24/08/15	Electronics & Telecom. Engg.	RF Design	1				
Ankur J Sarmah	M.Tech	MIT, MAHE	2014	3	Guest Lecture	02/01/15	Electronics & Telecom. Engg.	Control System	2				
Siddanata Borah	M.Tech	ADBU	2016	2.5	Guest Lecture	08/01/16	Electronics & Telecom. Engg.	Digital signal processing	-				

Student-Faculty Ratio (SFR) (20)

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

No. of PG Programs in the Department (m): 0

No. of Students in UG 2nd Year= u1=67

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=0

No. of Students in PG 2nd Year= p2=0

Table B.5.2

Year	CAY(2017-2018)	CAYm1(2016-2017)	CAYm2(2015-2016)
U1.1	67	66	66
U1.2	66	66	66
U1.3	66	66	66
UG1	199	198	198
Total No. of Students in the Department (S)	S1=199	S2=198	S3=198
No. of Faculty in the Department (F)	F1=10+2	F2=10+2	F3=10+2
Student Faculty Ratio (SFR)	SFR1=S1/F1=16.58	SFR1=S2/F2=16.5	SFR1=S3/F3=16.5
Average SFR	SFR1+SFR2+SFR3/3=(19.9+19.8+19.8)/3=16.53		

Average assessment =16.53

Faculty Cadre Proportion (25)

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

Table B.5.3

Year	Professors		Associate Professors		Assistant professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY	2	Nil	3	2	9	8
CAYm1	2	Nil	3	2	9	8
CAYm2	2	Nil	3	2	9	8
Average Members	RF1=2	AF1=0	RF2=3	AF2=2	RF2=9	AF3=8

Cadre Ratio Marks= = 9.375- -

Faculty Qualification (25)

Table B.5.4

Years	X	Y	F	FQ=2.5 x [(10X+4Y)/F]
CAY	2	6	14	7.86
CAYm1	1	7	14	6.79
CAYm2	1	7	14	6.79
Average Assessment				7.15

Faculty Retention (25)

Table B.5.5

(% of faculty retained during the period of three academic keeping CAYm3 as base year)	Marks
>=90% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
>=75% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
>=60% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
>=50% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
<50% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	

Innovations by the Faculty in Teaching and Learning (20)

The department adopts various methodologies from time to time to enhance the teaching learning experiences and qualities to build an effective knowledge environment in the department. The following techniques are primarily used to cater the students in the best possible way from time to time for more effective Teaching and Learning in addition to the regular chalk and talk process.

a. Use of pedagogical techniques

Faculties use various ICT techniques as pedagogical initiative to improve teaching and learning, like

- **Power point presentation** to increase the visual impact of the course content being taught.
- **Animations** to better describe theories wherever possible or engineering processes
- **Standard online course material** like NPTEL or others maintained by reputed institutions are followed as supporting resource.

- **Selected Video Lectures** as an additional resource to bring clarity in understanding. These lectures may also be used to understand various dimensions of engineering skills required to handle situations as an engineer.
- **Web based courses** are used from time to time as additional resources. This may also help the students to learn about various related topics.
- **Electronic teaching materials** created while taking a course may be made available so that the students can access if they want to refer to.

b. Use of other instructional methods

- **Special lecture** are arranged in related fields of a course for better/ complete understanding of various concepts and aspects in a subject by the students. The special lectures are also arranged to motivate the students in the field of the course. These lectures are delivered by the concerned course teacher or by invited experts.
- **Hands on Trainings** are organized in the department for providing better practical knowledge to the students.

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

Table B.5.6

Name of the Faculty	Max. 5 per Faculty		
	CAY	CAYm1	CAYm2
Apurba Kumar Kalita	3	5	3
Dinesh Sankar Pegu	3	-	-
Navajit Saikia	3	5	5
Rashi Borgohain	5	5	3
Bijoy Goswami	-	5	5

Ruchira Mazumdar	3	3	5
Jogananda Goswami	3	5	3
Kabindra Bhagawati	3	5	3
Ankur Jyoti Sarmah	3	3	5
Siddhanta Borah	3	5	3
Sum	29	41	35
RF= Number of Faculty required to comply with 15:1 Student-Faculty ratio as per 5.	14	14	14
Assessment = $3 \times (\text{Sum}/0.5\text{RF})$ (Marks limited to 15)	12.43	17.57	15
Average assessment over three years (Marks limited to 15) = 15			

Research and Development (30)

Academic Research (10)

Research paper publications

Dr. Navajit Saikia

1. Prabin . Bora and Navajit Saikia “Image Retrieval Using One-Sided Linear Prediction Based Texture modelling “, ICVGIP 2002, *Proceedings of the Third Indian Conference on Computer Vision, Graphics & Image Processing*, Ahmadabad, India, December 16-18, 2002
2. Navajit Saikia ,Prabin K. Bora “Retrieving Video in Wavelet Compressed Domain”, *8th International Conference on Information Technology –*, Bhubaneswar, Dec 20-23, 2005,
3. Navajit Saikia ,Prabin K. Bora “Video Authentication Using Temporal Wavelet Transform” - *15th International Conference on Advanced Computing and Communications (ADCOM 2007)*

4. Navajit Saikia ,Prabin K. Bora “A hybrid algorithm for video authentication” - *National Conference on Communications (NCC)2008* Jan. 2008,
5. Navajit Saikia ,Prabin K. Bora “Robust video hashing using the 3D-DWT “-*National Conference on Communications (NCC)2011* on - 28-30 Jan. 2011, IEEE
6. Navajit Saikia ”Perceptual hashing in the 3D-DWT domain”- *International Conference on Green Computing and Internet of Things (ICGCIoT), 2015* - 8-10 Oct. 2015 IEEE
7. Navajit Saikia ,Prabin K. Bora “Perceptual hash function for scalable video” - February 2014, *International Journal of Information Security* 13(1), Springer DOI 10.1007/s10207-013-0211-z
8. Gautam Chakraborty, Mridusmita Sharma, Navajit Saikia and Kandarpa Kumar Sarma, "Recurrent Neural Network Based Approach To Recognise Isolated Digits In Sylheti Language Using MFCC Features", *Proceedings of International Conference On Telecommunication, Power Analysis And Computing Techniques(ICTPACT) – 2017*, ISBN: 978-1-5090-3381-2, 6th – 8th April 2017.
9. Gautam Chakraborty and Navajit Saikia, "A Survey on Automatic Speech Recognition with special reference to Sylheti Language", *Proceedings of 5th International Conference on Computing for Sustainable Global Development, 14-16 March,2018*.
10. Gunajit Kalita, Navajit Saikia, "Reversible Comparator circuit using a new Reversible Gate", *Proc. Of 6th International Conference on Computer Communication Technology 25th - 27th Sep, 2015, Published by ACM*
11. Gunajit Kalita, Navajit Saikia, "Designing reversible arithmetic, logic circuit to implement micro-operation in quantum computation", *XXVII IUPAP Conference on Computational Physics , IIT Guwahati,(CCP2015)Published IOP in Journal of Physics: Conference Series759(2016) 012097*
12. A. J. Das and N.Saikia, “Pedestrian Detection using Dense LDB descriptor combined with HOG, ” in *IEEE International Conference on Information Technology (InCITE 2016)*, Amity University, 6th-7th Oct. 2016, Noida, India.
13. A. J. Das, N. Saikia, K. K. Sarma, “Object classification and tracking in real-time: An overview” in *Emerging Technologies in Intelligent Applications for Image and Video Proc* (V. Santhi, D. P. Acharjya and M. Ezhilarasan (eds.)), Chapter-11, pp. 250-295.

Dr. Rashi Borgohain

1. R. Borgohain, S. Sharma, and J. C. Dutta "Modelling Cylindrical nano size ISFET for Biosensor applications" Proc. of CODEC-06, Kolkata University, India, Dec. 2006
2. J. C. Dutta, S. Sharma, and R. Borgohain " Mixed Domain Modelling and Simulation of nano size ISFET for Bio-electronic device" Proc. of ICRTNT-06, Jadavpur University, India, 7th -9 th Dec. 2006
3. A. B. Kalita, S. Sharma, and R. Borgohain "Conical MOSFET: A Novel Device Geometry for Surrounding Gate MOSFET" International Conference on Recent Trends on Nanoscience and Technology (ICRTNT 06), Jadavpur University, 7th-9th Dec. 2006
4. Ranjita Das, Rashi Borgohain, *et al.* "Study on sheet resistance variation in ZnO nanorod arrays upon exposure to LPG at room temperature." *Energy, Power and Environment: Towards Sustainable Growth (ICEPE), 2015 International Conference on.* IEEE, 2015.
5. Rashi Borgohain, Prabin Kumar Boruah, and Sunandan Baruah. "Heavy-metal ion sensor using chitosan capped ZnS quantum dots." *Sensors and Actuators B: Chemical* 226 (2016): 534-539.
6. Rashi Borgohain and Sunandan Baruah. "Design and analysis of UV detector using ZnO nanorods on interdigitated electrodes." *ADBU Journal of Engineering Technology* 4 (2016).
7. Rashi Borgohain, *et al.* "Detection of Zn^{2+} ion with UV light activated ZnO nanorods." *ADBU Journal of Engineering Technology* 5.1 (2016).
8. Rashi Borgohain, *et al.* , "NO₂ sensing at room temperature using ZnO nanorods on graphene", *International Conference on Advances in Nanotechnology (ICAN), 2017*
9. Rashi Borgohain and Sunandan Baruah. "Development and Testing of ZnO Nanorods Based Biosensor on Model Gram-Positive and Gram-Negative Bacteria." *IEEE Sensors Journal* 17.9 (2017): 2649-2653.

Research Guidance

Research Guide	Name of the Scholar	Topic of the Research	University & Year of Registration	Status
Dr.Navajit Saikia	Gunajit Kalita	Synthesis of Reversible Logic Circuit	Gauhati University YoR-2014	On going
	Gautam Chakravarty	Automatic Speech Recognition: Human Computer Interface for Sylheti language	Gauhati University YoR-2014	On going
	Amlan Jyoti Das	Features and Detectors for Video Surveillance	Gauhati University YoR-2014	On going

Faculty receiving Ph.D. during the assessment period

Faculty name	Research Topic	University	Guide	Date of awarding the degree of Doctor of Philosophy	Number of quality publications in refereed /S CI Journals, citations, Books/ Book Chapters
Dr. Rashi Borgohain	Study on Semiconducting Nanomaterials for the development of Novel Environmental Sensors	Assam Don Bosco University	Prof. Sunandan Baruah	31/01/2018	4

Sponsored Research (5)

Sl No	Title of the Project	Funding Agency	Amount	Duration
1	Capacity Building by Establishment of Centre of Excellence in High Performance Computing for Engineering Study & Research at Assam Engineering College	CDAC	65.72 Lakh	2 years (July'2014 to June'2016)

Development activities: (10)

Under MHRD sponsored programme (NEQIP, RUSA, etc.) :

- Faculty development program was organised on Microcontrollers and Embedded Systems during 19th Jan'16 and 23rd June'16.
- Smart class room was developed.
- Equipment/Machines were purchased for Electronic Device and Circuit Lab, Communication Lab, Microwave Lab, Digital System Design Lab, Microcontroller & Embedded System Lab and Computer Lab.

Under present TEQIP programme:

- Faculties of the department attended STCs/ FDPs.
- Expert talks on IoT, RFID, High Performance Computing, Industry-Academia relationship were organized during CAY 2017-2018.
- Hands-on training was organized on Microcontroller & Embedded Systems during 5th to 7th April'2018.
- Students from the department of Electronics & Telecommunication Engineering got selected for 4-weeks long internship at PSG college of Engineering & Technology, Coimbatore.

Under Govt. of India initiative:

- Super Computing Facility was developed under the sponsorship of CDAC.

Under Govt. of Assam initiative:

- Overseas Scholarship to Rajashri Goswami for internship at Pennsylvania state University from July 26th to August 25th 2017.

Consultancy (from Industry)(5): Nil

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

There is a Performance Appraisal System of the department for its faculty members which have to be prepared on a yearly basis. The Format for the system is given in **ANNEXURE VI**.

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

Sl. No.	Name of Faculty	Qualification	Institute
1	Prof. Pradip Kumar Brahma	M.S.	Ex Principal, Assam Engineering College
2	Prof. P.H. Talukdar	Ph.D	Gauhati University

CRITERIA 6	FACILITIES AND TECHNICAL SUPPORT	80
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6. FACILITIES AND TECHNICAL SUPPORT

6.1 Adequate and well equipped laboratories, and technical manpower (30)

Sl. No	Name of the Laboratory	Number 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	Network Theory & Analysis	30 Max	Oscilloscope, Function generator	9 hrs	Mr. Gagan Ch. Das	Scientific assistant	B.Sc.
					Mr. Gokul Ch. Sarma	Scientific assistant	B.Sc.
2	Electronic Devices	30 Max	Oscilloscope, Function generator, Power Supply	9 hrs	Mr. Suresh Ch. Haloi	Scientific assistant	M. Tech.
					Mr. Pradip Baishya	Technical assistant	Diploma
3	Digital Electronics	30 Max	Logic gates, I.C	9 hrs	Mr. Gagan Ch. Das	Scientific assistant	B.Sc.
					Mr. Gokul Ch. Sarma	Scientific assistant	B.Sc.
4	Computing lab	30 Max	PC	12 hrs	Mrs. Riju Kalita	Programmer cum System Analyst	M.Tech.
5	Electronics Circuit	30 Max	Oscilloscope, Function generator, Power Supply	9 hrs	Mr. Suresh Ch. Haloi	Scientific assistant	M.Tech.
					Mr. Pradip Baishya	Technical assistant	Diploma
6	Instrumentation & Electronic measurement	30 Max	Oscilloscope, Function generator	6 hrs	Mr. Suresh Ch. Haloi	Scientific assistant	M.Tech.
					Mr. Pradip Baishya	Technical assistant	Diploma
7	Analog communication	30 Max	Oscilloscope, Function generator, Power Supply	6 hrs	Mr. Suresh Ch. Haloi	Scientific assistant	M.Tech.
					Mr. Pradip Baishya	Technical assistant	Diploma
8	Microprocessor	30 Max	8085 microprocessor kit	9 hrs	Mr. Gagan Ch. Das	Scientific assistant	B.Sc.
					Mr. Gokul Ch. Sarma	Scientific assistant	B.Sc.
9	Digital communication	30 Max	Oscilloscope, Function	9 hrs	Mr. Gagan Ch. Das	Scientific assistant	B.Sc.

			generator		Mr. Gokul Ch. Sarma	Scientific assistant	B.Sc.
10	Analog system design	30 Max	Oscilloscope, Function generator, Power Supply	6 hrs	Mr. Suresh Ch. Haloi	Scientific assistant	M.Tech.
					Mr. Pradip Baishya	Technical assistant	Diploma
11	Microcontroller & Embedded system	30 Max	8051, AVR development board	9 hrs	Mr. Suresh Ch. Haloi	Scientific assistant	M.Tech.
					Mr. Pradip Baishya	Technical assistant	Diploma
12	Microwave engineering	15 Max	Oscilloscope, Test bench	9 hrs	Mr. Gagan Ch. Das	Scientific assistant	B.Sc.
					Mr. Gokul Ch. Sarma	Scientific assistant	B.Sc.
13	Digital system design	30 Max	FPGA kit	6 hrs	Mr. Gagan Ch. Das	Scientific assistant	B.Sc.
					Mr. Gokul Ch. Sarma	Scientific assistant	B.Sc.

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

Sl. No	Facility Name	Reason(s) for creating facility	Utilization	Areas in which students' are expected to have enhanced learning	Relevance to POs/PSOs
1	PARAM Supercomputing Facility	For Research work	50 hours per week	High Performance Computing	PO1, PO2, PO3, PO4, PO5
2	Matlab licensed version software	For Simulation experiments.	33 hours per week including project hours	Signals & Systems Lab, Analog Communication Lab, Control System lab, digital Communication Lab, etc.	PO1, PO2, PO3, PO5
3	LabVIEW single user license with DAQ card	For Virtual Instrumentation platform	15 hours per week including project hours	Virtual Instrumentation	PO1, PO2, PO3, PO5

Laboratories: Maintenance and overall ambiance (10):

Maintenance:

1. Do's and Don'ts and Safety measures rules are displayed in each laboratory.
2. Well trained technical staff is available for monitoring of laboratory equipment and software.
3. Department having four 5 and 10 KVA UPS, 240 VDC along with Batteries for power back-up.
4. Servicing of laboratory equipment are done as and when required.
5. Calibration of laboratory equipment are done periodically.
6. Department has internet facility for both students and Faculty usage maintained by Central Computing Centre.
7. Software like text editor, browser, laboratory software; antivirus, etc. are installed and maintained.

Ambiance:

1. Conditions of chairs/stools/benches are in good condition. Chair/Stool with desk is provided for individual students in Labs.
2. Department has experienced faculty to educate them in all the fields of engineering.
3. All the labs are conducted every week. .
4. Labs are equipped with hardware and licensed software to run program specific curriculum.
5. Each Lab is equipped with white/black board, computer, Internet, and such other amenities.

Project laboratory (5)

Sl. No.	Name of the Facilities	Utilization
1.	Matlab licensed version software	For UG students
2	Keil micro vision 3 free version software tool and Microcontroller 8051, AVR development, Arduino Uno in Microcontroller Lab	For UG students
3	Antenna and microwave components in communication system Lab	For UG students
4	Xilinx free version software for designing and verifying codes of digital logic.	For UG students
5	Proteus free version software for circuit simulation	For UG students
6	LabVIEW single user license with DAQ card	For UG students

Safety measures in laboratories (10)

1. Specific Safety Rules like Do's and Don'ts are displayed and instructed for all students.
2. First aid box and fire extinguishers are available in the laboratories.
3. Well trained technical supporting staff monitor the laboratories at all times.
4. Damaged equipment are identified and serviced at the earliest possible.
5. Periodical calibration of the lab equipment is done.
6. A clean and organized laboratory environment is maintained.
7. PC Systems with necessary software are available for students' usage.
8. Common drinking water facility is available in the department.

CRITERIA 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 m4 (2013-2017)

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	2.13	2.16	51 out of 79 courses contributed to the attainment of PO1.
Action 1: Target level will be increased.			
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	2.13	2.13	52 out of 79 courses contributed to the attainment of PO2.
Action 1: Target will be set higher than this.			
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	2.13	1.76	Subjects affecting the PO3 attainment values are- Digital Electronics, Digital System Design, Microprocessor & Embedded System, Analog System Design, , etc.
Action 1: These theory subjects will be correlated with Mini Projects.			

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	2.13	2.2	All the laboratory components of the program contributed to this PO. Hence, it is attained.
Action 1: Target will be set at higher level.			
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	2.13	1.98	Only 13 courses in the program address this PO and hence, it is not attained.
Action 1: Students will be encouraged to use modern tools in their projects.			
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	2.13	2.01	Curriculum concentrates mainly on imparting technical skills. Hence attainment is less.
Action 1: Awareness programme on the safe use of technology will be planned.			
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	2.13	2.02	The impact of the excessive use of the technology on Environment is not dealt with in detail in the course.
Action 1: Awareness programmes on impact of technology on environment will be planned.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	2.13	2.34	Students are advised to apply ethical principles in their projects and therefore, it is attained.
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	2.13	2.26	Students are given ample opportunities to work in teams as well as individuals.
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	2.13	2.34	Students underwent many soft skills development programs and regular follow up sessions were organized.
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	2.13	2.38	Students get ample opportunities during their project work.
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	2.13	1.97	Students might not realize the need of continuous learning in the professional life.
Action 1: Students will be advised to be updated with the technological changes.			

PSOs Attainment Levels and Actions for improvement – CAY m4 (2013-2017)

PSOs	Target Level	Attainment Level	Observations
PSO1: Students will be able to demonstrate software skills with competence to work and deliver in industry or research.			
PSO1	2.03	1.86	CS107, CS372, ET465, ET 565, ET 666 contributed less for the attainment of PSO1.
Action 1: More computing courses will be organized to reduce this gap.			
PSO2: Students will be competent to design applications and automation by using modern engineering tools with multi-disciplinary concepts.			
PSO2	2.03	2.19	Most of the student projects are focussed in this direction and therefore, PSO is attained.
Action 1: Target will be increased.			

POs Attainment Levels and Actions for improvement – CAY m5 (2012-2016)

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	2.06	2.17	More than 50 % of the courses contributed to the attainment of PO1.
Action 1: Target will be increased.			
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	2.06	2.09	More than 50 % of the courses contributed to the attainment of PO2.
Action 1: Target will be increased			
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	2.06	1.72	Subjects affecting the PO3 attainment values are-Digital Electronics, Digital System Design, Microprocessor & Embedded System, Analog System Design, , etc
Action 1: More design problems will be incorporated in the Laboratory course.			
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	2.06	2.19	All the laboratory components of the program contributed to this PO. Hence, it is attained.
Action 1: Target will be set at higher level.			
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	2.06	1.78	Only 15 courses in the program address this PO and hence, it is not attained.
Action 1: Students will be encouraged to use modern tools in their projects.			
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	2.06	1.94	Curriculum concentrates mainly on imparting technical skills. Hence attainment is less.
Action 1: Awareness programme on the safe use of technology will be planned.			
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	2.06	1.93	The impact of the excessive use of the technology on Environment is not dealt with in detail in the course.
Action 1: Awareness programmes on impact of technology on environment for sustainable development will be planned.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	2.06	2.25	Students are advised to apply ethical principles in their projects and therefore, it is attained.
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	2.06	2.21	Students are given ample opportunities to work in teams as well as individuals.
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	2.06	2.32	Students underwent many soft skills development programs and regular follow up sessions were

			organized.
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	2.06	2.16	Students get ample opportunities during their project work.
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	2.06	1.92	Students might not realize the need of continuous learning in the professional life.
Action 1: Students will be advised to be updated with the technological changes.			

PSOs Attainment Levels and Actions for improvement – CAY m5 (2012-2016)

PSOs	Target Level	Attainment Level	Observations
PSO1: Students will be able to demonstrate software skills with competence to work and deliver in industry or research.			
PSO1	1.96	1.92	CS372, ET465, ET 565, ET 666 contributed less for the attainment of PSO1.
Action 1: More computing courses will be organised to bridge the gap.			
PSO2: Students will be competent to design applications and automation by using modern engineering tools with multi-disciplinary concepts.			
PSO2	1.96	2.00	Most of the student projects are focussed in this direction and therefore, PSO2 is attained.
Action 1: Target will be set at higher level.			

POs Attainment Levels and Actions for improvement – CAY m6 (2011-2015)

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	1.97	2.3	51 out of 79 courses contributed to the attainment of PO1.
Action 1: Target level will be increased.			
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	1.97	2.13	52 out of 79 courses contributed to the attainment of PO2.
Action 1: Target will be set higher than this.			
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	1.97	1.78	Subjects affecting the PO3 attainment values are-Digital Electronics, Digital System Design, Microprocessor & Embedded System, Analog System Design, , etc.
Action 1: These theory subjects will be correlated with Mini Projects.			
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	1.97	2.11	All the laboratory components of the program contributed to this PO. Hence, it is attained.

Action 1: Target will be set at higher level.			
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	1.97	1.80	Only 12 courses in the program address this PO and hence, it is not attained.
Action 1: Students will be encouraged to use modern tools in their projects.			
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	1.97	1.75	Curriculum concentrates mainly on imparting technical skills. Hence attainment is less.
Action 1: Awareness programme on the safe use of technology will be planned.			
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	1.97	1.59	The impact of the excessive use of the technology on Environment is not dealt with in detail in the course.
Action 1: Awareness programmes on impact of technology on environment will be planned.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1.97	1.98	Students are advised to apply ethical principles in their projects and therefore, it is attained.
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.97	2.13	Students are given ample opportunities to work in teams as well as individuals.
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	1.97	2.13	Students underwent many soft skills development

			programs and regular follow up sessions were organized.
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	1.97	1.89	There are no courses contributing this PO in the first year.
Action 1: Students will be educated about managerial principles along with engineering studies.			
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	1.97	2.00	Majority of the courses address this PO and hence it is attained

PSOs Attainment Levels and Actions for improvement – CAY m6 (2011-2015)

PSOs	Target Level	Attainment Level	Observations
PSO1: Students will be able to demonstrate software skills with competence to work and deliver in industry or research.			
PSO1	2.06	1.92	CS372, ET465, ET 565, ET 666 contributed less for the attainment of PSO1.
Action 1: More computing courses will be organised to bridge the gap..			
PSO2: Students will be competent to design applications and automation by using modern engineering tools with multi-disciplinary concepts.			
PSO2	2.06	2.19	Most of the student projects are focussed in this direction and therefore, PSO2 is attained.
Action 1: Target will be set at higher level.			

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

The department of Electronics and Telecommunication Engineering has been trying to exercise a system for pragmatic and consistent action to improve and sustain the academic and administrative environment of the department. For this, it is trying to adopt certain implementable procedures at departmental level. These procedures aim to assess qualities of various basic qualities like learning, teaching, following the academic calendar, other academic activities, etc. at the department in the mode of some academic audit such that best practices can be adopted for better delivery and also measures can be considered for quality improvement by imbedding a quality culture. For this, the department has been working with the following considerations presently:

1. Students' feedback is taken after completion of each course at the end of each semester on general aspects like the content and usefulness of the course from their perspective, text book(s) followed and reference book referred to, etc. (Students' Feedback form is enclosed in **ANNEXURE VII**). The department also collects opinions of each student on laboratory facility after each course. Each student fills the departmental feedback form on laboratory facilities for laboratories he/she has undergone during the semester. (Students' Feedback form on laboratory facility is enclosed in **ANNEXURE VIII**)
2. Teachers' feedback is also taken after completion of each course at the end of each semester on different general aspects like comment on the batch, comment and suggestion on the course content, etc. (Teachers' Feedback form is enclosed in **ANNEXURE IX**)
3. The students' and teachers' feedbacks on the general aspects in clauses (1) and (2) for each subject are studied individually in a departmental meeting. The level of acceptability of the feedback on these aspects is determined (at one of the three possible levels low, average, high) after thorough discussions and deliberations by also looking at other parameters (if felt necessary) like the difficulty level of the subject, the pattern of marks secured by the students in the internal assessments, final semester examinations and laboratory examination (if any).
4. The number of passed/ failed students and the overall performance of the students for each course may be also noted in terms of the attainment levels for various course outcomes (COs) and program specific outcomes (PSOs).
5. The overall achieved quality for each subject usually discussed by considering the outcomes in clauses (3) and (4) above in the departmental meeting. The meeting then

resolves the best practices which may be required to be adopted for better delivery and quality improvement as well as some measures if necessary.

6. The overall achieved qualities for all the subjects are (to be) placed before the Departmental Advisory Board (DAB) for review and suggestion.

Improvement in Placement, Higher Studies and Entrepreneurship (10)

ITEM	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Total No. of Final Year Students (N)	59	63	65
No. of students placed in companies or Government Sector (x)	22	28	31
No. of students admitted to higher studies with valid qualifying scores(GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	8	7	8
No. of students turned entrepreneur in engineering/technology (z)	-	-	2
$x + y + z =$	30	35	41
Placement Index : $(x + y + z)/N$	0.51	0.56	0.63
Average placement= $(P1 + P2 + P3)/3$	0.57		

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

Item		CAY m4	CAYm5	CAYm6
State/University/Level Entrance Examination/Others (Name of the Entrance Examination)	No. of Students admitted	60	60	60
	Opening Score/Rank	170	199	208
	Closing Score/Rank	092	099	110
Name of the Entrance Examination for Lateral Entry or lateral entry details	No. of Students admitted	6	6	6
	Opening Score/Rank	228	199	
	Closing Score/Rank	150	143	
Average CBSE/Any other Board Result of admitted students (Physics, Chemistry & Maths)		75	68	75

CRITERION 8	First Year Academics	50
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8. FIRST YEAR ACADEMICS

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

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

Data for first year courses to calculate the FYSFR:

Table B.8.1

Year	Number of students (approved intake strength)	Number of faculty members (considering fractional load)	FYSFR
CAY (2017-18)	420	19.32	21.74
CAY _{m1} (2016-17)	420	22.87	18.36
CAY _{m2} (2015-16)	420	24.52	17.13
Average	19.08		
Assessment = $(5 \times 15)/\text{Average FYSFR}$ (Limited to Max. 5)	3.93		

Qualification of Faculty Teaching First Year Common Courses (5)

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

Table B.8.2

Year	x	y	RF	Assessment of faculty qualification $(5x + 3y)/RF$
CAY (2017-18)	19	22	28	5.75
CAY _{m1} (2016-17)	22	23	28	6.39
CAY _{m2} (2015-16)	22	24	28	6.50
Average Assessment				6.21

First Year Academic Performance (10)

Table B.8.3

Academic Performance	CAY (2017-18)	CAYm1 (2016-17)	CAYm2 (2015-16)
Mean of CGPA or Mean Percentage of all successful students (X)	-	6.17	5.82
Total no. of successful students (Y)	-	40	48
Total no. of students appeared in the examination (Z)	-	40	48
API = $x^* (Y/Z)$	-	6.17	5.82
Average API = $(AP1 + AP2 + AP3)/3$	$(6.17+5.82)/2=$ 5.995		

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 the entire 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)

Table B.8.4

Course	Attainment of CO (2016-2020)	Set attainment Level
PH101	84.7	50
PH101L	70.6	50
CY102	71.8	60
CY102L	100	60
MA103	63.5	50
CE114	89.4	50
HU105	88.2	50
CE117	78.8	50
CS106	82.4	50
CS106L	94.1	50
ME108	88.2	60
PH201	82.4	50
PH201L	78.8	50
CY202	82.4	50
CY202L	98.8	60
MA203	67.1	50
ME224	83.5	50
ME224L	91.8	60
EE245	32.9	50
EE245L	72.9	50
HU206	71.8	50
ME227	85.9	50

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.

Table B.8.5.1: CO-PO mapping of 1st year courses

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PH101	2.50	2.00										
PH101L	2.00											
CY102	2.60	1.80	1.80			0.80	1.40					1.60
CY102L	2.00	1.80		1.00					1.20	1.80		
MA103	3.00	3.00	1.20	0.20					0.20			2.00
CE114	2.00	1.40	0.80	0.80	0.20		0.20					0.60
HU105		0.60	0.60	0.80		1.40	1.00	1.40	1.60	2.80	1.00	3.00
CE117	3.00	3.00	2.42	2.57	2.14	2.57	0.71					
CS106	2.00	1.80	2.40	1.20	1.20							
CS106L	2.00	1.80	2.40	1.20	1.20							
ME108	1.60	2.00						1.00	1.60			
PH201	2.50	2.00										
PH201L	2.00											
CY202	2.80	1.80	1.60	1.00		1.80	1.00		1.60	1.80		1.00
CY202L	2.00	2.00				1.25	1.25		1.00	1.00		
MA203	3.00	3.00	2.00									2.00
ME224	3.00	2.00	2.00	2.50	1.80							1.00
ME224L	3.00	1.50	1.30	1.80	1.30							1.00
EE245	3.00	3.00	3.00	2.00	1.60	1.00	3.00	0.40	1.00			3.00
EE245L	3.00	3.00		1.00					3.00	0.70		3.00
HU206		1.00				2.00		2.00	1.00	1.00	1.00	3.00
ME227	3.00	3.00	1.00		0.40	0.60						1.00
Average	2.50	2.08	1.73	1.34	1.23	1.43	1.22	1.20	1.36	1.52	1.00	1.85

Table B.8.5.2: CO-PSO mapping of 1st year courses

Course	PSO1	PSO2
PH101		
PH101L		
CY102		
CY102L		
MA103		
CE114		
HU105		
CE117		
CS106	2	
CS106L	2	
ME108		
PH201		
PH201L		

Course	PSO1	PSO2
CY202		
CY202L		
MA203		
ME224		
ME224L		
EE245		
EE245L		
HU206		
ME227		
Average	2	

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

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PH101	2.14	1.71										
PH101L	1.75											
CY102	2.02	1.40	1.40			0.62	1.09					1.24
CY102L	1.95	1.76		0.98					1.17	1.76		
MA103	1.88	1.88	0.75	0.13					0.13			1.25
CE114	1.65	1.16	0.66	0.66	0.17		0.17					0.50
HU105	0.00	0.53	0.53	0.70		1.23	0.88	1.23	1.40	2.45	0.88	2.63
CE117	2.70	2.70	2.18	2.31	1.93	2.31	0.64					
CS106	1.80	1.62	2.16	1.08	1.08							
CS106L	1.85	1.67	2.22	1.11	1.11							
ME108	1.48	1.85						0.93	1.48			
PH201	2.44	1.95										
PH201L	1.75											
CY202	2.59	1.67	1.48	0.93		1.67	0.93		1.48	1.67		0.93
CY202L	2.00	2.00				1.25	1.25		1.00	1.00		
MA203	2.48	2.48	1.65									1.65
ME224	2.84	1.89	1.89	2.36	1.70							0.95
ME224L	0.75	0.38	0.33	0.45	0.33							0.25
EE245	2.33	2.33	2.33	1.55	1.24	0.78	2.33	0.31	0.78			2.33
EE245L	2.48	2.48		0.83					2.48	0.58		2.48
HU206		0.88				1.75		1.75	0.88	0.88	0.88	2.63
ME227	2.18	2.18	0.73		0.29	0.44						0.73
Direct Assessment	2.05	1.72	1.41	1.09	0.98	1.25	1.04	1.05	1.20	1.39	0.88	1.46

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.

Table B.8.5.4

Course	PSO1	PSO2
PH101		
PH101L		
CY102		
CY102L		
MA103		
CE114		
HU105		
CE117		
CS106	1.80	
CS106L	1.85	
ME108		
PH201		
PH201L		
CY202		
CY202L		
MA203		
ME224		
ME224L		
EE245		
EE245L		
HU206		
ME227		
Direct Assessment	1.83	

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

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	2.05	Target is achieved.
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	1.72	Target is achieved.
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	1.41	Not many subjects will contribute to this PO at first year level.
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	1.09	Not many subjects will contribute to this PO at first year level.
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	1.97	0.98	This PO will be addressed more in higher semesters.
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	1.25	Not many subjects will contribute to this PO at first year level
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	1.04	Not many subjects will contribute to this PO at first year level

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1.5	1.05	Not many subjects will contribute to this PO at first year level
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	1.20	Not many subjects will contribute to this PO at first year level.
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	1.39	Not many subjects will contribute to this PO at first year level.
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	Not many subjects will contribute to this PO at first year level.
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	1.46	Majority of the courses address this PO and hence it is attained

PSOs Attainment Levels and Actions for improvement – 2017-18

PSOs	Target Level	Attainment Level	Observations
PSO1: Students will be able to demonstrate software skills with competence to work and deliver in industry or research.			
PSO1	1.5	1.83	Not many subjects will contribute to this PO at first year level
PSO 2: Students will be competent to design applications and automation by using modern engineering tools with multi-disciplinary concepts.			
PSO2	1.5	-	No subjects will contribute to this PO at first year level

Criterion		
9	Student Support Systems	50

9. STUDENT SUPPORT SYSTEMS

Mentoring system to help at individual level (5)

Type of mentoring:

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

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

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

and differently abled sections of the society, environmental protection, blood donation, social services etc.

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

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

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

Feedbacks 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 they disliked the 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 takes necessary action, if required.

DEPARTMENT OF CIVIL ENGINEERING
ASSAM ENGINEERING COLLEGE, GUWAHATI-13

Subject Name:

Subject Code:

Name of teacher:

Performance Appraisal of Class Room Teaching

Dear student,

Please tick the appropriate box honestly. Your input means a lot to improve the quality of class room teaching.

	0. Never	1. Rarely	3. Sometime	3. Frequent	4. Always
Sl No.	Rating Scale				Remarks
1	Aim/Objective of each lesson made clear				
2	Teaching techniques are effective				
3	Concepts and principles illustrated with concrete examples				
4	Active student performance ensured in the class				
5	Question posed at proper levels				
6	Students free to raise doubts/as questions				
7	Communication effective				
8	Chalkboard/Presentation work systematic				
9	Student interest maintained				
10	Proper link up of main points at the end of each class				
11	Planning and preparation for teaching evident				
12	Confidence in subject matter evident				
13	Homework/Assignments examined and returned within reasonable time				
14	Engages class punctuality				

Date:

Semester:

Fig. 9.2.1 Sample Feedback survey sheet on teacher

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

Roll No.	Name:
----------	-------

Dear student,

This questionnaire is prepared to test the quality of the course- Transportation Engineering Laboratory-II (CE 613 L). Your input means a lot. Please fill up very frankly and let us know your confidence in the following outcomes after attending the course.

On a scale of 0 to 100 please write down your confidence level.

100-Totally confident, 0-No confidence at all

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

1. What did you like most about this course?

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

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

Fig. 9.2.2 Sample course end survey form

Mechanical Engineering Department

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



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

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

2. About the course

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

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

4. Any suggestion: (write overleaf)

Fig. 9.2.3 Sample Feedback form of ME department

Electrical Engineering department

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

feedbacks directly. The HoD goes through the feedbacks and take necessary action, if any is required.

GOVERNMENT OF ASSAM
ASSAM ENGINEERING COLLEGE
ELECTRICAL AND INSTRUMENTATION ENGINEERING DEPARTMENT
 Jalukbari, Guwahati-781013, 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

S. No.	Items	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Not Applicable
		5	4	3	2	1	
1	Laboratory and computational facilities fulfilled the needs for undergraduate course and career						
2	Faculty members were available for all assistance						
3	Faculty was supportive and provided constructive guidance						
4	Faculty are competent and well abreast of the course material						
5	Questions were always encouraged in the classroom						
6	Soft skills and computational ability were enhanced through classroom teaching, project works and laboratory						
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

I. Information on the Respondent: (Tick (✓) Appropriately)

1. Percentage of classes attended:
 0-20 _____ 20-40 _____ 40-60 _____ 60-80 _____ 80-100 _____

2. The expectations of the students from the course are: (Tick (✓) Appropriately)
 a) Enhance by skill base in the area of specializations _____
 b) Get exposed to a relevant subject _____
 c) Curiosity _____
 d) Better Employment Opportunities _____
 e) Complete Course requirements _____
 f) Improve CGPA percentage _____

II. About the Instructor: (Tick (✓) Appropriately)

	A	B	C	D	E
1. Coverage of syllabus					
2. Organization of the Course					
3. Emphasis on fundamentals					
4. Availability of text book study materials					
5. Usefulness of the prescribed text book					
6. Usefulness of tests and assignments					
7. Benefit you derived from the course?					
8. Pace of the Teaching lecture					
9. Content of the Subject					
10. Clarity of expression					
11. Level of preparation					
12. Level of interaction					
13. Accessibility outside the class					

Overall 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

Electronics & Telecommunication Engineering department

The department collects opinions of each student in the mode of feedback per course. The student fills the departmental feedback form indicating his/her learning through a course and about his/her expectation from the course. The feedback form seeks the feeling and opinion of the student in regard of the course content, text book, class room activity, etc. such that the same can be discussed at departmental level and appropriate action may be initiated. These feedback are considered important as it is always desirable that the undergraduate BE course of the department achieve the objectives of the department in terms of course quality and acquisition of knowledge by student (as also desired in terms of POs and PSOs). The format of the feedback system is shown in the following:

Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati

STUDENT COURSE FEEDBACK FORM

Academic year	Semester	Course No.	Course title

I.	Information of the Respondent: (Tick (v) Appropriately)									
1.	Percentage of classes attended									
	0-20		20-40		40-60		60-80		80-100	
2.	The expectations of the students from the course are:									
	(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								

II About the Instructor: Information on the Respondent: (Tick (v) Appropriately)					
	5	4	3	2	1
1. Relevance of the course					
2. Coverage of the syllabus					
3. Organization of the Course					
4. Emphasis on fundamentals					
5. Availability of text book/study materials					

6. Usefulness of tests and assignments					
7. Benefit derived from the course					
8. Pace of Teaching/lecture					
9. Clarity of expression in teaching					
10. Quality of class room delivery					
11. Class room interaction					
12. Availability outside class room					
5: Very Good	4: Good	3: Average	2: Below average	1: Poor	

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

Department of Chemical Engineering
Assam Engineering College
Feedback Form

Semester _____ Session _____

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

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

*CPI – Chemical Process Industries

Fig. 9.2.6 Feedback form for Chemical Engineering 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 Center			
Drawing Hall			
Departmental office			
Wifi / Internet			
T&P support in Civil Engineering Department			
Mentoring system			
Departmental library			
Others, Specify-			

Roll No.		Name:	
Date		Current semester	

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

Mechanical Engineering Department

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


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

STUDENT SURVEY FORM

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

Sl. No.	Items	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree	Not applicable
		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:

Date: _____ Signature _____

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

Electronics & Telecommunication Engineering department

The Electronics and Telecommunication Engineering Department also collects opinions of each student on laboratory facility after each course. Each student fills the departmental feedback form on laboratory facilities available for the particular laboratories he/she has undergone during the semester. In addition to indicating an overall quality level in a scale

of 5, he/she can also write his/her opinion in the format. These comments are discussed at departmental meeting such that the quality of laboratory facilities may be appropriately addressed and enhanced. The format of the feedback is shown in the following:

**Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati**

STUDENT'S FEEDBACK FORM ON LABORATORY FACILITY

Academic year	Semester	Course No.	Course title

II About Laboratories: Information of the Respondent: (Tick (v) Appropriately)						
Name of the Laboratory	5	4	3	2	1	Suggestions/ Comment
Network Theory & Analysis						
Electronic Devices						
Digital Electronics						
Computing lab						
Electronic Circuit						
Instrumentation & Electronic measurement						
Analog communication						
Microprocessor						
Digital communication						
Analog system design						
Microcontroller & Embedded system						
Microwave engineering						
Digital system design						

Similarly, the system is there for other departments also.

ASSAM ENGINEERING COLLEGE
CHEMICAL ENGINEERING DEPARTMENT
Jalukbari-781013

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

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

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

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 Engineering department

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:

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 the 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 (ATPO), 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 and ATPO 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
21	WSP	0	0	0	-	-	-	-	-	-	0

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

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

2015-16											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
9	TASL	-	2	-	-	-	-	-	-	-	2
10	Eveready (Regular + Passed out)	-	1+2	-	0	-	-	-	-	-	3
11	Genpact	2	0	1	0	1	1	1	0	0	6
12	Vodafone	-	-	-	-	2	-	-	-	-	2
13	British Paint (Passed out)	-	-	-	2	-	-	-	-	-	2
14	Mu Sigma	0	0	0	0	0	0	0	0	0	0
15	BPCL	-	2	1	-	-	-	-	-	-	3
16	Patil Group (Passed out)	2	-	-	-	-	-	-	-	-	2
17	OIL	-	3	2	3	-	-	-	-	-	8
18	Huawei	-	-	-	-	0	1	-	-	-	1
19	Aristocrat Gaming	-	-	-	-	0	0	-	-	0	0
20	SAP Labs India	-	-	0	-	0	0	-	-	-	0
21	SIB n JITS Life	2w	0	0	0	0	0	0	0	1w	3w
22	Coffee De Café B	2	1w	0	0	1	0	0	0	0	3+1w
23	XL Dynamics	0	0	0	0	0	0	0	0	0	0
24	Emami	-	6	-	2	-	-	1	-	-	9
25	Power grid	-	-	3+1w	-	-	-	-	-	-	3+1w
Branch-wise total		14	31	45	19	26	12	8	0	5	160

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

2014-15											
Sl	Company	Civil	ME	EE	ChE	E&TE	CSE	IE	IPE	MCA	Total
17	Genpact	2	0	0	3	2	5	1	0	0	13
18	Patel Engg.	8	-	-	-	-	-	-	-	-	8
19	Sehwing Setter	-	1	-	-	-	-	-	-	-	1
20	Coffee Day Cafe B	-	1	0	-	2	-	-	-	-	3
21	INNOFIED Technologies	-	-	-	-	-	0	-	-	0	0
22	Mobisoft Technologies	-	-	-	-	-	0	-	-	2	2
23	Marico	-	0	0	-	-	-	-	-	-	0
24	XL Dynamics	3	0	0	0	0	0	0	0	0	3
25	Sling Infocom	-	-	-	-	0	0	-	-	7	7
26	BPCL	-	6	2	-	-	-	-	-	-	8
27	Signum I Technology	-	-	-	-	-	1	-	-	-	1
28	Federal Bank	2	0	0	0	1	0	1	0	0	4
29	Gannon Dunkerley	3	-	-	-	-	-	-	-	-	3
30	Brigasha 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, Jaobol, 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. "Jaobol" was the winner (Best Idea) of Parivartan-2016, "avin" 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- “ERTHNITI 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.

Pyrokynesis

The college also organizes a cultural festival called- “Pyrokynesis” 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 equipment. Overall it has good sports facility for the students. AEC has always performed well in all the inter college championships.

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

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

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

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• 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

Position	Functions
I/C Alumni Association	<ul style="list-style-type: none"> • Formation of student council (SC) • Arrange periodic meetings of SC • Ensure alumni registration • Prepare alumni news letter • Proposing annual budget
I/C Workshop	<ul style="list-style-type: none"> • Smooth running of college workshop • Preparing Material Requirement • Oversee the routine work
I/C Employee Development cell	<ul style="list-style-type: none"> • Identifying training needs of employees
Training and Placement Officer	<ul style="list-style-type: none"> • Notify the employees about various Employee Development programmes • Arrange Employee Development Programmes • Maintain training records • Liaison with industry • 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

Position	Functions
	<ul style="list-style-type: none"> • Creation and upkeep of sports facilities • Proposing annual budget
I/C Counseling Cell	<ul style="list-style-type: none"> • Facilitate career guidance to students • Assist students suffering from psychological disorders • Arrange for professional counselors • Maintain record of counseling activities • Student academic counseling • Provide slow-pace programme for weaker students • Arrange remedial classes for weaker students

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

Position	Name	Contact Details
I/C Student Professional Activities	Dr. Amrita Ganguly	aganguly.ele@aec.ac.in
I/C Gymnasium /Sports	Prof. Deba Kr. Mahanta	debamahanta@gmail.com
I/C Counseling Cell	Dr. Maushumi Barooah	maushu@gmail.com

RULES, PROCEDURES, RECRUITMENT AND PROMOTIONAL POLICIES

The rules and policies regarding recruitment and promotion are as per AICTE and Assam government. The recruitment procedure is conducted by APSC and DTE.

The following committees have been created for smooth functioning of the institution and also to provide quick and efficient solution to various problems that may arise.

HOSTEL SUPERINTENDENTS (2015-18)

Name	Designation	Position
Mr. B. Dekaraja	Asst. Professor	Superintendent of Hostel 1
Dr. Aroop Bardalai	Professor	Superintendent of Hostel 2
Mr. Bhaskar Jyoti Das	Associate Professor	Superintendent of Hostel 3
Mr. Sasanka Shekhar Sarma	Asst. Professor	Superintendent of Hostel 4
Dr. Sasanka Borah	Asst. Professor	Superintendent of Hostel 5
Mr. Prasanta Choudhury	Asst. Professor	Superintendent of Hostel 6
Mr. Madhurjya Baruah	Asst. Professor	Superintendent of Hostel 7
Ms. Barnali Gogoi	Asst. Professor	Superintendent of Hostel 8

LIBRARY COMMITTEE (2015-2018)

Sl. No.	Name of the Member	Position	Designation
1.	Dr. Atul Bora	Chairman	Principal
2.	Dr. Sudip Kumar Deb	Vice Chairman	Professor
3.	Ms. Jyotika Devi	Member Secretary	Librarian
4.	Dr. Jayanta Pathak	Member	Professor
5.	Dr. Kalyan Kalita	Member	Associate Professor
6.	Dr. 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 GENERAL 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 CO ON ROO SECRETARY	Gourab Hazarika	8255022271
12.	DEBATING AND PUBLICITY SECRETARY	Bishal Pratim Nath	7035913337
13.	TENNIS SECRETARY	Udipta Bharali	8822418699

S. No.	Portfolio	Name	Phone No
14.	GYMNASIUM & KABADI SECRETARY	Prandeep Saikia	7663096092
15.	GIRLS' CO ON ROO 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 SECTARY	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 GENARAL SECRETARY	NABADEEP KALITA	8403087575
10.	GENERAL SPORTS SECRETARY	AJOY DOLEY	8011999117
11.	BOY'S CO ON ROO SECRETARY	SACHANKA SAIKIA	9678240379
12.	DEBATING AND PUBLICITY SECRETARY	BHARAT GOGOI	9706223634
13.	TENNIS SECRETARY	DAVID PRATIM GOGOI	9613005399
14.	GYMNASIUM & KABADI SECRETARY	JADOB KRO	8486760867
15.	GIRLS'CO ON ROO SECRETARY	HIMASHREE DEKA	9859042648

PROFESSOR IN CHARGE OF AECSU (2017-18)

Sl. No.	Position	Name of the Member	Designation
1	President	Dr Atul Bora	Principal, AEC
2	Vice President	Dr. Aroop Kr. Bardalai	Professor EE

Sl. No.	Position	Name of the Member	Designation
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)

A well decentralized pattern of working is followed at AEC. Though the Principal is the academic head of the institution, many of his powers are delegated to Heads of Departments and other officers for efficient functioning. The Heads of Departments

are in charge of their departments. The delegation of power among various officers is as given below.

- HOD, CE - In charge of Department of Civil Engineering
- HOD, ME - In charge of Department of Mechanical Engineering
- HOD, EE - In charge of Department of Electrical Engineering
- HOD, CSE – In charge of Department of Computer Science & Engineering
- HOD, CHE - In charge of Department of Chemical Engineering
- HOD, E&T – In charge of Department of Electronics and Telecommunication Engineering
- HOD, IE- In charge of Department of Instrumentation Engineering
- HOD, IPE - In charge of Department of Industrial & Production Engineering
- HOD, MCA - In charge of Department of Master of Computer Application
- HOD, Physics - In charge of Department of Physics
- HOD, Chemistry – In charge of Department of Chemistry
- HOD, Mathematics – In charge of Department of Mathematics
- HOD, Humanities - In charge of Department of Humanities
- Placement officer – Placement, Soft Skill Development, Public Relations

Departments are provided with ‘Department Fund’ and ‘Petty Cash a/c’ which can be utilized for student welfare, facility maintenance and minor purchases.

Grievances can be directed to the Staff Secretary who will bring it to the notice of the Academic council wherein it is discussed and suitable solutions arrived at. Complaints regarding infrastructure can be registered through an online complaint register. Suggestion box is kept outside the office of the Principal, in which staff and students can deposit their grievances / suggestions.

List of faculty members who are administrators/decision makers for various assigned jobs

Sl No	Name	Position
1	Dr. Atul Bora	PRINCIPAL
2	Dr. Ranjit Kumar Dutta	HOD ME & IPE
3	Dr. Damodar Agarwal	HOD EE & INS
4	Prof. Ashok Baruah	HOD CHE
5	Prof. Apurba Kumar Kalita	HOD E&T & CSE
6	Dr. Palash Jyoti Hazarika	HOD CE
7	Dr. Maushumi Barooah	HOD MCA
8	Prof Reeta Goswami	HOD Physics
9	Dr. Tapas Barman	HOD Chemistry
10	Prof Pranab Kumar Sarma	HOD Mathematics
11	Dr. Afazuddin Ahmed	HOD Humanities
12	Dr. Pradip Baishya	In-Charge, Alumni Association
13	Mr. Binoy Sarma	In-Charge, Workshop
14	Dr. Maushumi Barooah	In-Charge, 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 rectified grievance faced by the student during the course of study. GRC Committee effectively addresses various issues such as general grievances, ragging issues, women issues etc. on the campus, as per guidelines of AICTE. GRC consist of Principal, HOD's, Senior faculty members, student representatives.

ANTI RAGGING MECHANISM

In pursuance of the directive of the Hon'ble Supreme Court of India, Govt. of Assam and AICTE etc. an Anti-ragging squad is formed for the college. The squad will be mobile alert at any time and would make periodic yet random/surprise visits or raids at the hostels and other places of potential ragging. An Anti-ragging Committee will give

necessary support/shared vision /action/intervention as sought by the Anti-ragging squad of this college.

The anti-ragging bodies shall adopt the various strategies to eliminate/prevent ragging at AEC. Awareness among the students and other stake holders about the implications/range of judiciary actions that may invite to anyone indulging in ragging may be generated. Anti-ragging banners are installed at different locations inside college premises. Steps to engage the students in cultural and intellectual activities such as seminars/lectures series of social relevance may also be undertaken. The squad will continuously monitor, review the situation and report to the Principal/Anti-ragging Committee for necessary support/shared vision/action/intervention.

ANTI RAGGING SQUAD (2015-17)

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 Das	Asst. Professor	Member	9864093762
11	Dr. Sasanka Borah	Asst. Professor	Member	9435536598
12	Prof. Prasanta Kumar Choudhury	Asst. Professor	Member	9954279327
13	Prof Biswanath Dekaraja	Asst. Professor	Member	9401320341
14	Prof. Sasanka Sekhar Sharma	Asst. Professor	Member	9401363269
15	Prof. Barnali Gogoi	Asst. Professor	Member	9864067264
16	Prof. Madhurjya Baruah	Asst. Professor	Member	9435708424
17	Dr. Utpal Nath	Asst. Professor	Member	9435408459

SEXUAL HARASSMENT PREVENTION MECHANISM

In pursuance of the Govt. instructions on the act “The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (Sexual Harassment Act)”, the internal complaint committee constituted to examine the probable matter relating to the sexual harassment on women at workplaces in Assam Engineering College, Jalukbari, Guwahati is hereby constituted with the following members.

SEXUAL HARASSMENT COMMITTEE FOR THE ACADEMIC YEAR 2017-18

SI No.	Name	Designation
1	Dr. Atul Bora	Principal
2	Dr. Maushumi Barooah	Professor, MCA
3	Dr. Runumi Sarma Bordoloi	Professor, EE
4	Prof. Runjun Das	Associate Professor, CHE
5	Prof. Purabi Patowary	Associate Professor, EE
6	Prof. Rashi Borgohain	Assistant Professor, E&T
7	Mrs. Nilima Boro	Junior Assistant, AEC office
8	Dr. Sudip Kumar Deb	Professor, ME
9	Dr. Jayanta Pathak	Professor, CE

Delegation of financial powers (10)

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

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

The college maintains transparency in all its operation and working. Information such as Internal marks scored by students, Shortage of attendance, if any, Availability of scholarships, Opportunities for students etc. are promptly displayed on Notice Boards as well as on LCD which are installed at Main building and Canteen.

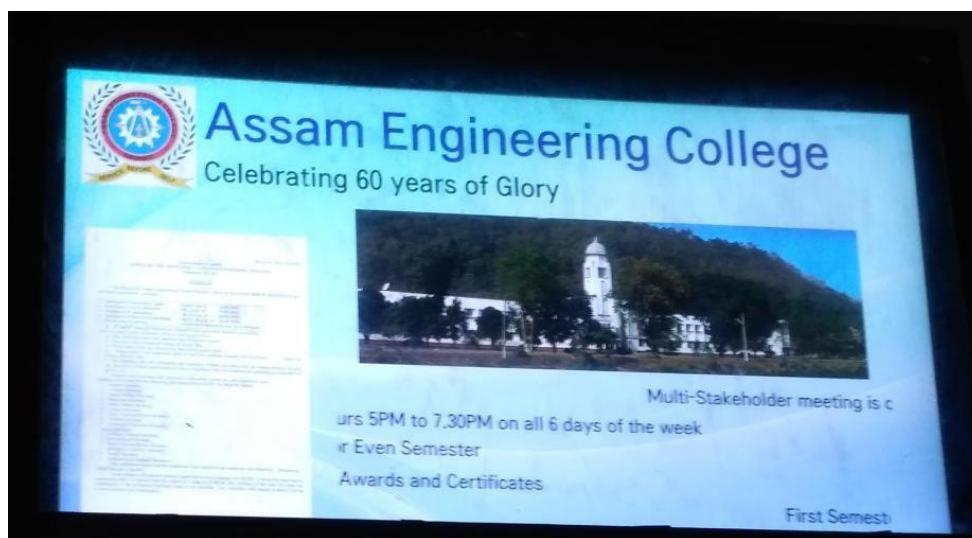


Fig. 10.1.5 LCD display screen at Main Building Entrance

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 1963
Fee	Govt.	Grant(s)	Other Sources	Recurring including salaries	Non-recurring	Special Projects/Any Other	Expenditure per student
35,48,35-	24,90,68,00-	1,87,86,35-	1,66,30,391.00	24,11,12,01-	2,50,77,683.00		1,35,604.00

For 2014-15

Total Income (in Rs.)				Actual Expenditure (in Rs.)			Total No. of students 1999
Fee	Govt.	Grant(s)	Other Sources	Recurring including salaries	Non-recurring	Special Projects/Any Other	Expenditure per student
36,11,25-	22,67,25,00-	1,75,00,00-	1,74,21,578.00	21,77,39,602.00	18016941.00		1,17,937.00

**Table
B.10.2a**

Items	Budgeted in 2017-18	Actual 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
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)

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During the last three years, the budget was utilized to meet expenses such as staff salary, infrastructure development, purchase of equipment, expenses towards consumables and contingencies, travel etc. Every year almost 75% of the budget is spent on staff salary, 10% on infrastructure development, about 8% on purchase of equipment, about 5 % on library development and the rest 2% on other expenses. This has been the general pattern of utilization of budget for the last 5 years.

Library and Internet (20)

(Indicate whether zero deficiency report was received by the Institution for all the assessment years. Effective availability/purchase records and utilization of facilities/equipment etc. to be documented and demonstrated)

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

- Relevance of available learning resources including e-resources
- Accessibility to students
- Support to students for self-learning activities

ABOUT THE COLELGE LIBRARY	
Carpet area of library (in m ²)	616
Reading space (in m ²)	309
Number of seats in reading space	80
Number of users (issue book) per day	40
Number of users (reading space) per day	10
Timings: During working day, weekend, and Vacation	9.30am-5.00pm in every working days
Number of library staff	7
Number of library staff with a degree in Library	2
Library Management	Yes
Computerization for search, indexing	Available
Issue/return records bar coding used	On process
Library services on Internet/Intranet INDEST or other similar membership archives	Not Available

TITLES AND VOLUMES PER TITLE

Number of titles: **15485**

Number of volumes: **63000**

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

SCHOLARLY JOURNAL

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

DIGITAL LIBRARY

Availability of digital library content : Yes

If available, mention number of courses, number of e-books, etc. : e-books-165

Availability of an exclusive server : Yes

Availability over Intranet/Internet : Intranet

Availability of exclusive space/room : Yes

Number of users per day 10

LIBRARY EXPENDITURE ON BOOKS, MAGAZINES/JOURNALS, AND MISCELLANEOUS CONTENT

Year	Expenditure				Comments if any
	Books	Magazines/journals (for hard copy subscriptions)	Magazines/journals (for soft copy subscriptions)	Misc. Content	
2017-18	9,93,184.00	Nil	Nil	Nil	
2016-17	7,69,103.00	Nil	Nil	Nil	IEEE & ASCE Journal subscription provided by MHRD
2015-16	Nil	Nil	Nil	Nil	New volumes and books provided by Government

Internet (10)

INTERNET

Name of the Internet provider	National Informatics Centre
Available bandwidth	1 Gbps
Availability of Internet in an exclusive lab	Yes
Availability in most computing lab	Yes
Availability in Departments and other units	Yes
Availability in Faculty rooms	Yes
Institute own e-mail facility to faculty/students	Yes
Security/privacy of e-mail/internet users	Yes

Internet is provided to the institute by Government of India under the scheme of National Knowledge Network (NKN). The Central Computer Centre (CCC) then distributes the internet connection among various departments, offices, canteen, library and hostels. However, every department has its own computer center too.

Name of the Internet Provider: National Knowledge Network (NKN) under Government of India

Available bandwidth:

The Central Computer Centre receives a bandwidth of 1 Gbps at its doorstep. The Civil Engineering department maximizes the bandwidth at the receiving end by using a suitable converter. Hence, the department also gets **1 Gbps bandwidth speed**.

Access Speed:

It varies from 150-300 Mbps across all the departments.

Wi Fi availability:

Wi Fi is available 24×7 in the academic buildings as well in the hostels.

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

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

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

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

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

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



ANNEXURE I

Program Outcomes (PO) and Program Specific Outcomes (PSO)

Department of Electronics & Telecommunication Engineering

Assam Engineering College, Guwahati-13

Program Outcomes (PO):

- 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.

Program Specific Outcomes (PSO):

PSO 1: Students will be able to demonstrate software skills with competence to work and deliver in industry or research.

PSO 2: Students will be competent to design applications and automation by using modern engineering tools with multi-disciplinary concepts.

ANNEXURE II

Continuous Assessment Test II

Analog System Design (ET761)

Total Marks: 50

Time: 2 Hrs

- 1(a)** Design a circuit such that $V_0 = V_2 - 3V_1$. **5**
- 1(b)** Draw the VTC (voltage transfer curve) for a linear and nonlinear op-amp. **5**
- 2.** Using an op-amp powered from ± 15 volt power supplies, design a photo detector amplifier such that as i_1 changes from 0 to $1\mu\text{A}$, V_O changes from -5V . to $+5\text{V}$. **10**
- 3.** Using an op-amp, two comparators, a 2N2222 npn BJT and resistors as needed, design a circuit that accepts a data input V_1 and a control input $V_T \geq 0$, and causes a 10 mA, 1.5 V LED to glow whenever $-V_T < V_1 < +V_T$. Assume ± 15 volt regulated supplies. **10**
- 4.** Design sawtooth wave generator to have a 10 V peak output and a frequency of 100Hz. **10**
- 5.** Design a 555 one shot multivibrator whose pulse width can be varied from 1ms to 1s by means of a 1Mohm pot. **10**

Final Exam Question Paper (University)

Total number of printed pages-8

16 (ET 862) AWPR

2017

ANTENNA AND WAVE PROPAGATION

Full Marks : 100

Time : Three hours

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

Answer question no. 1 and any four questions from the rest.

1. Choose the correct answer and justify.

2×10=20

- (i) A plane electromagnetic wave travelling along the +z direction, has its electric field given by $E_x = 2\cos(\omega t)$ and $E_y = 2\cos(\omega + 90^\circ)$ the wave is
- (a) linearly polarized
 - (b) right circularly polarized
 - (c) left circularly polarized
 - (d) elliptically polarized

Contd.

(ii) The wavelength of an electromagnetic wave with propagation constant $(0.1\pi + j0.2\pi) \text{ m}^{-1}$ is

(a) $2\sqrt{0.05} \text{ m}$

(b) 10 m

(c) 20 m

(d) 30 m

(iii) If a uniform plane wave satisfies the equation, $\frac{\partial^2 E_x}{\partial z^2} = \mu\epsilon \frac{\partial^2 E_x}{\partial t^2}$ the wave propagates in the

(a) x -direction

(b) z -direction

(c) y -direction

(d) xz plane at an angle of 45° between the x and z directions

(iv) For a dipole antenna

(a) The radiation intensity is maximum along the normal to the dipole axis

(b) The current distribution along its length is uniform irrespective of the length

(c) The effective length equals its physical length

(d) The input impedance is independent of the location of the feed point

(v) An antenna when radiating, has a highly directional radiation pattern. When the antenna is receiving its radiation pattern

(a) Is more directive

(b) Is less directive

(c) Is the same

(d) Exhibits no directivity at all

(vi) The far field of an antenna varies with distance r as

(a) $1/r$

(b) $1/r^2$

(c) $1/r^3$

(d) $1/\sqrt{r}$

(vii) Consider a lossless antenna with a directive gain of $+6\text{dB}$. If 1mW of power is fed to it the total power radiated by the antenna will be

(a) 4mW

(b) 1mW

(c) 7mW

(d) $1/4\text{mW}$

(viii) The electric field E and the magnetic field H of a Hertzian dipole antenna satisfy the condition

(a) The r component of E is equal to zero

(b) Both r and θ components of H are equal to zero

(c) The θ component of E dominates the r component in the far - field region

(d) The θ and ϕ components of H are of the same order of magnitude in the near-field region

(ix) The beam width - between - first - nulls of a uniform linear array of N equally - spaced (element spacing = d) equally excited antennas is determined by

(a) N alone and not by d

(b) D alone and not by N

(c) The ratio (N/d)

(d) The product (Nd)

(x) The directivity of an antenna array can be increased by adding more antenna elements, as a larger number of elements

(a) Improves the radiation efficiency

(b) Increases the effective area of the antenna

- (c) Results in a better impedance matching
- (d) Allow more power to be transmitted by the antenna.
2. (a) Deduce the near and far field expressions for a Hertzian dipole. 10
- (b) As related to antennas, define and explain the following terms: 2.5×4=10
- effective aperture
 - efficiency
 - beam width
 - bandwidth.
3. (a) Draw the horizontal and vertical pattern of a centre-fed vertical dipole. 5
- (b) Find the directivity and effective area of half-wave dipole. 10
- (c) A dipole antenna with length equal to 10cm and carrying a current of 2A at a frequency of $10^8/2\pi$ hertz, radiates into free space. Calculate the electric field intensity at a distance of $r=5\text{km}$ from the antenna, the induction field is negligible. 5

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4. (a) Calculate the directivity of an antenna, the power pattern of which is given by 10
- $$U(\theta, \phi) = \cos\theta \cos\phi$$
- $$0$$
- $$0 \leq \theta \leq \pi; 0 \leq \phi \leq \pi;$$
- $$0 \leq \theta \leq \pi; \pi \leq \phi \leq 2\pi$$
- (b) Derive the Friis transmission formula. Discuss its significance. 10
5. (a) For an array of 4 isotropic point sources, fed with currents of same magnitude but out of phase, evaluate the null directions and directions of maxima and draw the pattern. 10
- (b) Design a 4 element, broadside array of isotropic elements $\lambda/2$ apart, that has an array factor with the first side lobe 13.46dB below the main lobe. 10
6. (a) Design a 6 element Yagi Uda antenna to operate at 500 MHz. 5
- (b) Explain the geometry of horn antenna. What are its types? Draw with neat diagram. 10

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Contd.

- (c) Calculate in dB the directivity of 10 turn helix, having pitch angle, $\alpha = 12^\circ$ and circumference equal to one wavelength. 5

7. (a) Define the following terms 10

(i) MUF

(ii) Critical frequency

(iii) Skip distance

(iv) Virtual Height

- (b) Describe the Ionospheric wave propagation. 10

8. Write short notes on the following topics
(any four) 4×5=20

(a) Polarization

(b) BALUN

(c) Log periodic antenna

(d) Fading and Diversity schemes

(e) Poynting vector

Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati

ANNEXURE III
EXIT SURVEY

S.l no	Competencies	Level of competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely satisfied
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.				
Indicate your answer with symbol A in the appropriate box					
1) How would you rate your overall satisfaction with your preparation to become an engineer?					
Not satisfied		Little satisfied		satisfied	
				Very satisfied	
2) In general, the department has provided a _____ quality academic program?					
Poor		OK		Good	
				Very Good	
Name:					
e-mail id:				Batch:	
Roll no:					
Corresponding Address:					
Signature:					

Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati
ANNEXURE IV
ALUMNI SURVEY

S.I no	Competencies	Level of competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely satisfied
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.				
Indicate your answer with symbol A in the appropriate box					
1) How would you rate your overall satisfaction with your preparation to become an engineer?					
Not satisfied		Little satisfied		Satisfied	
2) In general, the department has provided a _____ quality academic program?					
Poor		OK		Good	
Name:					Branch:
e-mail id					Batch:
Name of the Organization:					
Corresponding Address:					
Signature:					

Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati

ANNEXURE V
EMPLOYER SURVEY

Name of the Company: _____

1. How many graduates have you hired from this department in the past five years (approx.)?
2. Are there any other skills which will be in demand in the future that should be included in the educational preparation of fresh graduates? If yes, please specify
3. Indicate how well you agree with each Program Educational Objectives PEOs as a predicted accomplishment for the degree.

S.I no	Competencies	Level of competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely satisfied
1	PEO1: To provide the theoretical knowledge and the practical experience of electronics and telecommunication to make the students competent for pursuing higher studies or a career in an industry or a research-and-development organization.				
2	PEO2: To facilitate innovation and entrepreneurship as well as to generate awareness for creation of intellectual property.				
3	PEO 3: To imbibe human values, team work and social and professional ethics for building a better environment and society.				

4. Indicate how well do you agree with each Program Outcomes POs as a predicted accomplishment for this programme

S.I no	Competencies	Level of competency			
		Completely Dissatisfied	Dissatisfied	Satisfied	Completely satisfied
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.				

Other suggestions, if any:

Place:

Signature

Date:

Name and Designation:

ANNEXURE VI

Assam Engineering College Electronics & Telecommunication Engineering Department

SELF-APPRAISAL OF TEACHING FACULTY

(Details are required from YYYY to YYYY)

(Please attach separate sheets if necessary)

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

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

Good (3)	Average (2)	Below Average (1)

6. Analysis of Students Feedback :

Good (3)	Average(2)	Below Average (1)

7. Academic Activities at Department Level other than regular classes : (mention below)

Good (3)	Average(2)	Below Average (1)

8. Other Academic Activities at the Institute Level : (mention below)

Good (3)	Average(2)	Below Average (1)

9. Involvement in Students' Extra- curricular Activities(mention below)

Good (3)	Average(2)	Below Average (1)

10. Workshop/Seminar/Conference/Faculty Development Programme Conducted:

Sl. No.	Name of the Program	Period

Good (3)	Average (2)	Below average (1)

11. Workshop/Seminar/Conference/Faculty Development Programme Attended:

Sl. No.	Name of the Program	Institute/Organisation	Period

Good (3)	Average (2)	Below average (1)

12. University Examination Related Works:

Sl No.	Nature of the Duty	University

Good (3)	Average (2)	Below average (1)

13. Invited Speaker/Guest Faculty /External Examiner in other Organisations:

Good (3)	Average (2)	Below average (1)

14. PhD Research Works:

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

Good (3)	Average (2)	Below average (1)

15. Membership of professional bodies, Boards of Studies, Editorial committees of journals /institutional publications:

Good (3)	Average (2)	Below average (1)

16. Research Publications:

Good (3)	Average (2)	Below average (1)

Signature of the faculty with
Designation, Place & Date

Signature of HOD

Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati

ANNEXURE VII

STUDENT COURSE FEEDBACK FORM

Academic year	Semester	Course No.	Course title

I.	Information on the Respondent: (Tick (√) Appropriately)									
1.	Percentage of classes attended									
	0-20		20-40		40-60		60-80		80-100	
2.	The expectations of the students from the course are:									
	(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								

II About the Instructor: Information on the Respondent: (Tick (√) Appropriately)					
	5	4	3	2	1
2. Relevance of the course					
2. Coverage of the syllabus					
3. Organization of the Course					
4. Emphasis on fundamentals					
5. Availability of text book/study materials					

6. Usefulness of tests and assignments					
7. Benefit derived from the course					
8. Pace of Teaching/lecture					
9. Clarity of expression in teaching					
10. Quality of class room delivery					
11. Class room interaction					
12. Availability outside class room					
5: Very Good	4: Good	3: Average	2: Below average	1: Poor	

Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati

ANNEXURE VIII

STUDENT'S FEEDBACK FORM ON LABORATORY FACILITY

Academic year	Semester	Course No.	Course title

II About Laboratories: Information of the Respondent: (Tick (√) Appropriately)						
Name of the Laboratory	5	4	3	2	1	Suggestions/ Comment
Network Theory & Analysis						
Electronic Devices						
Digital Electronics						
Computing lab						
Electronic Circuit						
Instrumentation & Electronic measurement						
Analog communication						
Microprocessor						
Digital communication						
Analog system design						
Microcontroller & Embedded system						
Microwave engineering						
Digital system design						

**Department of Electronics & Telecommunication Engineering
Assam Engineering College, Guwahati**

**ANNEXURE IX
FACULTY COURSE FEEDBACK FORM**

Academic year	Semester	Course No.	Course title

I.	Comment on the batch	
II	Comment and suggestion on the course content	
III	Comment on overall delivery system	
IV	Overall level of satisfaction 5: Very Good 4: Good 3: Average 2: Below average 1: Poor	