SELF ASSESSMENT REPORT (SAR) FORMAT

UNDERGRADUATE ENGINEERING PROGRAMS (TIER-II)

FIRST TIME ACCREDITATION

Submitted by

DEPARTMENT OF MECHATRONICS ENGINEERING

ACHARYA INSTITUE OF TECHNOLOGY

Acharya Dr. Sarvepalli Radhakrishnan Road, Soldevanahalli
BENGALURU-560107

Date: 11.03.2019

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Part A: Institutional Information

1	**Name and Address of the Institution**	: Acharya Institute of Technology Acharya Dr. Sarvepalli Radhakrishnan Road Achitnagar Post, Soladevanahalli, Bengaluru – 560107
2	**Name and address of the affiliating university**	: Visvesvaraya Technological University Jnana Sangam, Macche Belagavi-590018
3	**Year of establishment**	: 2000
4	**Type of 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 ☐

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

SL No	Name of the Institution(s)	Year of Establishment	Programs of Study	Location
1	Acharya Polytechnic	1991 -92	Diploma in Engg.	Acharya Dr. Sarvepalli Radhakrishnan Road Soldevanahalli, Achitnagar Post, Bengaluru - 107
2	Acharya B M Reddy College of Pharmacy	1992- 93	Pharmacy	
3	Smt. Nagarathnamma School of Nursing	2003 - 04	BSc. Nursing, M.Sc. Nursing	
4	Acharya College of Education	2004 - 05	Diploma in Elementary Education, B.Ed.	
5	Acharya Institute of Graduate Studies	2005 - 06	BA - JOURNALISM, MARKETING, BSc., MSc., BCA, BBM, B. Com, Com, MFA, MIB, BSc. - PCM, PMF, MA	
6	Acharya Pre University College	2005 -06	PCMB, PCMC, PCME, CEBA	
7	Acharya School of Management	2009 - 10	PGDM	
8	Acharya NRV School of Architecture	2009 -10	B. Arch	
9	Acharya School of Law	2014 -15	BA LLB, BBA LLB, LLB	
10	Acharya School of Design	2015 - 16	Bachelor of Visual Arts, Painting, Sculpture, Graphic Design, Product Design, Furniture Design, Interior Design	
11	Acharya Institute of Allied Health Sciences	2018 -19	BSc. Programs	

Table A.6

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

S. No	Program Name	Name of the Department	Year of Start	Intake	Increase in intake, if any	Year of increase	AICTE Approval	Accreditation Status*
1	BE	Aeronautical Engg.	2011-12	60	-	-	Approved	Eligible but not applied
2	BE	Automobile Engg.	2011-12	60	-	-	Approved	Eligible but not applied
3	BE	Biotechnology	2002-03	30	60	2018-19	Approved	Provisionally Accredited from 2018 to 2020
4	BE	Civil Engg.	2009-10	60	120	2014-15	Approved	Applying first time
5	BE	Computer Science & Engg.	2000-01	60	90 120	2001-02 2011-12	Approved	Accredited for 3 years from 2009-2012 Not accredited vide visit dated 25th to 27th October 2013
6	BE	Construction Technology & Management	2011-12	60	-	-	Approved	Eligible but not applied
7	BE	Electrical & Electronics Engg.	2004-05	60	120	2012-13	Approved	Not accredited vide visit dated 25th to 27th October 2013
8	BE	Electronics & Communication Engg.	2000-01	60	90 120	2001-02 2012-13	Approved	Accredited for 3 years from 2008-2011 Not accredited vide visit dated 25th to 27th October 2013
9	BE	Information Science & Engg.	2000-01	60	90 120	2001-02 2013-14	Approved	Accredited for 3 years from 2009-2012 Not accredited vide visit dated 25th to 27th October 2013
10	BE	Mechanical Engg.	2002-03	60	90 120	2009-10 2012-13	Approved	Accredited for 3 years from 2008-2011 Not accredited vide visit dated 25th to 27th October 2013
11	BE	Mechatronics Engg.	2009-10	60	-	-	Approved	Applying first time
12	BE	Manufacturing Science & Engg.	2013-14	60	-	-	Approved	Eligible but not applied

13	BE	Mining Engg.	2013-14	60	-	-	Approved	Eligible but not applied
14	Business Administration	MBA	2007-08	60	120 240	2011-12 2012-13	Approved	Eligible but not applied
15	Computer Applications	MCA	2007-08	60	120 240 120	2011-12 2012-13 2018-19	Approved	Applied and withdrawn vide visit dated 7th to 9th 2008
16	M.Tech.	Biotechnology	2010-11	18	-	-	Approved	Eligible but not applied
17	M.Tech.	Computer Network & Engg.	2012-13	18	-	-	Approved	Eligible but not applied
18	M.Tech.	Computer Science & Engg.	2011-12	18	24	2012-13	Approved	Eligible but not applied
19	M.Tech.	Cyber Forensics & Information Security	2014-15	18	-	-	Approved	Eligible but not applied
20	M.Tech.	Digital Communications	2010-11	18	-	-	Approved	Eligible but not applied
21	M.Tech.	Machine Design	2011-12	18	-	-	Approved	Eligible but not applied
22	M.Tech.	Power System Engg.	2011-12	18	-	-	Approved	Eligible but not applied
23	M.Tech.	Product Design & Manufacturing	2013-14	18	-	-	Approved	Eligible but not applied

Table A.7

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

S. No.	Program Name
1	Civil Engineering
2	Computer Science & Engineering
3	Electronics & Communication Engineering
4	Mechanical Engineering
5	Mechatronics

Table A.8

9. Total number of employees in the institution:

A. Regular Employees (Faculty and Staff):

Items	Gender	2018-2019		2017-2018		2016-2017	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M	145	168	156	176	132	157
	F	83	100	78	96	68	89
Faculty in Maths, Science & Humanities	M	19	22	21	23	19	21
	F	12	12	10	12	6	14
Non-teaching staff	M	42	47	37	45	35	39
	F	24	27	23	29	25	31

Table A.9 a

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

Items	Gender	2017-2018		2016-2017		2015-2016	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M	**Nil**					
	F						
Faculty in Maths, Science & Humanities	M						
	F						
Non-teaching staff	M						
	F						

Table A.9 b

10.Total Number of undergraduate Engineering students.

Item	2018-2019	2017-2018	2016-2017
	3077	2907	3205

Total no. of boys			
Total no. of girls	952	924	930
Total no. of students	4029	3831	4135

Total Number of Post Graduate Engineering students.

Item	2018-2019	2017-2018	2016-2017
Total no. of boys	24	42	66
Total no. of girls	22	28	54
Total no. of students	46	70	120

Total Number of MBA students

Item	2018-2019	2017-2018	2016-2017
Total no. of boys	244	257	274
Total no. of girls	131	127	125
Total no. of students	375	384	399

Total Number of MCA students

Item	2018-2019	2017-2018	2016-2017
Total no. of boys	115	176	269
	137	108	125

Total no. of girls			
Total no. of students	252	235	394

11. Vision of the Institution:

Acharya Institute of Technology, committed to the cause of value-based education in all disciplines, envisions itself as a fountainhead of innovative human enterprise, with inspirational initiatives for Academic Excellence.

12. Mission of the Institution:

Acharya Institute of Technology strives to provide excellent academic ambiance to the students for achieving global standards of technical education, foster intellectual and personal development, meaningful research and ethical service to sustainable societal needs.

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

i. Name : Dr M.R. Prakash

Designation : Principal

Mobile No :9448864740

Email Id ; principalait@acharya.ac.in

ii. **NBA coordinator,**

Name : Dr Gopinath S M

Designation : Professor & Head, Department of BT, IQAC-Coordinator

Mobile No :8660793877

Email Id ; gopinath@acharya.ac.in

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

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

Vision of the Institute

Acharya Institute of Technology, committed to the cause of sustainable value-based education in all disciplines, envisions itself as a global fountainhead of innovative human enterprise, with inspirational initiatives for Academic Excellence.

Mission of the Institute

Acharya Institute of Technology strives to provide excellent academic ambiance to the students for achieving global standards of technical education, foster intellectual and personal development, meaningful research and ethical service to sustainable societal needs.

Vision of the Department

To achieve excellence in academics to develop proficient Mechatronics graduates with an innovative bent of mind to cater to the industrial and societal challenges.

Mission of the Department

1. Create an excellent learning environment through quality faculty and infrastructure.
2. Nurture the students to pursue their dreams in higher education, research, Industry and entrepreneurial skills.

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

The graduates of the program shall

PE 1. Possess strong interdisciplinary knowledge and technical skills to solve complex, competitive problems in core and allied areas of Mechatronics Engineering.

PE 2. Have a successful career in a field of their choice (industry, academia, R & D) organizations, or as an entrepreneur) by engaging in continuous learning, with excellent professional competencies and ethics.

PE 3. Exhibit multifaceted skills, leadership qualities to address technical, societal and environmental challenges.

1.3. Indicate where the Vision, Mission and PEOs are published and disseminated among stake holders (10)

The Institute and the Department utilize different modes for disseminating the Vision, Mission and PEOs among the stakeholders.

The Institute Motto as well as Vision and Mission statements along with Vision, Mission statements and PEOs of the Department are disseminated among the different stakeholders through:

- The website of the Institute, *https://www.acharya.ac.in/acharya-institute-of-technology*
- Information Brochures of the Institute
- Display board in HOD's chamber

- Notice Boards and Display boards at important places in the Department
- Display boards in Class rooms and Laboratories
  - Course Plan emailed to the students
  - Alumni and Employer Survey Forms
  - Institute Vision and Mission statements are displayed in IA and Assignment Booklets
  - The Department Newsletter “Times of Mechatron”

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

Process for defining Vision and Mission of the Department

The process followed for defining the Vision and Mission of the department is discussed elaborately with the help of a process flowchart (Figure 1.1) below:

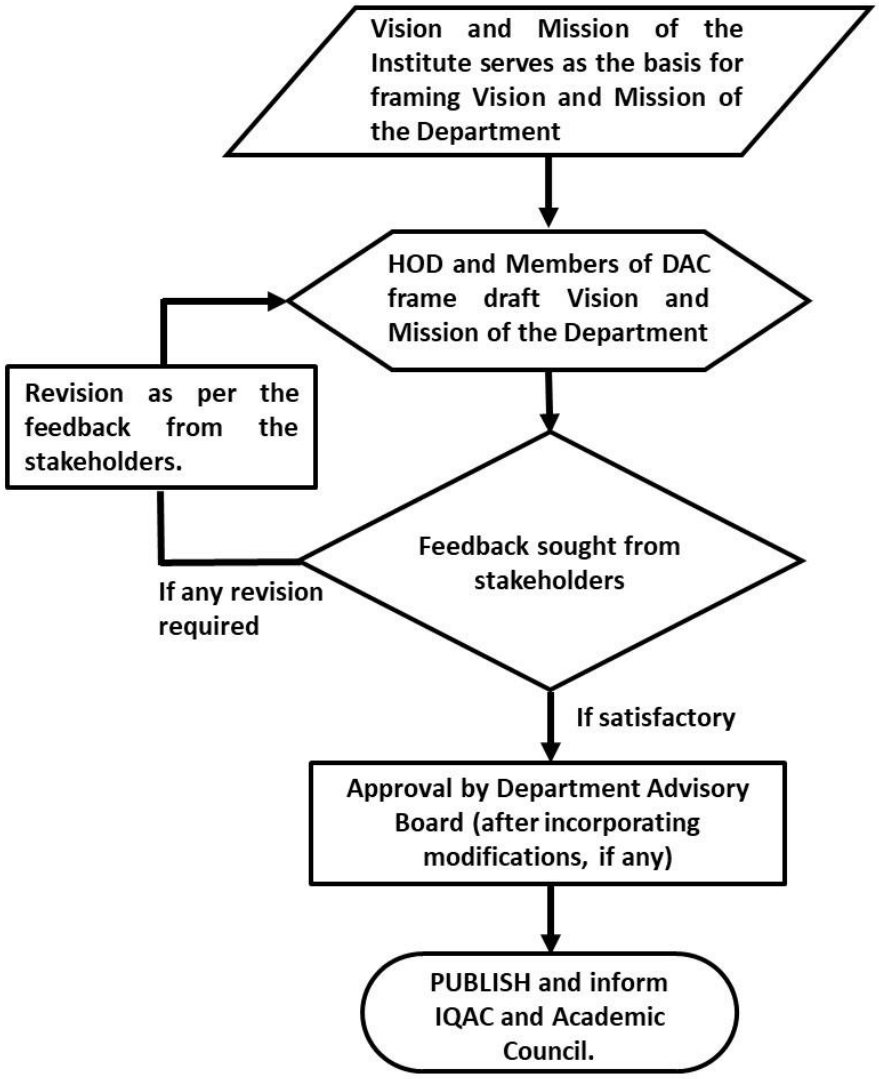


Figure 1.1 Process for defining Vision and Mission of the Department

1. With the Vision and Mission of the Institute as a basis, the HOD and the other members of Department Academic Committee (DAC) holds several brain storming sessions to arrive at draft Vision and Mission statements of the department of Mechatronics Engineering.
2. The draft statements are circulated among both internal stakeholders (faculty and students) as well as external stakeholders (alumni and employers) to collecting their valuable feedback.
3. The suggestions from the stakeholders' feedback are incorporated to fine tune the draft Vision and Mission statements.

4. The Vision and Mission statements of the department are floored for discussion in the subsequent meeting of Department Advisory Board Members (comprising of the Principal of the Institute, HOD, a senior faculty of the department and experts from Academia and Industry) for approval, after including modifications suggested by members of the advisory board.
5. The process ends with Publishing the finalized Vision and Mission of the department, with intimation to IQAC and Academic Council of the Institute.

Process for defining PEOs of the Department

The process followed for defining the PEOs of the department is discussed elaborately with the help of a process flowchart (Figure 1.2) below:

1. With the Vision and Mission of the Department as a basis, the HOD and other members of DAC hold several meetings to prepare draft PEOs.
2. Valuable feedback is gathered from other stake holders to provide a direction to fine tune the draft PEOs, by circulating the draft PEOs.

    - **Internal stake holders**
        - Management: In order to materialize the vision of the management into reality, proper framing of PEOs play a vital role.
        - Students: Students form the fulcrum point around which OBE revolves. The opinions from a selected group of student helps in laying down PEOs of the department.

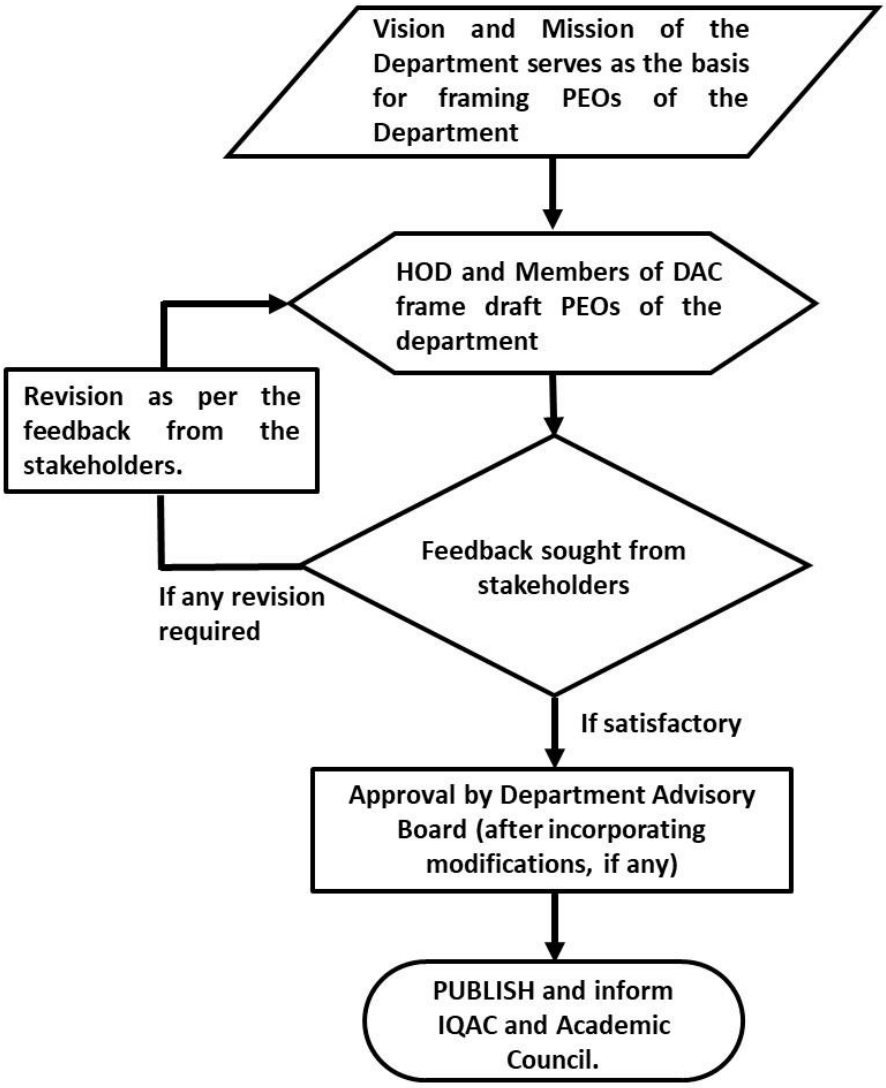


Figure 1.2 Process for defining PEOs of the Department

- **External stake holders**
    - Parents: Parents have a huge expectation about the quality of education provided to their wards. These expectations were considered while framing PEOs of the department.

- Alumni: Alumni provide best feedback about PEOs of the department. Their professional experience of a few years after graduation counts a lot in framing the PEOs of the department.
- Employer: Employers are the customers of our products. They provide qualitative and valuable inputs about the PEOs. Their vast experience and expectations provide direction to frame PEOs in such a way as to imbibe desirable qualities into our students.

3. The PEOs are then floored for approval in the subsequent meeting of Department Advisory Board Members, after incorporating modifications by members of DAB, if any.
4. The process ends with Publishing the finalized PEOs of the department and informing IQAC and Academic Council of the department, about the culmination of the process.

1.5. Establish consistency of PEOs with Missions of the Department (15)

The following table B.1.5 shows the matrix of PEOs of the Mechatronics Engineering Program against the missions of the department. The table is followed by the justification and rationale of the mapping.

Mapping is done at following three levels

1. Slight (LOW)
2. Moderate (MEDIUM)
3. Substantial (HIGH)

Table B.1.5

PEOs	Excellent Learning Environment (M1)	Nurturing the students to pursue their dreams (M2)
PEO 1 Possess strong interdisciplinary knowledge and technical skills to solve complex, competitive problems in core and allied areas of Mechatronics Engineering.	3	3
PEO 2 Have a successful career in a field of their choice (industry, academia, R & D organizations, or as an entrepreneur) by engaging in continuous learning, with excellent professional competencies and ethics.	3	3
PEO 3 Exhibit multifaceted skills, leadership qualities to address technical, societal and environmental challenges.	2	3

Justification and Rationale for mapping of PEOs against Mission statements

1. **The primary PEO** of the department is that, the graduates of Mechatronics Engineering Department shall possess strong interdisciplinary knowledge and technical skills that would enable them to solve complex technical problems in their career.
    - The efforts of the department in creating an excellent learning ambience through quality faculty and quality infrastructure (M1) as well as the efforts to nurture the

students to pursue their dreams in their chosen area of interest (M2), will have a significant influence in fulfilling PEO 1. Hence, both are mapped **HIGH**.

2. **The second PEO** of the department is that, the graduates of the program shall have a successful future in their chosen domain in industry, academia, research or entrepreneurial endeavors.
    - The mission statement M1 is mapped **HIGH**, as provision of excellent learning ambience plays a vital role in realizing PEO 2.
    - The department emphasize on improving technical competencies by exposing them to advanced tools and soft wares. Also, the department hosts many events as well as promotes participation of students in such events that nurture the students to pursue their dreams in higher education, research, industry and entrepreneurship skills. These efforts have resulted in good results over the last few years. Hence, mission statement M2 is mapped **HIGH** against PEO 2.
3. **The third PEO** of the department is that, the graduates of the program are equipped with multifaceted skills to face technical, societal and environmental challenges.
    - The department aims at all round development of personalities of the students. The department gears up the students to participate in various competitions organized by reputed professional bodies, to undergo internships, to publish technical papers, to carry out projects of societal and environmental relevance. The leadership qualities of students are also honed during this journey. Accordingly, mission components M2 is mapped **HIGH** and M1 is mapped **MODERATE** to PEO3.

CRITERION 2	Program Curriculum and Teaching – Learning Processes(120)

2.1 Program Curriculum (20)

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

Acharya Institute of Technology is affiliated to Visvesvaraya Technological University (VTU), Belagavi, Karnataka. So the program curriculum of Mechatronics Engineering is as per the scheme and syllabus prescribed by VTU. The curriculum prescribed by VTU comprises of different categories of subjects as shown in Table 2.1.1a.

The students study basic science and engineering science courses in first year of engineering. In the remaining three years of study, the students study professional core subjects (mandatory courses) as well as professional elective subjects as per their choice. They have to deliver a technical seminar on a relevant topic. They also have to execute a project work in the final year. In total, the program of Mechatronics Engineering has 80 subjects as shown in Table 2.1.1a.

The table also shows the number of contact hours allocated for these subjects and their percentage share of these categories in the curriculum. These mapping of these categories of subjects with Program Outcomes (POs) is shown in the last column of the Table.

It is observed that the attainments of a few of POs are not to a satisfactory extent, by following the curriculum prescribed by the University. In such cases, the department is putting up additional efforts to compensate such curricular gaps by including augmented topics in the curriculum, organizing Guest Lectures by experts in such domains, organizing workshops, seminars, domain trainings etc.

Table 2.1.1a Composition of VTU curriculum for the program B.E (Bachelor of Engineering) in Mechatronics Engineering (MTE)

Sl. No.	Types of Course offered	No of subjects mapped	No of hours allotted	Weightage in Percentage	POs
1	Humanities & Social Sciences	02	52	01	PO6,PO7,PO9,PO10,PO12
2	Basic Sciences	08	396	10	P01,PO2,PO6, PO7, PO12
3	Engineering Sciences	08	428	10	PO1,PO2,PO3,PO5
4	Professional Core Subjects	34	1768	43	PO1,PO2,PO3.PO4,PO5
5	Professional electives	26	1352	33	PO1,PO2,PO3,PO5
6	Project Work	01	84	02	PO1,PO2,PO3.PO4,PO5, PO6, PO7, PO8, PO9,PO10,PO11, PO12
7	Seminar	01	28	01	PO1, PO9,PO10
Total		**80**	**4108**	**100**	

The following table 2.1.1.b shows the mapping of courses with POs of Mechatronics Engineering.

Table 2.1.1b Mapping of Courses with POs

SUBJECT CODE	SUBJECT NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I SEMESTER													
14MAT11	Engg mathematics-1	✓	✓	-	-	-	-	-	-	-	-	-	-
14CHE12	Engg chemistry	✓	✓	-	-	-	-	-	-	-	-	-	-
14CCP13	C programming for problem solving	✓	✓	-	-	-	-	-	-	-	-	-	-
14CED14	Computer aided Engg drawing	-	✓	✓	✓	✓	-	-	-	-	-	-	-
14ELN15	Basic electronics	✓	-	-	-	-	-	-	-	-	-	-	-
14CPL16	C programming laboratory	-	✓	✓	✓	-	-	-	-	-	-	-	-
14CHEL17	Engg chemistry lab	✓	✓	-	✓	-	-	-	-	-	-	-	-

14CIV18	Environmental studies	-	-	-	-	-	✓	✓	-	-	-	-	-
II SEMESTER													
14MAT21	Engg mathematics-2	✓	✓	-	-	-	-	-	-	-	-	-	-
14PHY22	Engg physics		✓	-	-	-	-	-	-	-	-	-	-
14CIV23	Elements of civil engg	✓	✓	-	-	-	-	-	-	-	-	-	-
14EME24	Elements of mechanical Engg	-	✓	✓	-	-	-	-	-	-	-	-	-
14ELE25	Basic electrical engineering	✓	✓	-	-	-	-	-	-	-	-	-	-
14WSL26	Work shop practices lab	✓	-	✓	-	✓	-	-	-	✓	-	-	-
14PHYL27	Engg physics lab	✓	✓	-	✓	-	-	-	-	-	-	-	-
14CIP18	Constitution of India and professional ethics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
III SEMESTER													
10MAT31	Engg mathematics-III	✓	✓	-	-	-	-	-	-	-	-	-	-
10MT32	Material science and metallurgy	✓	-		✓	-	-	-	-	-	-	-	✓
10MT33	Mechanics of material	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10 MT 34	Fluid mechanics	✓	✓	-	-	-	-	-	-	-	-	-	✓
10 MT 35	Analog and digital electronics	✓	✓	✓	-	-	-	-	-	-	-	-	-
10 MT 36	Signals & systems	✓	✓	✓	-	-	-	-	-	-	-	-	-
10 MT L37	Materials testing & metallurgy lab	✓	✓	✓	-	-	-	-	-	-	-	-	-
10 MT L38	Analog and digital electronics lab	✓	✓	✓	✓	-	-	-	-	-	-	-	-
IV SEMESTER													
10MAT41	Engg mathematics-iv	✓	✓	-	-	-	-	-	-	-	-	-	-
10MT42	Manufacturing technology	✓	✓	-	-	✓	✓	-	-	-	-	-	✓
10MT43	Kinematics of machines	✓	✓	✓	✓	-	-	-	-	-	-	-	-

10MT44	Power electronics	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT45	Instrumentation & measurements	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT46	Electrical machines & drives	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MTL47	Power electronics lab	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MTL48	Electrical machines & drives lab	✓	✓	-	✓	-	-	-	-	-	-	-	-
V SEMESTER													
10MT51	Metrology and measurements	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MT52	Computer graphics	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT53	Hydraulics and pneumatics	✓	-	✓	-		-	-	-	-	-	-	✓
10MT54	Microcontroller	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT55	Automotive electronics	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MT56	Sensors and networks	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MTL57	Metrology and measurements lab	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MTL58	Microcontroller & plc lab	✓	✓	✓	-	-	-	-	-	-	-	-	-
VI SEMESTER													
10AL61	Management and entrepreneurship	✓	✓	-	-	-	-	-	✓	✓	✓		-
10MT62	Modeling & simulation	✓	✓	-	-	✓	-	✓	-	-	-	-	-
10MT63	Micro and smart system technology	✓	✓	✓	-	-	-	-	-	-	-	-	-

10MT64	Embedded systems	✓	✓	-	-	-	-	-	-	-	-	-	-
10MT65	Advanced computer programming	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT661	Computer vision	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT662	Operating systems	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
10MT663	Electrical/hybrid vehicles	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
10MT664	Programmable logic controller (plc)	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
10MT665	Communication system	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MTL67	Micro and smart systems technology lab	✓	✓	✓	✓	-	-	-	-	-	-	-	✓
10MTL68	Advanced computer programming lab	✓	✓	✓	-	-	-	-	-	-	-	-	-
VII SEMESTER													
10MT71	Thermodynamics & Heat transfer	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MT72	Robotics and machine vision systems	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MT73	Wireless networks	✓	✓	-	-	-	-	-	-	-	-	-	-
10MT74	Digital signal processing	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT751	Smart materials	✓	✓	✓	-	-	-	-	-	-	-	-	-
10MT752	Management information system	✓	-	-	-	✓			✓				
10MT753	Artificial intelligence	✓	✓	-	-	-	-	-	-	-	-	-	-
10MT754	Mechanical vibrations	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MT755	Operation research	✓	✓	✓	✓	-	-	-	-	-	-	-	-
10MT761	Real time systems	✓	✓		✓	-	-	-	-		-	-	-
10MT762	Image processing	✓	✓	-	-	✓	-	-	-	-	-	-	-
10MT763	Display systems	✓	✓	✓		-	-	-	-	-	-	-	-
10MT764	Soft computing	✓	✓	✓	-	-	-	-	-	-	-	-	-

10MT765	Safety and security of Mechatronics systems	✓	✓	✓	-	-	-	-	-	-	-	-	-	
10MTL77	Robotics lab	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	
10MTL78	DSP (Hw + mat lab)	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	
VIII SEMESTER														
10MT81	Rapid prototyping	✓	✓	-	-	-	-	-	-	-	-	-	-	
10MT82	Reliability & fault tolerance	✓	✓	✓	✓	-	-	-	-	-	-	-	-	
10MT831	Nano technology	✓	✓	✓	-	-	-	-	-	-	-	-	-	
10MT832	Data base management systems	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	
10MT833	Design of experiments	✓	✓	✓	✓	✓	-	-	-	-	-	✓	-	
10MT834	Finite element analysis	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	
10MT835	Industrial engineering & ergonomics	✓	✓	✓		-	-	-	-	-	-	-	-	
10MT836	Optimum design	✓	✓	✓	✓	-	-	-	-	-	-	-	-	
10MT841	Wireless communication	✓	✓	✓	✓	-	-	-	-	-	-	-	-	
10MT842	Audio & video processing	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	
10MT843	Virtual instrumentation	✓	✓	✓	✓	-	-	-	-	-	-	-	-	
10MT844	DSP architectures & algorithms	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	
10MT845	Low power RF	✓	✓	✓	✓	-	-	-	-	-	-	-	-	
10MT85	Project work	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
10MT86	Seminar on current topics	✓	✓	-	-	-	-	-	-	✓	✓	-	-	
Total NO courses mapped to individual Pos		**77**	**77**	**54**	**37**	**18**	**04**	**03**	**04**	**06**	**04**	**04**	**08**	
% Mapping= Total No. of courses mapped to individual POs/ total courses		**92.7**	**92.7**	**65**	**44.5**	**21.8**	**4.8**	**3. 6**	**4.8**	**7.2**	**4.8**	**4.8**	**9.6**	

The percentage of mapping of Courses to POs shown in table 2.1.1.a &2.1.1.b provides courses of Mechatronics Engineering program mapped low with POs 6 to 12 (with a value of less than 20%, shown in red). Efforts are made to impart requisite knowledge by the way of ***"content enrichment beyond syllabus"***

The identified gaps in attaining of POs are shown in table 2.1.1c

Table 2.1.1c Curriculum gaps

Sl.No.	POs	Description
1	PO6	The Engineer & Society
2	PO7	Environment & Sustainability
3	PO8	Ethics
4	PO9	Individual & Team Work
5	PO10	Communication
6	PO11	Project Management & Finance
7	PO12	Life Long Learning

The Department of Mechatronics Engineering, over the years, has been continuously striving to fill the curriculum gaps thus identified by organizing

- ✓ Technical talks by experts from Industry and other Universities
- ✓ Workshops.
- ✓ Industrial visits
- ✓ Forum activities.
- ✓ Mock interviews.

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

The following are the major activities conducted to meet some of the gaps.

CAYm1 (2017-18) **Table B.2.1.2a**

Sl.No.	Gap	Action Taken	Date-Month-Year	Resource Person with designation	% of students/Semester	Relevance to POs
1	Engineering society, lifelong learning,	Talk on self-pace learning and solution for engineering	16/02/18	Mr. Vinay kumar BS Deputy manager, Ms. Apurva Hasabnis Team lead. Tata Technologies Ltd	70% of IV, VI and VIII semester students	POs:11,12
2	Engineering	Technical	13/4/18	Dr. Ganapathy	60% of V semester	POs: 11,12

	society, lifelong learning,	Talk on Green Energy from Thorium and Bio fuel.		Armugam, Managing Director , Enhance d Bio fuels and technologies	students	
3	Lifelong learning, Communication	Soft skills	2018	J. V. GLOBAL TRAINERS	90% of	POs:10,12
4	Environment and sustainability, individual and team work	NSS Activities	24/4/18	Dr. T.V. Ramachandra sir, from IISC, Bengaluru	90% of IV, VI and VIII semester students	POs: 6,7,9

CAYm2 (2016-17) **Table B.2.1.2b**

Sl.No.	Gap	Action Taken	Date-Month-Year	Resource Person with designation	% of students/Semester	Relevance to POs.
1	Individual and Team Work, Communication, Life Long Learning	Mock Interview-Student Development Program	08/04/17	Faculty and 8th Semester Students of MTE	90% of VIII Semester	POs:9,10,12
2	Communication, lifelong learning	Talk on significance of Communication, lifelong learning.	8/2/16	Mr. Iqbal Ahmed. Dy. Director, Training Acharya Institutes	60% of IV, VI and VIII	POs:10,12

3	Individual and Team Work, Communication, lifelong learning	Talk on Communication , lifelong learning and team management	26/10/16	Mr. Iqbal Ahmed Dy. Director, Training Acharya Institutes	60% of IV, VI and VIII	POs:9,10,12
4	Ethics, project management, lifelong learning	Talk on professional ethics and project management.	22/10/16	Dr. Prithvi SekharP agala, KPIT (Alumni)	60%	POs:8,11,12
5	Lifelong learning, Communication	Soft skills	13/10/16 to 15/10/16	J. V. Global trainers	90%	POs:10,12
6	The Engineer & society	Project on “Benki Roga”	2016-17	Mr. Arjun Dattar	VIII Sem Student	POs:6,11,12

Alumni of the Institute Mr. Prithvi Sekhar Pagala. KPIT, addressing our students on professional ethics and project management as shown in the Fig 2.1

Figure 2.1 Alumni of the Institute, Dr. Prithvi Sekhar Pagala. Senior engineer , R&D KPIT

CAYm3 (2015-2016) **Table B.2.1.2c**

Sl.No.	Gap	Action Taken	Date-Month-Year	Resource Person with designation	% of students	Relevance to POs.
1	Engineering and society, environment and sustainability, communication, project management, Individual and Team Work, Life Long Learning	Workshop on Significance of Entrepreneurship for Engineering Students	15-02-16	Mr. Iqbal Ahmed Dy. Director, Training Acharya Institutes	90%	POs:6,7,8,9,10,11,12
2	Environment and sustainability, Project management and finance, Life Long Learning	One Day Workshop on Creativity and Product Development and project management	03-02-16	Prof. P. Achutha Rao	70%	POs:7,11,12
3	Lifelong learning, environment and sustainability	Seminar On Discover the Inventor In India	30/03/16	Mr. Ravi Katukam, Director of innovations technology	70%	POs:9,10,11,12
4	Individual and Team Work, ,Life Long Learning	Seminar on Focus in life and Higher studies in abroad	15-05-15	Mr. Sourav Mohanty (Alumni)	70%	POs:10,12
5	Project management	Talk on Project Management in Mechatronics domain.	2015	Mr. Sunil Telkar. Sr.Manager,PMI champion, Praxair India Pvt Ltd. Bangalore	70%	POs:11
6	Engineering and society, environment and sustainability,	Do you really want to be an Engineer – what roles exist for an engineer”	13/3/15	Mr. Umesh Chandra. CEO - EnSci	80%	POs:6,7,8,9,10,11,12

	communication, project management, Individual and Team Work, Life Long Learning,					
7	Lifelong learning, Communication	Talk on career	2/11/15	Mr. Sudhakar B, Asst. General Manager, MT ,Bangalore	80%	POs10, 12
8	Lifelong learning, Communication	Soft skills	27/01/15 TO 31/01/15	J. V. Global trainers	90%	POs:10,12

Mr. Sudhakar B, Asst. General Manager, MT ,Bangalore and Mr. Umesh Chandra, CEO, Ensci addressing students on career and what roles exist for an engineer" as shown Figure 2.2..and Figure 2.3

Figure 2.2. Mr. Sudhakar B, Asst. Manager ,HMT **Figure 2.3 Mr. Umesh Chandra, CEO, Ensci.**

Figure 2.4 Mr Ravi Kuttakam. Director of Innovations Technology addressing on Discover the Inventor In India

2.2. Teaching - Learning Processes (100)

2.2.1a Describe Processes followed to improve quality of Teaching &Learning (25)

The calendar of events for the department/Institution is prepared in line with the calendar of events proposed by Visvesvaraya Technological University (VTU). In teaching process Course coordinator prepares the lesson plan and their execution is recorded.

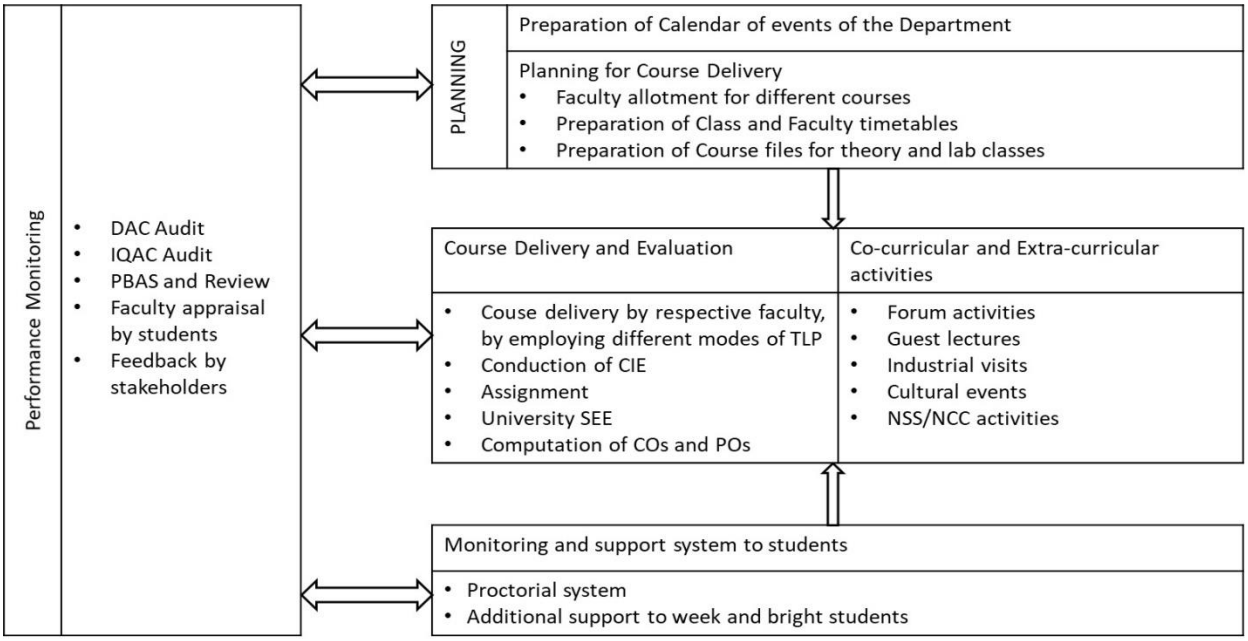


Figure.2.5 TLP Process

a. Planning &Adherence to academic calendar

Acharya Institute of Technology (AIT) is affiliated to Visvesvaraya Technological University(VTU). Academic semester (odd and even) starts as per the academic calendar circulated by VTU. AIT prepares Institutional academic calendar adding Internal Assessment dates, schedule or Academic Council meetings, college's annual festival and other events to the calendar received by the VTU. Department of Mechatronics Engineering adds forum events, schedule of departmental academic commitee meetings (DAC), faculty meetings, proctor-student meetings and other events (if any) to prepare departmental calendar. The departmental calendar

so prepared (sample shown in Figure.2.6) is circulated among the faculty and the students. The calender is strictly followed.

Acharya Institute of Technology Acharya Dr. SarvepalliRadhakrishnan Road, Bangalore-560107 Academic Calendar for Even Semester 2017-18			
MARCH -2018			
Day	Date	Department Activity	College Activity
THU	1		
FRI	2		
SAT	3		
SUN	4	Holiday	
MON	5		
TUE	6		
WED	7		
THU	8	International Women's Day/ Ist IA test for the courses BE-II,IV, VI & VIII sem	
FRI	9	Ist IA test for the courses BE- II,IV, VI & VIII sem	
SAT	10	VIII Sem BE project presentation / Ist IA test for the courses BE- II,IV & VI sem /Library Committee meeting	
SUN	11	Holiday	
MON	12		
TUE	13	Technical Talk on ANN	
WED	14		
THU	15		
FRI	16		Library Committee meeting
SAT	17		Academic Council Meeting
SUN	18	Holiday, ChandramanaUgadi	
MON	19	Department Meeting	
WED	21	Workshop on 3D Printer	
THU	22		
FRI	23	Acharya Habba,	Parents teachers meeting
SAT	24	Acharya Habba, Alumni Meet	
SUN	25	Holiday	
MON	26	Commencement of IV sem MBA classes	
TUE	27		

WED	28		
THU	29		
FRI	30		
SAT	31	Department Meeting	

Figure.2.6 Departmental Academic Calender

b. Departmental Academic Council (DAC) & Internal Quality Assurance Cell (IQAC):

1. Monitoring through -Academic Audits by DAC, IQAC

HOD consititutes DAC as per the guidellines issued by IQAC. The objective of the DAC is to ensure quality teaching & learning. The DAC members meet evey month generally, however, special meeting is scheduled by the HoD if necessary. The DAC is responsible for:

Formulation of Vision, Mission and Program Educational Objectives

a) Curriculum gaps identificatin and action plan
b) Traning need analysis for students and faculty
c) Ensuring quality of internal assessment question papers & scheme of evaluation
d) Monitoring students progression

2. **Internal Quality Assurance Cell (IQAC) Audits**:

The IQAC cell conducts two audits every semester one in the beginning of the semester and one in the end of the semester to verify confirmance to the suggested procedures for framing quality course outcomes, setting up of quality questions for internal assessment, attainment of course/program outcomes, effectiveness of course delivery and best practices by the faculty. The audit report format is show in the Table 2.2.1a

Table 2.2.1.a Audit Report Format

Sl. No.	Faculty Name	Personal Time Table	Course Code	Course File		Notes/ Manuals	COs	CO-PO Mapping
				Staff	Student			
				S/SI/NS		S/SI/NS	S/SI/NS	S/SI/NS
	Remarks							
	Remarks							
	Remarks							

S : satisfactory, SI : Scope to improve, NS: Not satisfactory

Signature of Head of the Department

c. Course delivery:

The course instructor writes quality course outcomes and ensures most of them maps to higher levels of blooms learning model. The DAC members categorizes the courses in B.E in Mechatronics Engineering program in to several related modules. The senior faculty having expertise in multiplecourses to belonging to the same module is choosen as module coordinator, who has the role of ensuring the quality of teaching & learnig.

The table 2.2.1b shows the modules & respective module coordinators:

Table 2.2.1b Modules and Coordinators

Sl.No	Name of the Module	Courses	Module Coordinator(s)
1	Engineering Mathematics	Engineering Mathematics – I, II, III, IV, Operation Research,	Dr. Rajanna
2	Mechanical design	Mechanism of materials, Kinematics of machines, Design of machine elements, Mechanical vibration, MEMS, CAMD, Metrology and measurements	Dr. Devarajaih R M Dr. ARK Swamy
3	Thermal engineering	Fluid mechanics, thermodynamics and heat transfer	Mr. Sandeep K
4	Programming Languages and tool	SCADA, Labview, Assembly language, Programming in Embedded C, Programming in C++, MAT LAB, Ansys	Mr. Dilip R Mr. Chandrashekar L
5	Hardware	Computer Organization,	Mrs. Bhagirathi V

		Microcontroller, Logic Design, Embedded System, real time system, Analog & Digital Electronic circuits, PLC, Power electronics	Mr.Kirankumarkommu
6	Manufacturing	Material science, Manufacturing technology, Rapid prototyping	Mr.Ranganatha Gowda L
7	Computer Networks	Wireless networks,	Mrs.Bhagirathi V
8	Automation and measurements	Robotics, Process instrumentation, Industrial automation.	Mr.Dilip R

The course outcomes written by the course instructors are checked by the module coordinators and are deleberated in the DAC meetings to ensure the quality. The course plan prepared by the faculty is shared among the students through e-mail before the commencement of the semester. The course plan is continuously monitored by the HOD.

Faculty use the following instructional methods for class room teaching:

1. Chalk and Black board
2. Power point presentation
3. Demonstration of concepts
4. Seminars by students
5. Group assignments &discussions
6. Peer learning
7. Major projects

Apart from the listed methods, the students are initiated and motivated to learn from group activities such as group discussion, in-house internships, workshops conducted in the dept. The students are encouraged and supported with learning through Spoken tutorials-IIT Bombay and other online courses. The students are taken to technical exhibition in relevant domains for an update of modern tools and technologies. The course material, laboratory manual, question bank, power point presentation prepared by the course co-ordinator/instructor is shared with the students.

- **The different processes followed to improve quality of teaching and learning in the delivery of curriculum:**

a) Information & Communication Technology (ICT) supported learning

b) Laboratory based learning

c) Industrial visit based learning

d) Partial delivery of courses by industrial experts

e) Tutorial classes

f) Initiatives for conducting laboratory classes

g) Encouraging bright students

h)Assisting weak students

i) Encouragement for Extra Curricular Activities

a) Information & Communication Technology (ICT) supported learning:

Learning through National Program on Technology Enhanced Learning (NPTEL) and other videos NPTEL provides ELearning through online web and video courses in various streams. This is course is funded by MHRD supported by all the IITs and NITKs. These courses are specially designed for India. The main advantage of video lecture is one can learn at their own pace, comfort and time by watching them again and again till the concepts are well understood. The following videos related to the curriculum were shown (Table 2.2.1c)

Table 2.2.1c List of NPTEL and YouTube videos presented in the class

Sl.No	Subject code and subject	Initiation	Implementation Details	Impact analysis
01	Artificial intelligence /10MT753	To enable students to Understand the flow of Algorithms.	NPTEL video on Search Algorithms was shown on 7/9/2018 by Prof.Rajeev Chopra Dept. of CSE IIT Delhi	Students were able to analyze &develop algorithms for new problems.
02	Fluid Mechanics/10MT34	To provide students An exposure on properties of fluids and their behavior	Videos on applications of properties of fluid were shown on 10/9/2015. https://www.youtube.com/watch? v=W1vki7VPySc (https://www.youtube.com/watch? v=W1vki7VPySc) video.mit.edu/watch/surfacetension8413 https://www.youtube.com/watch? v=re9r0kzqp (https://www.youtube.com/watch? v=re9r0kzqp) https://www.youtube.com/watch? v=xoY9XJvHwDo (https://www.youtube.com/watch? v=xoY9XJvHwDo)	Enabled better understanding of concepts

			https://www.youtube.com/watch? v=bliNHqwwaQ	
03	Fluid Mechanics /10MT34	To captivate the concepts of fluid flow	Video on fluid flow by Prof. Som& Biswas was shown on7/10/2015, IIT Kharagpur	
04	Manufacturing process/10MT42	To enable the students to visualize the cutting process	Crash course in milling by Glacern machine tools, Machine tool basics, Volume2, Part1, Smith video, Kearney & tracker universal horizontal milling machine video was shown on 30/3/2016 1. File Name: How automobile Hydraulic brakes works1936. fly. https://www.youtube.com/watch? v=WC5um7PXOE (https://www.youtube.com/watch? v=WC5um7PXOE) 2. File name: Basic Hydraulic Maintenance Training DVD (BHM) DEMO.flv https://www.youtube.com/watch? v=LFhHfLEYZwI (https://www.youtube.com/watch? v=LFhHfLEYZwI) 3. File name: What are Hydraulic Fluids.flv https://www.youtube.com/watch? v=JPmyy9MUFkw (https://www.youtube.com/watch? v=JPmyy9MUFkw) 4.File name: Static and Dynamic Seals.flv https://www.youtube.com/watch? v=zDgyGFXaduk (https://www.youtube.com/watch? v=zDgyGFXaduk) 5. File name: Hydraulic Seals.flv https://www.youtube.com/watc	Students were able to visualize the Concepts more Clearly.

			h? v=dPGJxrqXZvo (https://www.youtube.com/watch? v=dPGJxrqXZvo)	

b. Laboratory Based Learning

Laboratory based learning classes are useful to bridge the gap between the theory and practical these class. These are useful to improve the quality of learning opportunities for students. This results in a higher level of student engagement in the class. Which in turn, leads to opportunities to improve teaching performance for faculty members Table 2.2.1d shows the list of Laboratory based learning classes conducted in different laboratories.

Table 2.2.1d Demonstration conducted in Different laboratories

Sl.No	Subject code and subject	Initiation	Implementation Details	Impact analysis
			Laboratory visited	
01	10MT63/MSST	To explain operation of sensors and actuators	The different types of pressure was applied on BEL pressure sensors and its response was measured	Students were able to understand the response of Piezo resistive materials for applied pressure
02	10MT43/Kinematics of machines	To demonstrate Gyroscope	The intermediate mechanism were demonstrated	Students gained the knowledge of Gyroscope
03	10MT42/Manufacturing Technology	To demonstrate different types of machining operation	The machining operations like step turning and other operation were performed on lathe	Students gained the knowledge of different machining operation
04	10MT72/Robotics and machine vision systems	To demonstrate DOF and programming of robot	Degrees of Freedom demonstrated & Robot Programmed to work for various applications.	Students gained the knowledge of Robot workbench & Programming.

The following Figures show the faculty demonstrating using models in the lab:

Figure.2.7 Demonstration of Gyroscope

Figure.2.8 Demonstration of machining operation

Figure.2.9 Demonstration of Rapid prototyping on 3D printing machine

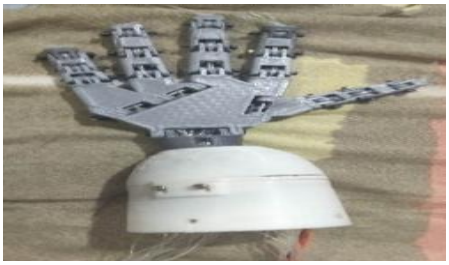


Figure.2.10 3D Printed Robot End effector

C. Learning through Industrial visits:

Industrial visit provides the students and programs with "dynamic" real time feedback that is very useful in the program learning outcomes process. It enables educational institutions to build close ties with industrial experts and also to achieve the learning outcomes to students. More over students will gain the subject learning outcome by means of post industrial visit survey. This has resulted in enhanced visibility for the students among their learning outcomes. The following industrial visits were arranged (Table 2.2.1e)

Table 2.2.1e Industries visited by the students

Sl.No	Date	Industry visited	Initiation	Implementation Details			Impact analysis
				Faculty visited	class	Number of students	
01	25/04/2016	HMT Ltd	Provided practical learning exposure to understand the manufacturing processes	Mr. Ranganatha Gowda L	IV SEM	60%	Students were enriched with the knowledge of Printing Machinery, Metal Forming Presses, Die Casting & Plastic Processing Machinery, CNC Systems & Bearings.
02	5/2/2016	CMTI	To provide practical learning exposure on modern manufacturing and measuring	Mr.Ranganatha Gowda L	VI SEM	70%	Students learnt different modern manufacturing and measuring techniques

			techniques				
03	10/5/2017	HMT Ltd	Provided practical learning exposure to understand the manufacturing processes	Mr.Ranganatha Gowda L	VSEM	60%	Students were enriched with the knowledge of Printing Machinery, Metal Forming Presses, Die Casting & Plastic Processing Machinery, CNC Systems & Bearings.
04	12/03/2018	FESTO	To gain knowledge on Hydraulics and Pneumatic system Components, PLC and SCADA.	Mr.Chandrashekhar L And Mr.Ranganatha Gowda L	VI SEM	70%	Students were exposed to the functioning of Hydraulic and Pneumatic system Components, PLC and SCADA.
05	07/05/2018	Namma Metro	Provided practical learning exposure on PLC and SCADA	Mrs. Bhagirathi V And Mr. Sandeep K	V and VII SEM	70%	Students understood control and supervision of metro operation.
06	5/3/2018	HMT Ltd	Provided practical learning exposure to understand the manufacturing processes	Mr. Ranganatha Gowda L	VII	70%	Students were enriched with the knowledge of Printing Machinery, Metal Forming Presses, Die Casting & Plastic Processing Machinery, CNC Systems

							& Bearings.

Figure.2.11 VI SEM Students visited FESTO campus bengaluru

Figure.2.12 VIII SEM students interaction at IMTEX exhibition

Figure.2.13 IV SEM Students visited HMT Ltd, Bengaluru.

Figure.2.14 V and VII SEM Students visited Namma metro, Bengaluru.

ISO 9001 : 2008 UNIT

HMT MACHINE TOOLS LIMITED
(A Wholly owned Subsidiary of HMT Ltd.)
(A Government of India Undertaking)
BANGALORE COMPLEX
Jalahalli, Bangalore - 560 013, INDIA
Phone : 91-80-6662 6554, 2838 8365
Fax : 91-80-2838 2797
E-mail : mbx@hmtmachinetools.com
Website : www.hmtmachinetools.com

Ref: HMT-MBX/TC/2017-18 05-03-2018

To
The Principal
Acharya Institute of Technology,
Bangalore

Sub: Industrial visit

Dear Sir,

We are pleased to inform you that as per the schedule, 29 Students (Mechatronics Engineering) and 02 faculties from your college have visited our company on 05-03-2018 and they have maintained high discipline inside the factory during their visit. This is for your kind information.

(VENUGOPAL.M)
Manager (HR&TR)

NOTE: Rs.5800/- DD No. 339918 dated 05-03-2018, in favour of HMT Machine Tools limited, Bangalore.

Figure.2.15 Permission letter from HMT

Figure.2.16 FESTO industrial visit

d. Partial delivery of courses by the industrial experts

Partial delivery of the courses delivered by the industrial experts benefit the students in understanding the topics taught and used in real world problems with latest techniques. Table 2.2.1f shows the lectures delivered by the industrial experts.

Table 2.2.1f Lectures delivered by Industrial Experts

Sl. No.	Speaker and address of the speaker	Topic	Date	Relevance of POs and PSOs
01	Mr. Harsish Ravi, Technologies global Pvt Ltd, Bengaluru.	PLC And SCADA	05/04/2017	POS:6,7,9,10,11,12 PSOs:1&2
02	Dr. Jithendra R Rao, Data scientist CSIR-NAL Bengaluru.	Multi sensor data fusion	06/4/2017	POS:6,7,9,10,11,12 PSOs:1&2
03	Mr.Ravi Katukam, Director, Valuelabs Hyderabad	To illustrate the latest advances additive manufacturing	30/3/2016	POS:6,7,9,10,11,12 PSOs:1&3
04	Mrs.Padma R. deputy manager customer service division at Yokogawa, India Limited	emerging trends in process automation with DCS and PLC overview	15/8/2016	POS:6,7,9,10,11,12 PSOs:1&2
05	Mr.Shivashankar Prolific India Ltd, Bengaluru.	PLC And SCADA	23/8/2016	POS:6,7,9,10,11,12 PSOs:1&2
06	Mr. Rathinam MITSUBISHI	CNC machining	5/2/2015	POS:6,7,9,10,11,12 PSOs:1&3
07	SDS Systems	CAM/CAD/CME	5/2/2015	POS:6,7,9,10,11,12 PSOs:1&3
08	Dr.Srinivas Talabattula Professor IISC, Bengaluru.	Micro-opoto-Electromechanical systems	9/3/2015	POS:6,7,9,10,11,12 PSOs:1&2

Figure.2.17 Lectures delivered by Mr. Rathinam MITSUBISHI.

Figure.2.18 Lectures delivered by Dr.SrinivasTalabattula Professor IISC, Bengaluru

Figure.2.19Lectures delivered by Mrs.Padma R. deputy manager customer service division atYokogawa, India Limited

e. Spoken tutorial classes

Spoken tutorial classes are conducted as shown in table 2.2.1g for the students to understand the subject better by enrolling for online courses organized by IIT Bombay thereby helping them to perform better in the exams.

Table 2.2.1g Spoken tutorial classes delivered to the students

Sl.No.	Course and course code	Initiation	Implementation Details	Impact Analysis
01	Advanced computer programming/10MT65	To make students understand Programming Skills of C & C++	Students were registered for Spoken Tutorial IIT Bombay-Online Courses & Evaluated before VTU Exams.	Students were able to Learn beyond syllabus & Do well in final exams.


Certificate for Completion of Cpp Training

This is to certify that **AKARSHARAMA S** has successfully completed **Cpp** test organized at **Acharya Institute Of Technology, Acharya Institutes** by **PROF. BHAGIRATHI V** with course material provided by the Talk To A Teacher project at IIT Bombay.

Passing an online exam, conducted remotely from IIT Bombay, is a pre-requisite for completing this training. **CHANDRASHEKHAR L** at **Acharya Institute Of Technology, Acharya Institutes** invigilated this examination. This training is offered by the **Spoken Tutorial Project, IIT Bombay, funded by National Mission on Education through ICT, MHRD, Govt., of India.**

May 16th 2017

Prof. Kannan M Moudgalya
IIT Bombay

Figure.2.20 Online Evaluation & Certification of students by Spoken Tutorial IIT Bombay.

f. Initiatives for conducting Laboratory Classes:

The following initiatives are taken in conducting the laboratory classes and scheme of evaluation as shown in Table 2.2.1h

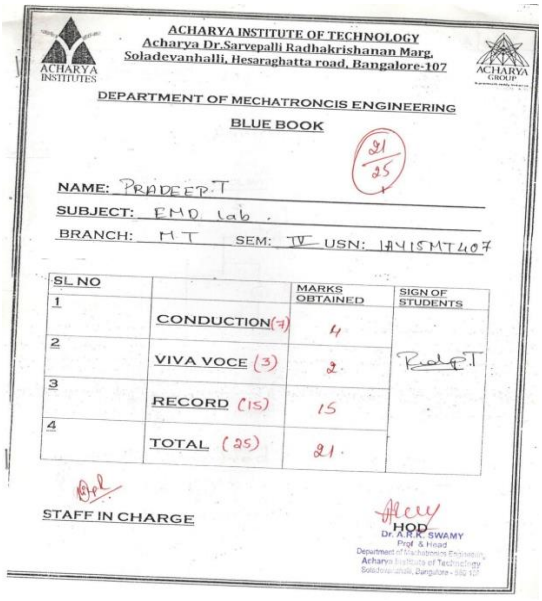
Instructions will be given on the usage of equipment for conducting the experiment.

- The basic principles are explained in the beginning of the class.
- One set of values are demonstrated so that the students can conduct the experiments confidently.
- Experiments are conducted individually or in group

- experiments are conducted and values are recorded
- Results are tabulated and suitable conclusions are drawn.
- Hands on experience on the equipment makes the students to understand the concept theoretically as well as practically.

Table 2.2.1h Laboratory evalution

<table>
<tr><th colspan="4">Maximum marks 25</th></tr>
<tr><th>Particulars</th><th colspan="3">Marks allocation</th></tr>
<tr><td rowspan="2">Laboratory Record, Experiment conduction and Viva: 25Marks</td><td rowspan="2">Writing the lab record</td><td colspan="2">Internal test</td></tr>
<tr><td>conduction</td><td>Viva</td></tr>
<tr><td></td><td>15</td><td>08</td><td>02</td></tr>
<tr><td>VTU External examination:50 Marks</td><td colspan="3">Exam conduction For 50 Marks
Conduction of Experiments : 40 Marks
Viva :10 Marks</td></tr>
</table>


ACHARYA INSTITUTE OF TECHNOLOGY
Acharya Dr.Sarvepalli Radhakrishanan Marg,
Soladevanhalli, Hesaraghatta road, Bangalore-107

DEPARTMENT OF MECHATRONCIS ENGINEERING

BLUE BOOK

21/25

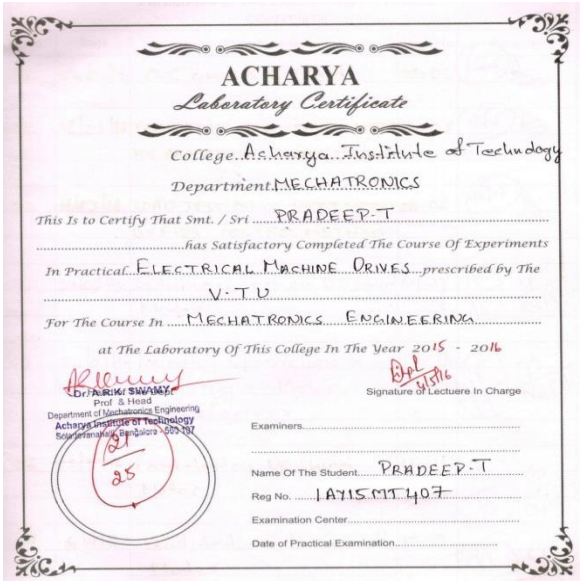
NAME: PRADEEP T
SUBJECT: EMD lab
BRANCH: MT SEM: IV USN: 1AY15MT407

SL NO		MARKS OBTAINED	SIGN OF STUDENTS
1	CONDUCTION(7)	4	
2	VIVA VOCE (3)	2	Pradeep T
3	RECORD (15)	15	
4	TOTAL (25)	21	

STAFF IN CHARGE

HOD
Dr. A.N.R SWAMY
Prof & Head
Department of Mechatronics Engineering
Acharya Institutes of Technology
Soladevanahalli, Bangalore-560 107

Figure.2.21 Evaluation of Lab test


ACHARYA
Laboratory Certificate

College..Acharya..Institute of Technology

Department MECHATRONICS

This Is to Certify That Smt. / Sri ..PRADEEP.T.....
.....has Satisfactory Completed The Course Of Experiments
In Practical..ELECTRICAL MACHINE DRIVES..prescribed by The
.....V.T.U.....
For The Course In ..MECHATRONICS ENGINEERING.....
at The Laboratory Of This College In The Year 2015 - 2016

Dr. A.N.R. SWAMY
Prof. & Head
Department of Mechatronics Engineering
Acharya Institute of Technology
Soladevanahalli, Bangalore-560 107

Signature of Lecturer In Charge

Examiners.....

21/25

Name Of The Student.....PRADEEP.T.....
Reg No. .....1AY15MT407.....
Examination Center.....
Date of Practical Examination.....

Figure.2.22 Evaluation of lab report

g. Encouraging Bright Students:

Bright students are those who score more than the average marks (80%) in the internal examination and are actively involved in all departmental activities.

- Bright students are continuously encouraged to attend several competitions, quizzes, paper presentations, design and poster competitions at the college level and zonal level as shown in Table 2.2.1i
- The department constantly identifies the toppers of each semesters and the Institute awards them.

Table 2.2.1i Bright Students achievements

Sl.No	Name	Award/Recognition	Agency	Name of the faculty encouraged	Year
1	Mr. TanmayDeshmukh Mr. Kishore.R	Best Paper	Design of a Sociable Humanoid Robot to aid Human Robot Interaction.	Mrs. Bhagirathi V	2018
2	Mr. Gagan Reddy Mr. Hemanth N	Best Paper	E-Commerce Android Application to Locate and Navigate Towards Nearby Seller	Mrs. Bhagirathi V	2018
3	Mr. TanmayDeshmukh Mr. Kishore.R Mr. Aatif Ms. Yamini	3rd prize	PRATIRA-18, A national level inter college project exhibition and competition	Mrs. Bhagirathi V	2018
4	Mr. TanmayDeshmukh Mr. Kishore.R Mr. Aatif Ms. Yamini	3rd prize	SRISHITI-18, A state level project Exhibition Competition by ABVP-18	Mrs. Bhagirathi V	2018
5	Mr. Vishnu K K	First Prize	International throw ball computation in	Dr.A R K Swamy	2017
6	Mr. Arjun Datar Mr. Pradeep T	Best instrumentation engineering project award Rs 12000.00	SRISHTI 2017 National level technical Project Competition & Exhibition	Mrs. Bhagirathi V	2017
7	Mr. Arjun Datar Mr. Pradeep T	The project won a cash price of Rs. 3500/-	Innovation festival Organized by visveswariah industrial & technological museum	Mrs. Bhagirathi V	2017

8	Mr. Shah Darshan	selected for the final round and presented his project	Tech Top National Innovation Competiton-2016 organized by Sahrdaya College of Engineering, Thrissur, Kerala	Dr.A R K Swamy	2016
9	Mr. Darshan Shah Mr. Vaibhav Desai	won second place in the event	IEEE TECH EXPO R.N.S.I.T, Bangalore	Dr.A R K Swamy	2016
10	Mr. ManjuBhargav Mr. Girish BV and team	First Prize Rs. 1.25 Lakhs cash prize	National Level Bike Design Competition and Auto Expo, AIT Bangalore	Mr. Sridhar S jetty	2016
11	Mr. TanmayDeshmukh	Best technical paper award	National conference on recent Trends in Engineering & Management -2016, Held at Amrutha Institute of Technology	Mrs. Bhagirathi V	2016
12	Mr. Darshan Shah Mr. Vaibhav Desai	Won 4th place	SRISTHI 2K16 state level project exhibition & competition	Mrs. Bhagirathi V	2016
13	Mr. Arjun Datar	First Prize	National Level Techno-cultural, Management & Sporting Extravaganza REVAMP 16	Dr.A R K Swamy	2016
14	Mr. Karthik K.A Mr. M. Nikhiil	Power generation from exhaust gas and engine heat Project of the Year	38th series of Student Project Program	Mrs. Bhagirathi V	2015
15	Mr. YVS Rohit Mr. Manish B S Mr. Vivek V	Additive manufacturing using rapid prototyping Best paper	7th National Conference on Artificial intelligence and software engineering (AISE)	Mrs. Bhagirathi V	2015
16	Mr. YVS Rohit Mr. Manish B S Mr. Vivek V	Additive Manufacturing Using Rapid Prototyping technology-3D Printer RUSI AWARD	Instituted by Rotary Bangalore Udyog and Standards international Precision Engineers Pvt.Ltd	Mrs. Bhagirathi V	2015

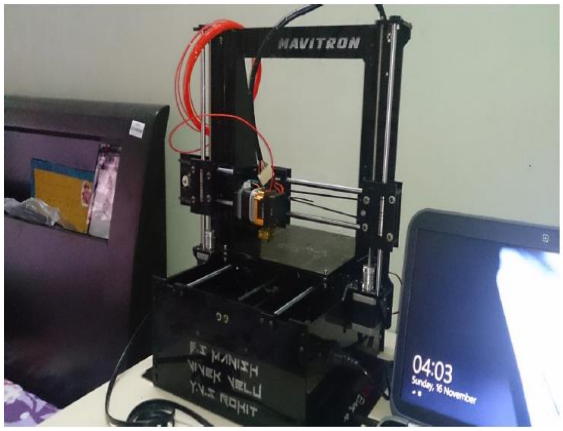


Figure.2.23: Best project by SRISTI-2017 Figure.2.24: Rapid prototyping model-3D Print

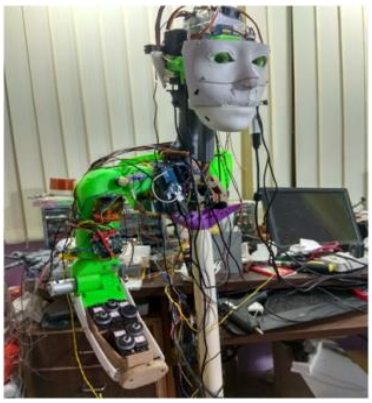


Figure.2.25: Best project "Robo charlie "by SRISTI-2018

Table 2.2.1j Students Paper publications.

Sl.No	Name	Award/ Recognition	Title	Year	National/ International conferences/Journal Name
01	Mr. Tanmay Deshmukh Mr.Kishore.R	Best Paper	Design of a Sociable Humanoid Robot to aid Human Robot Interaction	2018	National conference

02	Mr. Gagan Reddy Mr. Hemanth N	Best Paper	E-Commerce Android Application to Locate and Navigate Towards Nearby Seller	2018	National conference
03	Mr. TanmayDeshmukh	Presented	Emulation of associative learning in a humanoid robot Using artificial neural networks,	2018	National conference on Engineering Innovation and Solutions, GSSSIT, Mysuru
04	Mr. Aditya R	Presented	Aggression detection in Alzheimer's and dementia Patients,	2018	National conference on Engineering Innovation and Solutions, GSSSIT, Mysuru
05	Mr. Akhilesh Mr.Shardul	Presented	Self balancing bicycle design and implementation,	2018	National Conference On Recent Advances In Engineering And Management, AIMES
06	Mr. Aditya R	Presented	Instinctive audio visual and electro encephalon graphical Fusion for aggression detection using cloud platforms,	2018	National Conference On Recent Advances In Engineering And Management, AIMES
07	Mr.TanmayDeshmukh	Presented	Object grabbing for a miniature humanoid, prototyping best paper	2018	National Conference On Recent Advances In Engineering And Management, AIMES
08	Mr.TanmayDeshmukh	Presented	Design of a social able humanoid robot to aid human robot Interaction,	2018	National Conference On Recent Advances In Engineering And Management, AIMES
09	Mr.Akhilesh Mr.Shardul	Presented	Design and implementation of auto stabilizing bike.	2018	National Conference on Image Processing, Computing, Communication ,Networking And data Analytics, GSSSIT, Mysuru
10	Mr. Gagan Reddy Mr.HemanthN	Presented	Android application for product enquiry and navigation,	2018	National Conference on Image Processing, Computing, Communication ,Networking And data Analytics, GSSSIT, Mysuru

11	Mr. Uthsavgoel Mr. Ritochakraborthy	Presented	MARKATA- A tree climbing robot,	2016	Amrutha college of Engineering, Bengaluru
12	Mr. TanmayDeshmukh	Presented	Autonomous humanoid robot best technical paper award	2016	National conference on recent trends in Engineering & Management -2016, Held at Amrutha Institute of Technology
13	Mr,ArjunDattar	Presented	VIBGYOR	2016	National conference on recent trends in Engineering & Management -2016, Held at Amrutha Institute of Technology
14	Ms. Geena alexandar Ms.Akanksha Ms.Jayashree	Presented	LIFI	2016	National conference on recent trends in Engineering & Management -2016, Held at Amrutha Institute of Technology
15	Mr. YVS Rohit Mr. Manish B S Mr. Vivek V	Presented	Additive manufacturing using rapid prototyping	2015	7th National Conference on Artificial intelligence and software engineering (AISE)
16	Mr. YVS Rohit Mr. Manish B S Mr. Vivek V	Presented	Additive Manufacturing Using Rapid Prototyping technology-	2015	National conference Recent trends in mechanical engineering.

Figure.2.27 Students with Best paper award

➢ VTU ranks bagged by bright students

The department faculties created thrust among the students in bagging university gold medals and ranks with meticulous teaching learning methodology and making their dreams cherish.

Following are the students who secured Ranks in the University exam as shown in Table 2.2.1k

Table 2.2.1k Ranks in the University exam.

VTU 13th Convocation –MAY 2014			
SL.NO.	**Student Name**	**Percentage**	**Rank**
1	S P Anusha	87.19%	Gold Medal
2	Godsby Johnson	86.35%	Second Rank
3	Anuradha S	84.90%	Third Rank
4	A C Rohith	84.87%	Fourth Rank
5	Bhavana B V	84.14%	Fifth Rank
VTU 14th Convocation –MAY 2015			
1	SouravMohanty	90.61%	Gold Medal
2	UdayRavindraPatil	85.80%	Second Rank
3	Chaloba D Patil	85.07%	Third Rank
4	Suraj Prakash Pattar	84.99%	Fourth Rank
5	Pruthviraja B	84.96%	Fifth Rank
6	MridusmithaTalukdar	81.33%	Sixth Rank
VTU 15th Convocation –MAY 2016			
1	Sajal Raj Gautam	88.06%	Gold Medal
2	Venkata Sai Rohit	80.38%	Second Rank
3	Niveda B S	80.14%	Third Rank
4	Prayag I P	79.97%	Fourth Rank
5	M Nikhil	78.875	Fifth Rank
6	Suveesh S Raykar	78.55%	Sixth Rank

7	Varun K Pavithran	75.33%	Eight Rank
8	Nithin M S	75.25%	Ninth Rank
VTU 16th Convocation –MAY 2017			
1	Arun Joshi	85.74%	Fourth Rank
2	Ivan Simon	85.11%	Sixth Rank
3	Aswin V U	84.43%	Eight Rank
4	Shashidhar R Algond	84.09%	Ninth Rank
5	SirvishettyBhargavSainadh	82.46%	Tenth Rank
VTU 17th Convocation –MAY 2018			
1	Mukesh M Palankar	86.17%	Gold Medal
2	Kashinath.P	83.77 %	Third Rank
3	Nitin K S	82.84%	Fourth Rank
4	Annaiah	81.42%	Fifth Rank
5	Chandan.H.B	81.19%	Seventh Rank
6	Ashwinsai O	81.04%	Eight Rank
7	Ritosuvro Chakraborty	80.35%	Ninth Rank

Mr. Sajal Raj Gautam

(4th Rank - 85.74%)

Mr. Arun Joshi

(4th Rank - 85.74)

Mr. Y Venkata Sai Rohit

(3rd Rank - 80.14%)

Ms. Niveda B S

(2nd Rank - 80.38%)

➢ Best out going student award:

Department selects one of the final year students as the "Best out-going student" of the program and student is suitably rewarded. Selection in done based on how many internships student undergone during his 4 years of study year, innovative projects under taken and completed, MOOC courses studied, university marks, number of jobs offered and publications. The selection procedure is brought to the notice of the students in their first year of study or during the induction. Table 2.2.1l illustrates list of best outgoing students.

Table 2.2.1l Best out going student award/Valedictorion

Sl.No	Name of the student/USN	Academic year	Best out going student of the Department	Best out going student of the College
01	Mr. Arjun Dattar	2017-18	Best out going student	***Bagged the Best out going student Award of the college***
02	Mr. Utsav Gohil	2016-17	Best out going student	
03	Mr. Shah Darshan	2015-16	Best out going student	
04	Mr. Sourav Mohanty	2013-14	Best out going student	***Bagged the Best out going student Award of the college***

h. Assisting weak Students:

Weak students are identified as those who secure less than 15 marks in internal examination, are counseled to attend remedial classes and they are blended with the bright students or with their peers, creating a platform for better learning. The below flow chart explains the process of assisting the weak students and to improve their performance. The course coordinator evaluates the bluebooks and an analysis is made to identify all classes of students. Results are discussed with the students. Students' performance is intimated to their respective proctors.

Proctors conduct a meeting with their students to discuss about their strength and weakness, to counsel them to attend the remedial classes; same is informed to their parents.

Impact analysis

1. By constant encouragement, student's confidence has been improved in writing the exams.
2. Communication skills and team building capabilities are improved
4. Has influenced peer – peer learning skills.
5. Enabled the students to think beyond the syllabus
6. Enabled the students to face placements confidently

Figure.2.28 Gagan N Reddy participated and won second prize in NCRAEM-18.

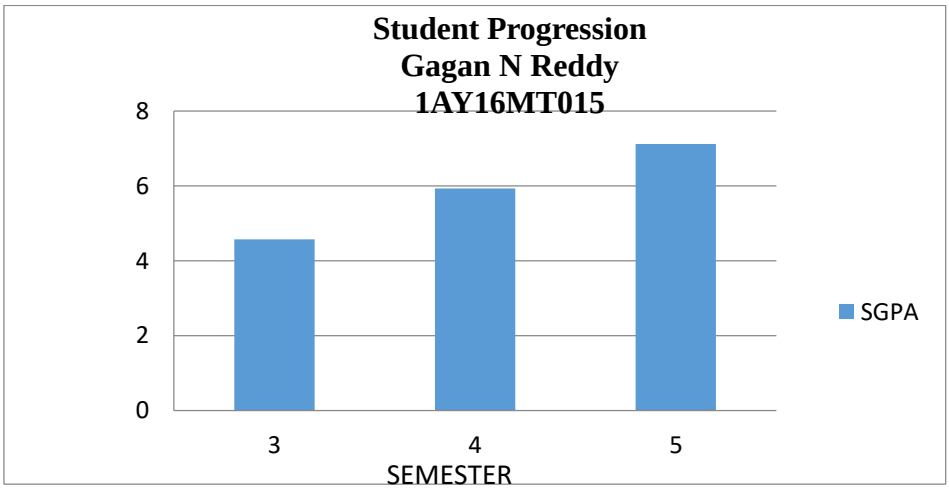


Figure.2.29 Gagan N ReddyProgression chart

i. Encouraging students for extra curricular activities:

The department of mechatronics engineering encourages students to participate in extra curricular activities and studets have brought laurels to the institution by winning the medals at national and international level as shown in the table 2.2.1m

Table 2.2.1m students participation in extra curricular activities.

CAY 2018-19				
Sl.No.	**Student name & USN**	**Event**	**International/national/state**	**Award**
1	Ms. Aishwarya B (1AY15MT004)	Inter Zonal/ Single Zonal tournament (SJCIT)	State	2nd place
2	Ms. Lakshmisree M O (1AY15MT024)	Softball tournament (jyoti nivas college, b"lore)	State	2nd place
3	Ms. Shrigouri J (1AY15MT043)	Phoenix Karnataka Major League Softball-2019	State	1st place
4	Mr. Tilak R (1AY15MT048)	Inter Zone VTU Football tournament (R V C E B'lore)	State	2nd place
5	Ms. Shrigouri J (1AY15MT043)	JNC softball tournament	State	2nd place
6	Ms. Shrigouri J (1AY15MT043)	VIE Base ball tournament (B'lore University)	State	2nd place
7	Mr. T. visvajith	VTU inter collegiate netball tournament (KNSIT)	State	2nd place
8	Ms. Lakshmisree M O (1AY15MT024)	VTU inter collegiate netball tournament (KNSIT)	State	2nd place
CAY-m1 2017-18				
1	Mr. Visvajith T (1AY15MT047)	Inter Zonal/ Single Zonal tournament (Global Academy of Technology)	State	3rd place
2	Ms. Aishwarya B (1AY15MT004)	Inter Zonal/ Single Zonal tournament (AcIT bangalore)	State	4th place
3	Ms. Aishwarya B (1AY15MT004	Inter Zonal/ Single Zonal tournament (Global Academy of Technology)	State	4th place
4	Ms. Lakshmisree M O (1AY15MT024)	Inter Zonal/ Single Zonal tournament (Global Academy of Technology)	State	4th place
5	Ms. Lakshmisree M O (1AY15MT024)	Inter Zonal/ Single Zonal tournament (Global Academy of Technology)	State	4th place
6	Ms. Shrigouri J (1AY15MT043)	Inter Zonal/ Single Zonal tournament (Global Academy of	State	4th place

		Technology)		
7	Ms. Shrigouri J (1AY15MT043)	Inter Zonal/ Single Zonal tournament (AcIT bangalore)	State	4th place
8	Mr. Tilak R (1AY15MT048)	Inter Zone VTU Football tournament (Reva University B'lore)	State	2nd place
CAY-m2 2016-17				
1	Ms. Lakshmisree M o (1AY15MT024)	Inter collegiate Zonal tournament (BMSCE B'lore)	state	participated
2	Ms. Shrigouri J (1AY15MT043)	Inter collegiate inter Zone tournament (DBIT)	Stare	1st place
3	Ms. Shrigouri J (1AY15MT043)	31st Sr. National baseball Championship 2017 (Satyabrata Stadium, Cuttack)	National	
4	Ms. Tilak R (1AY15MT048)	Inter Zone VTU Football tournament (R L Jalappa)	State	2nd place
5	Mr. Vishnu M (1AY15MT050)	FURORE'17 , Beat boxing (DSCE B'lore)	State	1st place
6	Mr. Vishnu M (1AY15MT050)	AVARSANA, Beat boxing (DSCE B'lore)	State	2nd place
7	Ms. T. visvajith	District level basket ball (Kanteerava stadium B'lore)	District level	1st place

Figure:2.30 Mr. Vishnu M bagged 1st place in Beat-boxing

Figure: 2.31 Ms. Shrigouri Jumnalkar bagged 1st place in Soft ball inter collegiate tournament

Figure:2.32 Ms. Shrigouri Jumnalkar and team bagged 2nd place in JNC Soft ball tournament

Figure:2.33 Ms. Shrigouri Jumnalkar and team bagged 1st place in VIE Baseball tournament

Figure:2.34 Mr. Shrigouri Jumnalkar and team bagged 1st place in Phoenix Karnataka Major League Softball-2019

Figure 2.35 Mr. Vishnu K K OF III Semester won Gold medal in internatiomal throwball compitation in 2017

- **Departmental Professional Activities**

FORUM-RENNAISSANCE

(An Automation Integrated Idea Exchange Symposium)

The Department has a Student Forum "RENNAISSANCE" under which many Technical and Non technical activities are conducted to build leadership Qualities , Team work, Technical skills, interpersonal Skills, Self Confidence among students

The events conducted under forum are

- Social Activity
- Workshops
- Technical talks
- Technical competitions
- Group discussions
- Cultural events.
- Mock interview

Figure 2.36 Social Activity-Students Serving and contributing at LIZA home, for differently abled women.

Figure 2.37 Students Exhibiting the projects

Figure 2.38 Technical talk Organized

Figure 2.39 Motivational talk by Arjun Devaiah

Figure 2.40 Theme Day- Angels and Demons

Figure 2.41 Workshop Organized

2.2.2 Quality of internal semester question papers, assignments and evaluation(20)

The objective of the intenal assessments carried out during the semster is to check whether the learners have aquired the skills stated as course outcomes. There shall be a maximum of 25 internal assessment marks in each theory and practical courses (as per 2010 scheme). In case of practical course, the IA marks shall be based on the laboratory record, viva/voce and one test. Asssignment is not mandated by the VTU, however course instructor decides on giving assignment(s) to the students in addition to madated internal assessments. The internal assessment process is shown in the **Figure 2.2.2.**1. The major activities are

- ✓ The course coordinator prepares IA test question paper and scheme of evaluation (Formats for both are provided by IQAC. A sample question paper is shown in figure 2.2.2.2 and a sample scheme of evaluation is shown in **figure 2.2.2.3**.)
    - o Mapping of questions to COs and blooms levels
- ✓ Scrutiny by the Module Coordinator and implementation of modifications suggested, if any.
- ✓ Evaluation of answer scripts, communicating the marks to students and their parents.
- ✓ Computation of COs and POs.

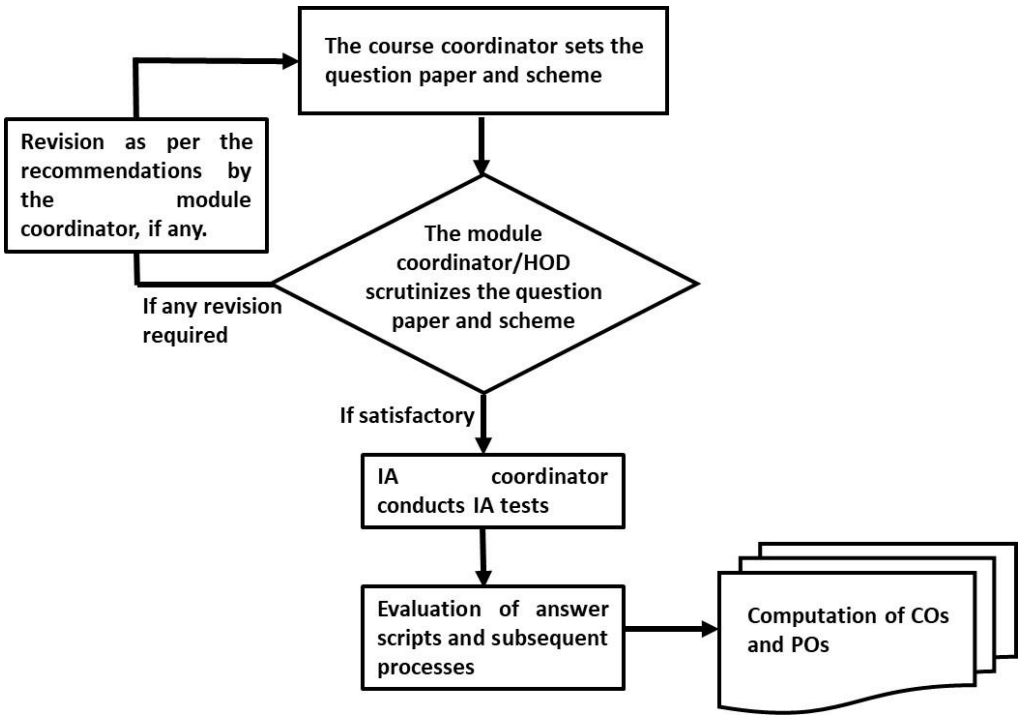


Figure 2.42 Flow chart of checking quality of quality question papers

AIT/IQAC/Aca/17-18/IAQP

USN

Acharya Institute of Technology
Soladevanhalli, Bengaluru-560107.
Department of Mechatronics Engineering
INTERNAL ASSESMENT - 1 [Academic Year: 2017-18]

Sub with Code: Artificial Intelligence-10MT753 **Semester/Section: VII SEM**
Max Marks : 25 **Time: 90 minutes**

Note: **ANSWER ANY FIVE FULL QUESTIONS**

Q.No	QUESTIONS	CO'S	Marks
1	Distinguish Artificial Intelligence & Correlate the task domains of Artificial Intelligence ?	CO1	5M
	OR		
2	Survey the Early Work done in Artificial Intelligence.	CO1	5M
3	Prioritize the multidisciplinary nature of AI & its Related Fields.	CO1	5M
	OR		
4	Categorize the underlying assumptions of Artificial Intelligence.	CO1	5M
5	Focus the Importance of Artificial Intelligence & outline the applications of Artificial Intelligence.	CO2	5M
	OR		
6	Organize Simplified Perceptron system with neat diagram & relevant equations.	C02	5M
7	Correlate Learning Automata with neat diagram , Temperature Control Model & NIM Game.	CO2	5M
	OR		
8	Outline the Concepts of Genetic Algorithm with neat flow diagram.	CO2	5M
9	Illustrate Checkers playing example with two move Look Ahead Sequence	CO2	5M
	OR		
10	Analyze the Importance of Intelligent Editors & Perceptron Learning Algorithm.	CO2	5M

CO1 Correlate the methodology of artificial intelligence, cognitive science, space & knowledge representation involved in Intelligent systems.

CO2 Classify the working principles of predicate logic , expert systems, machine learning, stastical & probabilistic reasoning incorporated in AI systems.

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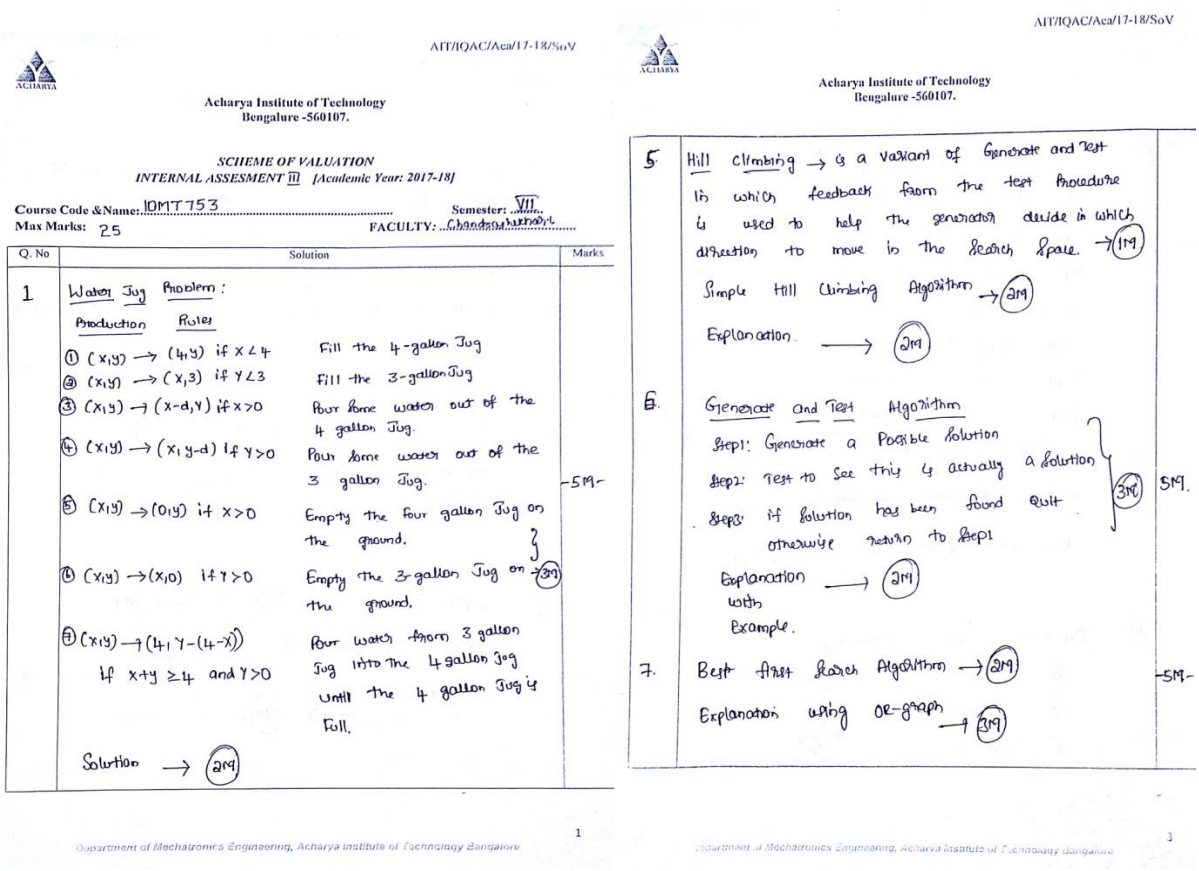
Figure 2.43 Sample question Paper



AIT/IQAC/Aca/17-18/SoV

Acharya Institute of Technology
Bengalure -560107.

SCHEME OF VALUATION
INTERNAL ASSESMENT III [Academic Year: 2017-18]

Course Code &Name: 10MT753 Semester: VII
Max Marks: 25 FACULTY: Chandrashekhar

Q. No	Solution	Marks
1	Water Jug Problem: Production Rules ① (x,y) → (4,y) if x < 4 — Fill the 4-gallon Jug ② (x,y) → (x,3) if y < 3 — Fill the 3-gallon Jug ③ (x,y) → (x-d,y) if x>0 — Pour some water out of the 4 gallon Jug. ④ (x,y) → (x,y-d) if y>0 — Pour some water out of the 3 gallon Jug. ⑤ (x,y) → (0,y) if x>0 — Empty the four gallon Jug on the ground. ⑥ (x,y) → (x,0) if y>0 — Empty the 3-gallon Jug on the ground. ⑦ (x,y) → (4, y-(4-x)) if x+y ≥ 4 and y>0 — Pour water from 3 gallon Jug into the 4 gallon Jug until the 4 gallon Jug is full. Solution → (2M)	5M

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5. Hill climbing → is a variant of Generate and Test in which feedback from the test procedure is used to help the generator decide in which direction to move in the search space. → (1M)
Simple Hill Climbing Algorithm → (2M)
Explanation → (2M)

6. Generate and Test Algorithm
Step1: Generate a Possible Solution
Step2: Test to see this is actually a solution
Step3: if solution has been found Quit otherwise return to Step1 (3M) 5M.
Explanation with Example → (2M)

7. Best first Search Algorithm → (2M)
Explanation using OR-graph → (3M) 5M

Department of Mechatronics Engineering, Acharya Institute of Technology Bangalore 2

Figure 2.44:Sample scheme of evalution

- **Seminar Evaluation**

Technical seminar on current and advanced topics will be given by the VIII semester students before third internals. Guides for seminar presentation will be the same as project guides, seminar coordinator will announce a suitable date for students to give seminar, an evaluation committee formed by guides and senior faculty will evaluate the technical seminar given by the students

The below table shows the rubrics for technical seminar evaluation

Sl.No.	Evaluation parameter	Marks
1	Relevance of Topic	05
2	PPT presentation	10
3	Communication	15
4	Response to questions	10
5	Report	10

Below figure shows the technical seminar evaluation sheet

Acharya Institute of Technology
Soldevanahalli, Bangalore 560 107
Department of Mechatronics Engineering
Technical seminar Evaluation sheet 2016-17 Academic Year

S NO	NAME	USN	SEMINAR TOPIC	Relevance of Topic	PPT Preparation	Oral presentation	Response to questions	Technical report	Total Marks
				05 Marks	10 Marks	15 Marks	10 Marks	10 Marks	50 Marks
1	BHASKAR JYOTI KAKATI	1AY10MT010	FLYING CAR	4	8	8	6	10	36
2	AHMED AL ZAID	1AY12MT003	QUASISTATIC CAVITY RESONANCE FOR UBIQUITOUS WIRELESS POWER TRANSFER	5	10	10	5	10	40
3	ATHUL RAM P	1AY12MT013	CRYOGENIC FUEL	4	7	7	4	10	32
4	SHUBHAM UTKRESH	1AY12MT057	SCREAMJET ENGINE	4	6	6	4	10	30
5	TEJ KANSAGRA	1AY12MT061	BUCKY PAPER	4	6	7	4	10	31
6	ADITYA MISHRA	1AY13MT002	SCRAMJET ENGINE	5	10	10	5	10	40
7	AKANKSHA YOGESH M	1AY13MT004	DESIGN OF SMALL EARTH RE-ENTRY VEHICLE FOR BIOLOGICAL SAMPLE RETURN	5	10	10	7	10	42
8	AKHIL RAJU	1AY13MT005	MAGNETIC REFRIGERATION	5	10	10	8	10	43

- **Academic Audit and actions taken there of during the period of Assessment**

The institution has adopted an integrated framework for quality assurance of academic and administrative activities.

1) Internal Quality Assurance cell continuously acts to improve the academic performance of the institution.

2) Calendar of events (CoE) for every semester is released at the starting of the semester. Some of the details comprised in CoE are semester start date, schedule of internal assessment tests, institute fest, annual sports meet and each department add schedule of department activities.

3) Faculty growth and development is kept track by maintaining personal file and performance file by each faculty. These files are regularly audited by IQAC.

4) Course folder for each course is maintained by the faculty handling that particular course. This folder comprises of course objectives and outcomes, lesson plan, lecture notes, teaching aids used, assignments, question bank, mapping of course outcomes to program outcomes and programme educational objectives. This folder is monitored and audited by concerned department heads and also by IQAC.

5) Proctorial system is in place catering to student community by closely monitoring and guiding the students in making them responsible citizens.

6) Academic audit is carried out by the IQAC committee and the report is finally approved by the Principal.

7) The members in the audit committee will be drawn from the IQAC, Heads of the various Departments and senior faculty in the institution.

8) An academic audit format is prepared with different criteria of TLP as columns and names of faculty of a given department constituting the rows and circulated to the departments. The audit team are to evaluate each and every faculty with respect to criteria along with substantial documentation and proof.

9) The Heads of the Departments have to take the responsibility for smooth implementation of the Academic audit process.

10) The short comings listed by the TLP audit committee are communicated to the faculty through the respective heads indicating the areas which need the attention for improvements.

11) The faculty overcome the shortcomings by making necessary changes and report the same to the TLP audit committee.

12) The good practices followed by a faculty are also briefed to the faculty through heads and the concerned faculty is given a word of encouragement by appreciation.

13) The TLP audit takes place twice in a semester. In the beginning of the semester, the preparedness of the faculty to deliver the curriculum effectively is checked wherein the course outcomes, lesson plans are to be kept ready and presented to the audit committee. At the end of the semester, the CO attainment, PO attainment, proctor file and performance file is audited to find out the work carried out by the faculty. In the event of curricular gap, it is advised by the IQAC to the department to conduct appropriate workshops/ seminars/ conferences/ industrial visits etc. to bridge the gap.

14) All faculty undergoing the audit process have been able to successfully implement Outcome Based Education based on the inputs given by the internal audit teams by taking up activities such as Group Discussions, Role plays, Seminars, Video lectures and model based learning to enhance the TLP.

15) Also all the departments have undertaken appropriate measures like conducting workshops,

seminars, guest lectures, quizzes, industrial visits and mini project activities to fill the curricular gap.

- **Parent- Teacher meetings:**

Formally Parent -Teacher Meeting is conducted once in a semester to communicate to parents about the academic progress of their children. Informal parent-teaching happens as and when necessary. The interaction helps to support the students in a better manner. The parent teacher meetings are coordinated by the Proctoring coordinator of the department. Metting starts with HOD briefing the activities and achievements of the department to the parent. The the parents meeet the respective procotr of their children to get the academic progress. The concern(s) if any are discussed with the proctor by the parents and if HOD's intervention is necessary to address the concern(s) of the parents, then proctor arranges a meeting with the HOD. At the end of the meeting parents feed back is collected to improve the quality of Teaching Learning Process and attainment of Program Educational Objectives (PEOs).

Figure.2.45:Parents Teachers Meeting held on 24/09/2016.

2.2.1.b Feedback and improvement

a. Course end survey:

At the end of the course, a survey is conducted among the students to know to what extent faculty have achieved stated course outcomes. The course end survey sample format is shown below:

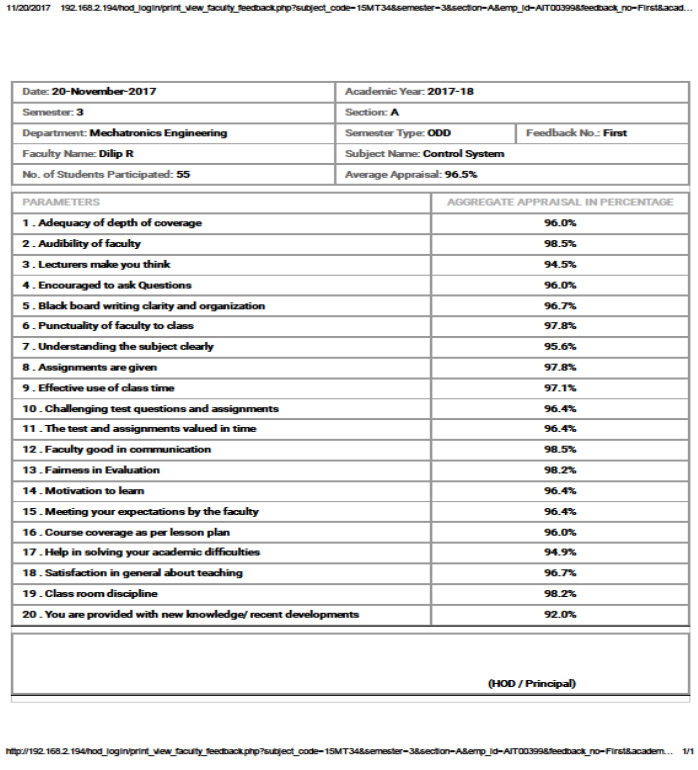
Note: On a scale of 1 to 3 rate the following:

Sl. No.	Question	Rating	CO

			addressed
1	To what extent you have understood the concepts of stress, strain and Deformation in composite structure, bars, beams and columns. ?		CO1
2.	How confident are you to apply knowledge of MECHANICS OF MATERAILS for safe and efficient determination of stress, strain and Deformation in mechanical structures.		CO2
3.	How confident are you to determine stresses and strains for plane stress condition analytically and graphically for structural members.		CO3
4.	How confident are you to analyze the structural members for shear, buckling and torsion.		CO4

b. Faculty appriasal by the students:

At the end of the course feedback on faculty performance is obtained online from the students and analysed. Faculty not meeting 70% of stated expectations are counselled and asked explanation for the same. Faculty development is suitably planned. The sample format is shown below:



11/20/2017 192.168.2.194/hod_login/print_view_faculty_feedback.php?subject_code=15MT34&semester=3&section=A&emp_id=AIT00399&feedback_no=First&acad...

Date: **20-November-2017**	Academic Year: **2017-18**	
Semester: **3**	Section: **A**	
Department: **Mechatronics Engineering**	Semester Type: **ODD**	Feedback No.: **First**
Faculty Name: **Dilip R**	Subject Name: **Control System**	
No. of Students Participated: **55**	Average Appraisal: **96.5%**	

PARAMETERS	AGGREGATE APPRAISAL IN PERCENTAGE
1 . Adequacy of depth of coverage	96.0%
2 . Audibility of faculty	98.5%
3 . Lecturers make you think	94.5%
4 . Encouraged to ask Questions	96.0%
5 . Black board writing clarity and organization	96.7%
6 . Punctuality of faculty to class	97.8%
7 . Understanding the subject clearly	95.6%
8 . Assignments are given	97.8%
9 . Effective use of class time	97.1%
10 . Challenging test questions and assignments	96.4%
11 . The test and assignments valued in time	96.4%
12 . Faculty good in communication	98.5%
13 . Fairness in Evaluation	98.2%
14 . Motivation to learn	96.4%
15 . Meeting your expectations by the faculty	96.4%
16 . Course coverage as per lesson plan	96.0%
17 . Help in solving your academic difficulties	94.9%
18 . Satisfaction in general about teaching	96.7%
19 . Class room discipline	98.2%
20 . You are provided with new knowledge/ recent developments	92.0%

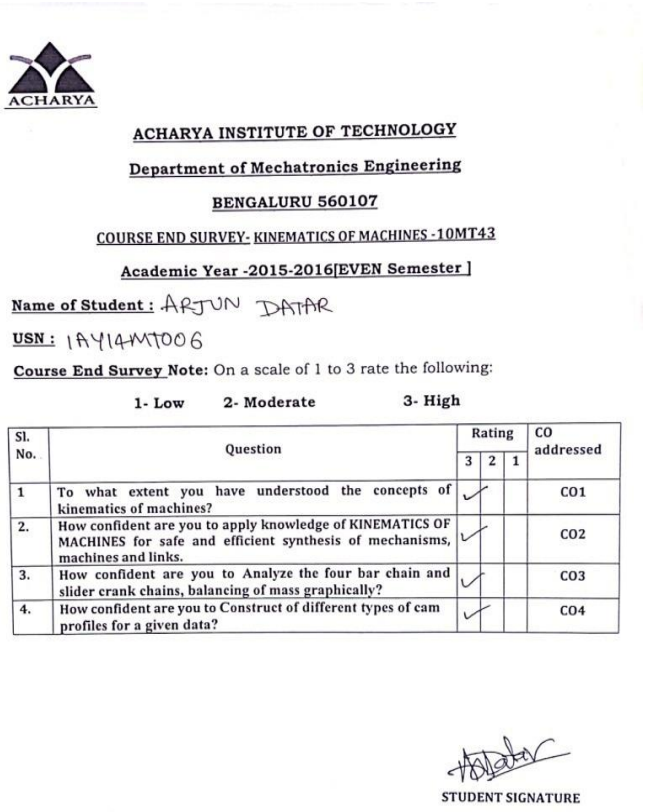
(HOD / Principal)

http://192.168.2.194/hod_login/print_view_faculty_feedback.php?subject_code=15MT34&semester=3&section=A&emp_id=AIT00399&feedback_no=First&academ... 1/1

Figure.2.46 Faculty appraisal

c. Exit survey:

At the end of the program, graduates are asked to give feedback on level of accomplishment of stated Program Outcomes and same data is analysed to understand the improvements required in Teaching Learning Processes. The sample format is shown below:



ACHARYA

ACHARYA INSTITUTE OF TECHNOLOGY

Department of Mechatronics Engineering

BENGALURU 560107

COURSE END SURVEY- KINEMATICS OF MACHINES -10MT43

Academic Year -2015-2016[EVEN Semester]

Name of Student : ARJUN DATAR

USN : 1AY14MT006

Course End Survey Note: On a scale of 1 to 3 rate the following:

1- Low 2- Moderate 3- High

Sl. No.	Question	Rating 3	2	1	CO addressed
1	To what extent you have understood the concepts of kinematics of machines?	✓			CO1
2.	How confident are you to apply knowledge of KINEMATICS OF MACHINES for safe and efficient synthesis of mechanisms, machines and links.	✓			CO2
3.	How confident are you to Analyze the four bar chain and slider crank chains, balancing of mass graphically?	✓			CO3
4.	How confident are you to Construct of different types of cam profiles for a given data?	✓			CO4

STUDENT SIGNATURE

Figure.2.47 Course End survey sample

2.2.3 Quality of Students Projects (25)

Project Coordinators and Faculty members educate students to carry out project works in different domains/areas of their interest. Coordinators sends circular for identifying the project works in their respective domains such as (not limited to)

a) Industrial Robotics
b) Rapid Prototyping
c) Artificial Intelligence and Machine Learning
d) Virtual Instrumentation

e) Signal Processing

f) Industrial Automation

g) Mechatronics Engineering

The department encourages students to undertake relevant, achievable, time bound projects either in the college or at the industry to solve problems in any of the above domains with social impact. Students can form group/team on their own, consisting of minimum 2 to maximum 4 members.

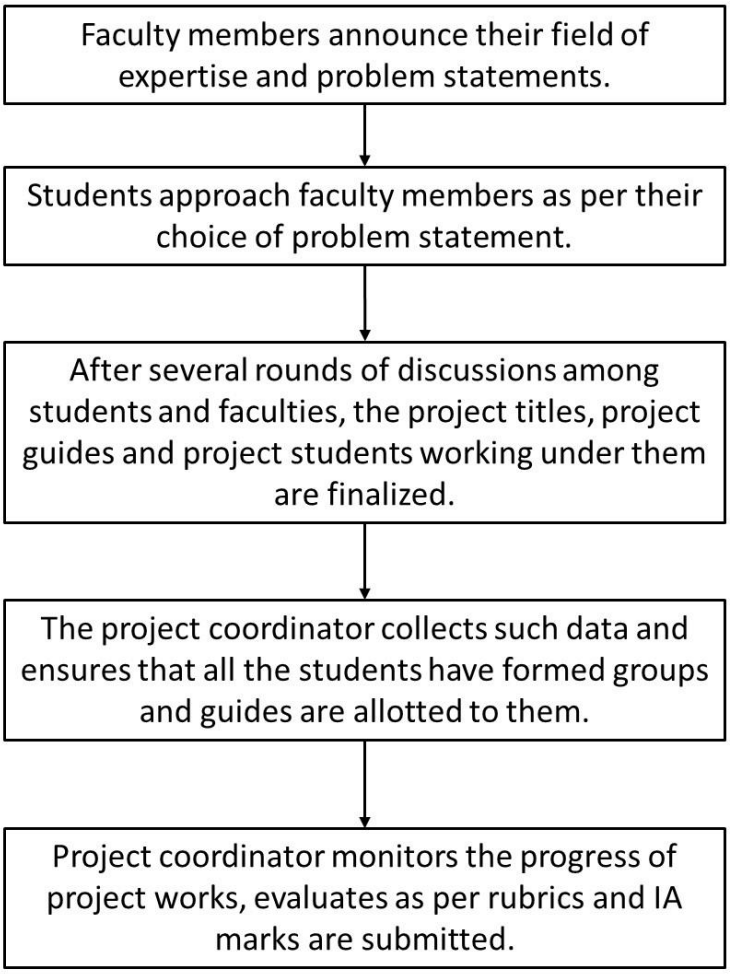


Figure 2.48

Topic Identification:

a) The students are required to do a thorough literature survey on their area of interest, formulate the problem statement with a brief synopsis on the intended project work.

b) The students are encouraged to consult experts from Industry/ Research labs/ Government Organizations to carry out their project work through proper channel.

Monitoring:

a) Students have to submit the synopsis of the project work to the coordinators for scrutiny.

b) The project work coordinators and the scrutiny committee will scrutinize the synopsis and give suggestions towards the improvements in strengthening the synopsis.

c) Based on synopsis contents and areas of interest, the internal guides will be allocated to each project team.

d) In case, the group of students taking projects from Public/Private sectors need to take approval by HOD and Letter of Reference sent to the concerned sector. A teacher of the department functions as Internal Guide to such students and the scientist/researcher at the concerned sector functions as External Guide.

e) Every week, the students should meet their concern guide and update their project work progress and have to take signature from guide, coordinator and HOD. The students/batch must give presentation on the project in front of the project work review committee as scheduled in Phase-1 &Phase-2 as shown in Table 2.2.3.a.

f) Finally, the review committee evaluates the projects for respective domains.

Table 2.2.3a shows the complete project work Review schedule.

Table 2.2.3a project work Review schedule

Announcement to students to give project topics and preference of guide	**Beginning of VII Semester**
Submission of synopsis	September
Guide Allocation	September
Project presentation Phase – I	October
Project presentation Phase – II	March
Project presentation Phase – III	April/May
Project exhibition	May 2nd Week
Submission of final report	May 3rd Week
Final Viva voce	June- July

Project work Evaluation:

a) *Internal Evaluation:* The project work and the report will be evaluated by internal committee at Phase-1, Phase-2.

b) *External Evaluation:* The project work and the report will be evaluated by internal and external examiners appointed by the University.

c) The external examiner will be from other VTU affiliated Institutions.

d) The examiners will take presentation and demonstration followed by Viva-Voce on the project work carried out by students. The students need to defend their project work. Based

on the presentation and Viva-Voce, the marks will be awarded for the students, which will be sent to University

Motivation to student:

a) The department of MTE encourages the students to take part in "Technotsava" In-house project exhibition, where all the students will exhibit their projects. Eminent personalities from industries and other institutes will select best two projects for the award of 1st and 2nd prize.

b) The best projects identified from the project exhibition will be sent to different colleges/institute for participation in exhibition.

c) The internal guide will help the students to publish their work in National/International Conference and Journal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ACHARYA INSTITUTE OF TECHNOLOGY
Acharya Dr. Sarvepalli Radhakrishnan Road, Soladevanahalli, Bengaluru-560 107.
Technotsava - 2018
A final Year Projects Exhibition
Certificate
Department of Mechatronics Engineering
This certificate is awarded to
Mr. / Ms. Jaanay. N. Deshmukh
USN 1AY14MT060 for the project titled Association Learning in a Humanoid Bot
which won the I st prize in Technotsava - 2018, a project exhibition, held on 17-05-2018
HOD 17/5/18
Principal AIT

Figure 2.48

Rubrics:

Table 2.2.3b shows the evaluation method, weights and Evaluation parameter in each phase.

Table 2.2.3b Project Evaluation

Evaluation Phases	Weightage	Evaluation parameter
Phase-I:Project proposal	20%	• Project Idea • Literature survey • Problem definition • Methodology adopted
Phase-II: Interim evaluation	20%	• Design and development • Usage of modern tools • Working prototype(Initial version)

		• Ability work in team • Presentation
Phase-III: Demonstration of working prototype and presentation	60%	• Complete working model. • Demonstration • Testing and validation • Results and discussion • Future scope • Ability work in team • Paper Publication • Report • Overall presentation • Understanding of concepts • Communication skills • Respond to Questions

Projects are broadly classified as

1. Industry projects: The project work is carried out in an industry or an external organization with identified internal and external guides.
2. In-house projects: The project work is carried out under the supervision of a faculty from the department as shown in Table 2.2.3c

Table 2.2.3.c No. of Projects

Academic Year		Total No. of Projects	No. of In-house Projects	Industry Projects
CAY	(2018 – 2019)	18	18	Nil
CAY m1	(2017 – 2018)	18	18	Nil
CAY m2	(2016 – 2017)	20	20	Nil
CAY m3	(2015 – 2016)	19	18	1

Figure below shows the evaluation sheet of year 2016-17 project groups

ACHARYA INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MECHATRONICS ENGINEERING
PROJECT EVALUATION SHEET 2016-17 ACADEMIC YEAR

SL NO.	USN	NAME	Group No.	GUIDE	TITTLE	Phase 1 (20M)	Phase 2 (20M)	Phase 3 (20M)	Report (40M)	Final (100M)
1	1AY14MT401	Girish B V	G1	Prof.Sridhar Jetty	Semi autonomous Multi purpose Agricultural Robot	16	16	18	40	90
2	1AY14MT406	MANJU BHARGAV L				20	19	20	40	99
3	1AY14MT412	VINOD N U				19	19	20	40	98
4	1AY13MT050	RITHWIK M				10	18	20	40	88
5	1AY13MT051	RITO SHUVRO CHAKRABORTY	G2	Prof.Bhagirathi V	Bio harvesting	19	20	20	40	99
6	1AY13MT064	UTSAV GOHIL				19	19	20	40	98
7	1AY13MT066	VEDANT DAS				16	16	18	40	90
8	1AY13MT041	NITIN K S	G3	Prof.Chandrashekar	Legged Rover for Grape Harvesting	20	19	20	40	99
9	1AY13MT018	BHARATH KUMAR H				20	19	19	40	98
10	1AY13MT057	SHREEVATHSAV H RAO K				19	19	20	40	98
11	1AY13MT049	RANJITH K V	G4	Dr.ARK Swamy	Advanced active saftey system	18	18	17	40	93
12	1AY13MT062	SWARUP D MATT				18	18	19	40	95
13	1AY14MT408	PATANGE SHRADDHA DEEPAK				16	16	18	40	90
14	1AY13MT056	SHIVARAJ DUDDAGI	G5	Prof.Sridhar Jetty	Soil munching machine	19	19	20	40	98
15	1AY10MT010	BASKAR JYOTI KAKATI				0	15	20	40	75
16	1AY14MT404	KISHORE KUMAR K S				17	17	18	40	92
17	1AY14MT405	LINGARAJA RAMESH THANGADI				18	18	19	40	95
18	1AY13MT019	CHANDAN H B	G6	Prof.Dilip	Go-etern	19	20	20	40	99
19	1AY14MT410	SHRAVAN SUHAS P				19	20	20	40	99
20	1AY13MT034	MOHAN KUMAR V P				19	20	20	40	99
21	1AY13MT059	SIJO SUNNY	G7	Prof. Dilip	Crack Detection for Fuselage	19	19	19	40	97
22	1AY13MT046	PRINCETON HILARY D CUNHA				19	19	19	40	97
23	1AY14MT402	H R SUDHARSHANACHAR	G8	Prof. Dilip	Solar power portable trash compactor with gsm interface	18	18	19	40	95
24	1AY14MT403	KASHINATH P				19	20	20	40	99
25	1AY14MT411	VIJAY KUMAR TALAKERI				10	17	18	40	85
26	1AY14MT409	RACKSHITH P G				18	18	20	40	96
27	1AY13MT039	NAUMAN IBRAHIM	G9	Prof.Ranganath	mine exploration recovery and securing instrument	18	18	18	40	94
28	1AY13MT029	KUMAR DHRUV RAMAKRISHN				19	19	20	40	98
29	1AY13MT007	AKSHAY ARUN VERNEKAR				18	18	20	40	96
30	1AY13MT021	GATTAMANENI ANVITHA				18	18	20	40	96
31	1AY13MT061	SRIVATHSA UPADYAYA M	G10	Dr.ARK Swamy	Vehical Industrial Chimney Cleaning Equipment	18	18	19	40	95
32	1AY13MT010	ANKUSH G V				18	18	18	40	94
33	1AY13MT024	JAISHREE A				18	18	18	40	94
34	1AY13MT006	AKHILESH N V	G11	Prof.Bhagirathi V	Aiding System for Deaf Dumb and Blind Persons	17	17	18	40	92
35	1AY13MT005	AKHIL RAJU				17	17	18	40	92
36	1AY13MT032	MOHAMMED YASIN K				17	18	17	40	92
37	1AY13MT022	GEENA ALEXANDER GEORGE				19	20	19	40	98

- **Paper publications and funding proposals:**

The final year students are encouraged to apply for KSCST funding every year. Department has a project coordinator who initiates the process of seeking proposals under themes mentioned by the KSCST and ensures atleast 5 proposals are submitted. The faculty and final year students are encouraged to publish their project findings at various conferences and journals as shown in Table 2.2.3d.

Table 2.2.3d Funded Students' Project Details.

Sl.No	Year	Title of the Project	Guidance	Funding Agency	Funded Amount (Rs)	Relevance to POs	Outcome
01	2014-15	Power generation from exhaust gas and engine heat	Dr.ARK Swamy	KSCST	7,000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Participated
02	2015	3d scanner	Mrs. Bhagirathi .V	KSCST	8,000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Participated
03	2015	Eco-drive	Mrs. Bhagirathi .V	KSCST	6,000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Participated
04	2015	Portable photocopier	Mrs. Bhagirathi .V	KSCST	6,000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Participated
05	2016-17	Automatic Soil Mulching machine	Mr. Sridhar S Jetty	KSCST	5000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Participated
06	2016-17	(MERSI) Mine Exploration Recovery & Securing Instrument	Mr. Ranganath Gowda L	KSCST	9000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Project of the year award-2016-17(cash prize of Rs-12500)
07	2017-18	(AMERSI) Automated Mine Exploration Recovery	Mr. Ranganath Gowda L	KSCST	9000/-	POs:1,2,3,4,5,6,7,8,9,10,11,12	Participated

		& Securing Instrument					

- **List of few projects done during 2017-18 as listed in Table 2.2.3e.**

CAYm1 (2017-18) **Table.2.2.3e**

Sl.No	Project title	Name of the student	USN	Guide	Relevance of POs and PSOs
01	Associative learning in a humanoid bot through ANN	AatifJunaid	1AY14MT002	Mrs. Bhagirathi V	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:2,3
		Yamini Agarwal	1AY14MT054		
		Kishore R	1AY14MT025		
		Mr.Tanmay	1AY14MT060		
02	Farmer Vendor Transport Inter connecting system	Mr. Surajkandpal	1AY14MT059	Mr. Chandrashekhar L	POS:1,2,3,4,5,6,7,8, 9,10 11, 12.. PSOS:2,3
		MrShristivaid	1AY14MT055		
03	Diagnosis of Human Body Parameters using Virtual Instrumentation	Mr. SangeethaSagar H D	1AY15MT014	Mr. Dilip R	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:2,3
		MrSowmya	1AY15MT413		
		Mr.Humerabanu	1AY14MT017		
04	Virgin Coconut Oil Extraction Machine	Mr.Abhishek	1AY15MT400	Mr.Ranganath Gowda L	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:1,3
		Mr.Nandan NS	1AY13MT038		
		Mr.Santosh Kumar N	1AY15MT411		
		Ms.SreeVidya N	1AY15MT414		
05	Green Leaf & Water Bodies Mapping For Forest Application	Mr.ArjunDatar	1AY14MT006	Dr. ARK Swamy	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:2,3
		Mr.Niranjan R	1AY14MT032		
		Mr.PrateekHegde	1AY14MT039		
		Mr.Pradeep T	1AY15MT407		

06	Rescuer Device For Lifting Infants Stuck In Pits	Mr.Satish Kumar Jaiswal	1AY12MT048	Mr. Ranganath Gowda.L	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:1,2,3
		Mr.TabishQamar	1AY12MT060		
07	Fisherman Safety & Information System	Mr.Chethan M B	1AY14MT007	Mr. Kiran Kumar K	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:1,3
		Mr.Kushraj Rama Shetty	1AY14MT026		
		Mr.ManojKunapalli	1AY14MT029		
		Mr.Manoj M N	1AY15MT405		
08	Intelligent Mine Exploration, Recovery & Securing Instrument.	Mr.Fazilai Fatima MC	1AY14MT009	Mr. Ranganath Gowda.L	POS:1,2,3,4,5,6,7,8, 9,10 11, 12. PSOS:1,2,3
		Mr.ZahraDelaveri	1AY14MT065		
		Mr.Gerald Amani	1AY14MT065		
		Mr.Ratish Nair	1AY12MT036		

- **List of few projects done during 2016-17 as listed in Table 2.2.3f.**

CAYm2 (2016-17)

Table 2.2.3f.

Sl.No	Project title	Name of the student	USN	Guide	Relevance of POs and PSOs
01	Grape Harvesting Robots	Bharath Kumar H	1AY13MT018	Mr. Chandrashekhar L	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Nitin K S	1AY13MT041		
		Sreevatsav H Rao K	1AY13MT057		
02	Brain Computer Interface	KondreddyHemakerreddy	1AY13MT027	Dr. ARK swamy	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Kouakou Elsie Florence	1AY13MT028		
		Mohammed Ameen	1AY13MT031		
		Navadersh S	1AY13MT040		
03	Detection	Annaiah	1AY13MT011	Mr.	

	& Segregation of Infected Alphonso	Mukesh M Palankar	1AY13MT037	Chandrashekhar L	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Shubham M Rangadal	1AY13MT058		
		Vinayaka Ramachandra Acharya	1AY13MT067		
04	The Deceptive Window Wiping Bot	Ahmed Alzaid	1AY12MT003	Mr. Kiran Kumar K	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Ashwin Sai O	1AY13MT013		
		Balaji S	1AY13MT016		
		KunalShekhar	1AY13MT030		

- **List of few projects done during 2015-16 as listed in Table 2.2.3g.**

CAYm1 (2015-16) **Table.2.2.3g**

Sl.No	Project title	Name of the student	USN	Guide	Relevance of POs and PSOs
01	Operation Theater Automation & Control	Arun Joshi	1AY12MT009	Mr. Dilip R	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Ivan Simon	1AY12MT024		
		YadhuSwaroop .C	1AY12MT065		
		GautamPrabhu	1AY13MT403		
02	Ambidextrous Robotic Hand	Manish Kumar	1AY10MT023	Dr. ARK Swamy	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Shivam KR Khrwar	1AY12MT055		
		Parth Sharma	1AY12MT038		
		NavinTigga	1AY11MT031		
03	Power Generating Shock Absorber	Jashanth N	1AY13MT404	Mrs.Meghana M Sinthre	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Santosh S	1AY13MT411		
		Karthikraj T	1AY13MT405		
		Nagappa Kannur	1AY13MT407		
04	Monitoring Machine Geometry & Tilt in axes of	Chethan Kumar G M	1AY12MT017	Mr. Kiran Kumar K	POs:1,2,3,4 5,6,7,8,9,10, 11,12 PSOs:2,3
		Madan Kumar .S	1AY12MT030		

	CNC machines.	SachinDevadiga	1AY12MT043		
		Naveen Darshan	1AY13MT408		

2.2.4 Initiative related to industry interaction (15)

The Department of Mechatronics Engineering has made efforts in the direction of making students ready for industry by enhancing their skill sets through training on recent tool and technologies. The said efforts are made through the following activities as shown in Table **2.2.4**

- Invited talks- Resource person from industries in specific domain of Mechatronics Engineering, Automation and Manufacturing Technology as shown in Table 2.2.4a

Table 2.2.4a : Technical Talks

Sl.No.	Speaker and address of the speaker	Topic	Date	Faculty involved	Relevance of POs and PSOs
01	Dr. T Ram Prabhu scientist DRDO	Advanced composites and Materials	27/10/18		POS:1,3,5,12 PSOs:1&3
02	Dr. GanapathyArumugam Managing Director, Enhanced biofuels and technology India pvt Ltd	Green energy from thorium and bio fuels	13/04/18		POS:1,3,7,12 PSOs:1&3
03	Vijay Kumar B design flow link technology	Self-pace learning solutions for engineers	16/02/18		POS:1,2,3,9, 12 PSOs:1,2&3
04	Deven B. Patel Enzen global solutions pvt ltd	SCADA Systems	05/2/18		POS:1,2,3,5, 9,11,12 PSOs:1&2
05	Dr. Achuth Rao Origin Engineering Solutions, Bangalore	Creativity, design and Innovation	03/02/16		POS:1,2,3,9, 12 PSOs:1,2&3
06	Mrs. Padma R, Deputy manager, Yokogawa,	Emerging trends in process automation with DCS and PLC review	19/08/16		POS:1,2,3,5, 9,11,12 PSOs:1&2

	Bangalore				
07	1.Mr.Jambulingam, Expertise in product design and manufacturing 2.Mr.Thygaraj, Expertise in electronics and embedded systems 3.Mr.Karamchand, Specialization in tool and die making 4.Mr.Abdul Jabbar, Corporate relationship, CAD and Manufacturing	Product design and development	21/08/15		POS:1,3,5,12 PSOs:1&3
08	Mr. A S Ganesan, Head marketing, Jindal Aluminum Ltd.	Extruded Aluminum production and self motivation	22/09/15		POS:1,3,7,12 PSOs:1&3
09	1.Mr.Arvind R, Schneider electric 2. Mr. Ashwin. B/E Aerospace, Bangalore 3.Mr.Hariprasad K, 3M India 4.Mr.Hemanth Kumar, General Electric 5.Mr.Mohan Kumar, Toyota kirloskar motors, Bangalore 6.Mr.Raghunandan, UTC aerospace, Bangalore	a. Innovations/Hobby projects b. Recent trends in Mechatronics/Mechanical/Aerospace industries c. Career d. Job opportunities e. Higher studies f. Corporate culture and Motivational talk	25/04/15		POS:1,2,3,6,7,9,11,12 PSOs: 1,2&3

Figure 2.49 Product design and development by Mr.Jambulingam, Expertise in product design and manufacturing

Figure 2.50 Interacting with the industry experts.

2.2.5 Initiatives related to Industry internship/Summer training (15)

Initiatives related to Industry internship/Summer training (15)

Acharya Institute of technology encourage students to improve the technical skill set by allowing them to undergo following co-curricular programs

- International internships
- Industrial internships
- Summer training.

International internships

Acharya Institute of technology has MOU with Old Dominion University, New Virginia, and USA for undergoing internships at their campus. Every Year our students Enroll for the internship program and undergo one year selection process by doing projects which will be

guided , monitored by the department Faculty and Evaluated by Professor from ODU university on monthly basis .

Students are selected for internship program based on

- Problem analysis
- Work carried out and presented every month.
- Ability to work in team
- Communication
- Commitment towards completion of work.
- Knowledge gained etc.

After selecting for the internship students will go to ODU, USA for one month between July-Aug to carry out the internship.
Table 2.2.5a gives list of students Selected and underwent summer internship.

Table 2.2.5a: Summer Internship

Sl.No	Student Name	Academic Year	Remarks	Faculty Guide	Relevance of POs and PSOs
01	Mr.Aditya Ramesh 1AY15MT001	2018-19	1) Invited by ODU for Second time to carryout project by providing complete financial support. 2) Have been offered scholarship to pursue MS program.	Prof. Bhagirathi V	POS:1,2,3,4,5,6 ,7,8,9,10,11,12 PSOS:1,2&3
02	Mr.Fazilai Fathima Mohamed Charolia 1AY14MT009	2017-18	Invited by ODU for Second time to carryout project by providing complete financial support.	Prof. Bhagirathi V	POS:1,2,3,4,5,6 ,7,8,9,10,11,12 PSOS:1,2&3
	Mr.Aditya Ramesh 1AY15MT001				
	Ivania .J.G Pequenino 1AY14MT018				
	Arjun Datar 1AY14MT006				
03	Arjun Datar 1AY14MT006	2016-17		Prof. Bhagirathi V	POS:1,2,3,4,5,6 ,7,8,9,10,11,12 PSOS:1,2&3
	Tanmay N Deshmukh 1AY14MT060				
	Akanksha Yogesh M 1AY13MT004				
	Geena Alaxander George				

	1AY13MT022 Jaishree A 1AY13MT024 Utsav Gohil 1AY13MT064 Rito shuvro Chakraborty 1AY13MT051 Vedant Das 1AY13MT066 Shreevathsav H Rao K 1AY13MT057 Srivathsa Upadyaya M 1AY13MT061 Ankush G V 1AY13MT010 Sijo Sunny 1AY13MT059 Princeton Hilary D Cunha 1AY13MT046				
04	Shah darshan 1AY12MT050 Parth Sharma 1AY12MT038	2015-16		Prof. Bhagirathi V	POS:1,2,3,4,5,6,7,8,9,10,11,12 PSOs:1,2&3
05	FachHochschule Lubeck, Germany	Mr. Shreeshapradeep Bhat, 1AY12MT056	2015-16	Provide a platform for sharing industry knowledge and receive mentoring support from senior Professors of the University.	POS:1,2,9,10,12 PSOS:1,2&3
06	AIESEC, LC TRIESTE, ITALY	Mr.Parth Sharma 1AY12MT038	2015-16	Provides undergraduate students an opportunity to develop entrepreneurial and leadership skills through international internships centered on social issues.	POS:1,2,9,10,12 PSOS:1,2&3

Figure 2.51 Prof. Ajay from ODU, USA. During student Presentation


Figure 2.52 Prof. Ajay Gupta from ODU,USA evaluation student projects

Summer training:

The department is very keen on summer training programs in this respect all the students are educated about the importance of summer training advertisements on internships are made available to the students through notice boards. The following table shows the list of students attended the summer training over the last three academic years.

CAYm2(2016-2017) **Table.2.2.5b Summer Training**

Sl.No	Institute/ Company Name	Student Name and USN	Academic Year	TOPIC	Relevance of POs and PSOs
01	Apex Hi-Tech Institute	Mr.Hariharan V 1AY14MT013 Mr.Sohan Mahesh Mallik 1AY14MT055 Mr.Avinash M 1AY15MT404 Mr.Sumanth B L 1AY14MT058 Mr.GurukiranKonchigeri 1AY14MT011 Mr.Jagadish Kumar Patil 1AY14MT019 Mr.Vadiraj Jai Ram Kollapur	2016-17	Programming and operation of S7-300PLC	POS:1,2,9,11,12 PSOS:2&3

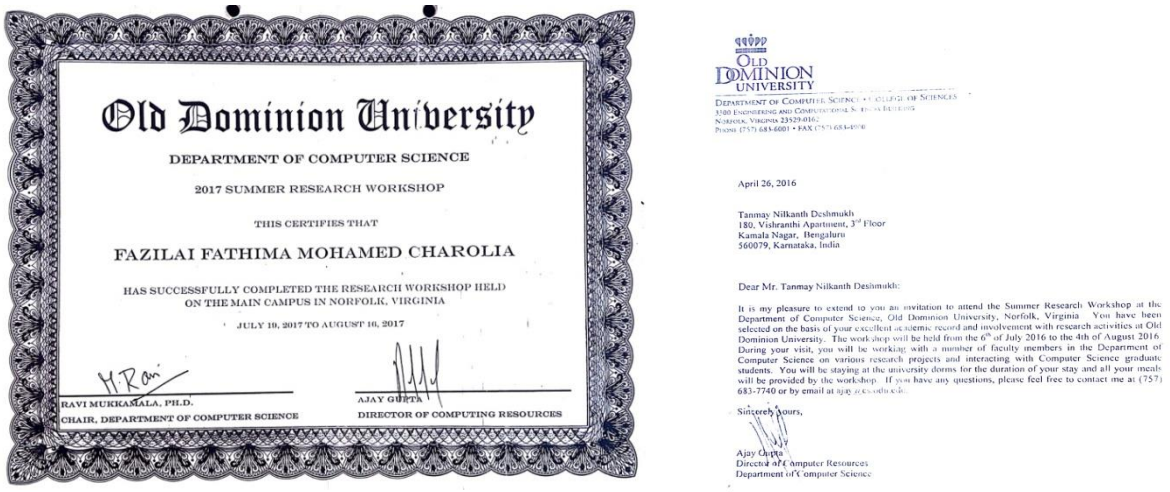
		1AY14MT061 Mr.Vinay K 1AY14MT062 Mr.Madhu O G 1AY14MT027			
02	Core Fab Projects Pvt Ltd	Mr. Shrishtivaid 1AY14MT009	2016-17	Implementation of the production planning and control function such as process planning, job scheduling, maintenance management, inventory control and system management	POS:1,2,9,10,12 PSOS:1&3
03	Apex Hi-Tech Institute	Madhu O G 1AY14MT027 Vinay K 1AY14MT062 Jagadish Kumar Patil 1AY14MT019 GurukiranKonchigeri 1AY14MT011 Vadiraj Jai Ram Kollapur 1AY14MT061 Sumanth B L 1AY14MT058 Hariharan V 1AY14MT013	2016-17	SCADA Programming using WinCC	POS:1,2,4,9,12 PSOS:2&3
04	Old Dominion University	Arjun Datar 1AY14MT006 Tanmay N Deshmukh 1AY14MT060 AkankshaYogesh M 1AY13MT004 Geena Alaxander George 1AY13MT022 Jaishree A 1AY13MT024 UtsavGohil 1AY13MT064 Ritoshuvro Chakraborty 1AY13MT051	2016-17	Agriculture drone Control +H humanoid Robot LIFI LIFI LIFI Markata Markata	POS:1,2, PSOS:2&3

		Vedant Das 1AY13MT066		Markata	
		Shreevathsav H Rao K 1AY13MT057		Markata	
		SrivathsaUpadyaya M 1AY13MT061		Staircase Cleaning and climbing Robot	
		Ankush G V 1AY13MT010		Staircase Cleaning and climbing Robot	
		Sijo Sunny 1AY13MT059		Staircase Cleaning and climbing Robot	
		Princeton Hilary D Cunha 1AY13MT046		Staircase Cleaning and climbing Robot	

CAYm1(2015-2016) **Table.2.2.5c**

Sl.No	Institute/ Company Name	Student Name	Academic Year	TOPIC	Relevance of POs and PSOs
01	ACE Designers Ltd	Satvika Sati 1AY12MT049	2015-2016	CNC Milling programming and operation and turning	POS:1,2,9,10,12 PSOS:1,2&3
02	AICSM	Udayravindra Patel 1AY10MT53	2015-2016		POS:1,2,9,10,12 PSOS:1,2&3
03	Foremen Training Institute	SabuBaragi 1AY13MT410	2015-2016	CNC Milling programming and operation	POS: PSOS:1&3
04	Centum Electronics Ltd	Lakshmi Shri M O 1AY15MT024	2015-2016	Product design and manufacturing	POS:1,2,9,10,12 PSOS:1,2&3
05	Accutech Enterprises	Satvika Sati 1AY12MT049	2015-2016	CNC Machining	POS:1,2,9,10,12 PSOS:1,2&3
		Arun Joshi 1AY12MT009			
		Mohammad Sahad Bin 1AY12MT034			
06	Origin d- Fab Pvt Ltd	RuchaMangesh Kathe	2015-2016	New product development	POS:1,2,9,10,1 PSOS:1,2&3

		1AY14MT023 AkhilGopinath 1AY14MT004 Patel UdayKamalesh Bhai 1AY14MT034		(Eraser)	



Old Dominion University

DEPARTMENT OF COMPUTER SCIENCE

2017 SUMMER RESEARCH WORKSHOP

THIS CERTIFIES THAT

FAZILAI FATHIMA MOHAMED CHAROLIA

HAS SUCCESSFULLY COMPLETED THE RESEARCH WORKSHOP HELD ON THE MAIN CAMPUS IN NORFOLK, VIRGINIA

JULY 10, 2017 TO AUGUST 10, 2017

RAVI MUKKAMALA, PH.D.
CHAIR, DEPARTMENT OF COMPUTER SCIENCE

AJAY GUPTA
DIRECTOR OF COMPUTING RESOURCES

OLD DOMINION UNIVERSITY

April 26, 2016

Tanmay Nilkanth Deshmukh
180, Vishranthi Apartment, 3rd Floor
Kamala Nagar, Bengaluru
560079, Karnataka, India

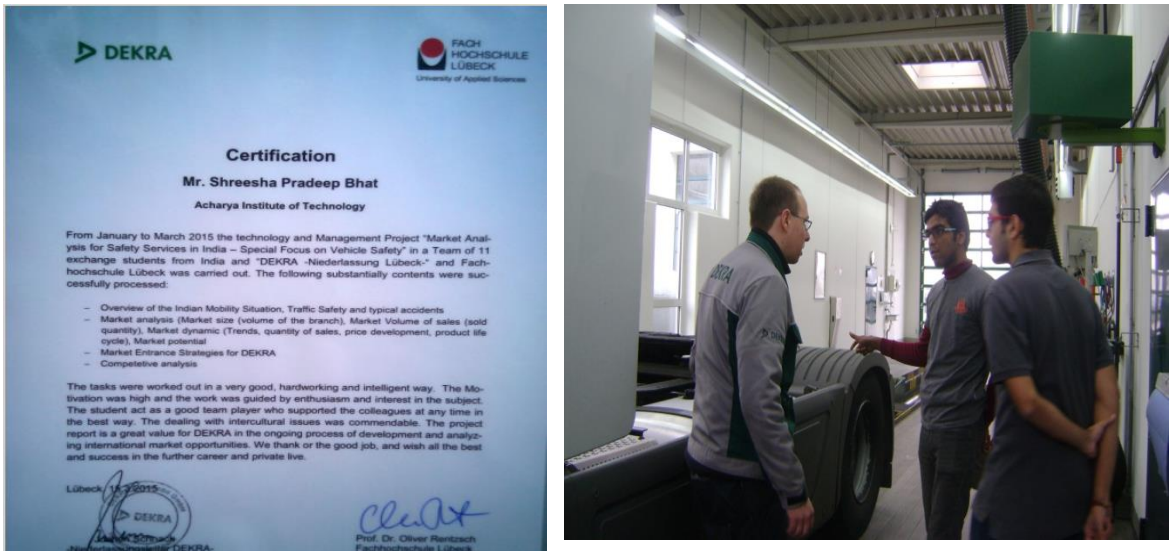
Dear Mr. Tanmay Nilkanth Deshmukh:

It is my pleasure to extend to you an invitation to attend the Summer Research Workshop at the Department of Computer Science, Old Dominion University, Norfolk, Virginia. You have been selected on the basis of your excellent academic record and involvement with research activities at Old Dominion University. The workshop will be held from the 6th of July 2016 to the 4th of August 2016. During your visit, you will be working with a number of faculty members in the Department of Computer Science on various research projects and interacting with Computer Science graduate students. You will be staying at the university dorms for the duration of your stay and all your meals will be provided by the workshop. If you have any questions, please feel free to contact me at (757) 683-7740 or by email at ajay@cs.odu.edu.

Sincerely Yours,

Ajay Gupta
Director of Computer Resources
Department of Computer Science

Figure 2.53 International Internship Training Certification by Old Dominion University (USA).



DEKRA

FACH HOCHSCHULE LÜBECK
University of Applied Sciences

Certification

Mr. Shreesha Pradeep Bhat

Acharya Institute of Technology

From January to March 2015 the technology and Management Project "Market Analysis for Safety Services in India – Special Focus on Vehicle Safety" in a Team of 11 exchange students from India and "DEKRA -Niederlassung Lübeck-" and Fachhochschule Lübeck was carried out. The following substantially contents were successfully processed:

- Overview of the Indian Mobility Situation, Traffic Safety and typical accidents
- Market analysis (Market size (volume of the branch), Market Volume of sales (sold quantity), Market dynamic (Trends, quantity of sales, price development, product life cycle), Market potential
- Market Entrance Strategies for DEKRA
- Competetive analysis

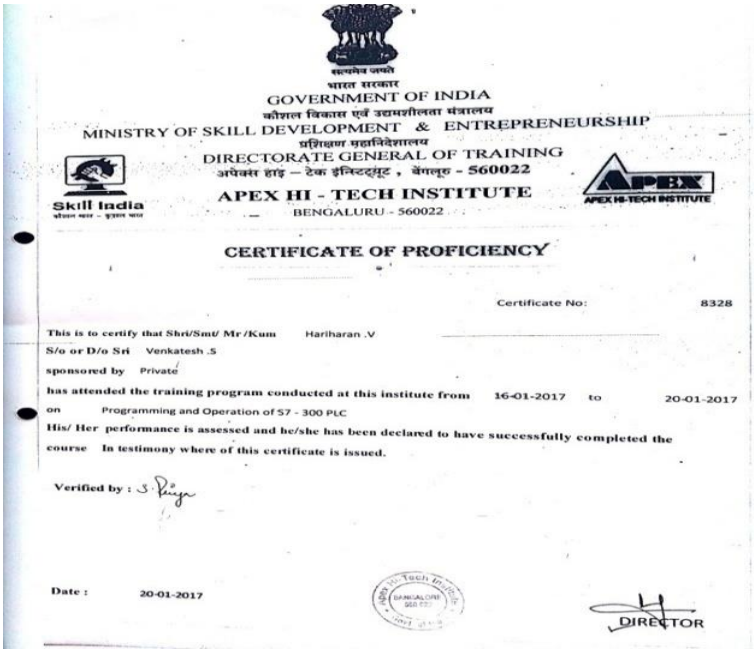
The tasks were worked out in a very good, hardworking and intelligent way. The Motivation was high and the work was guided by enthusiasm and interest in the subject. The student act as a good team player who supported the colleagues at any time in the best way. The dealing with intercultural issues was commendable. The project report is a great value for DEKRA in the ongoing process of development and analyzing international market opportunities. We thank or the good job, and wish all the best and success in the further career and private live.

Lübeck, 13.3.2015

DEKRA

Prof. Dr. Oliver Rentzsch
Fachhochschule Lübeck

Figure 2.54 Student exchange program in FachHochschule Lubeck, Germany from Jan 15h to March 15th 2015



भारत सरकार
GOVERNMENT OF INDIA
कौशल विकास एवं उद्यमशीलता मंत्रालय
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
प्रशिक्षण महानिदेशालय
DIRECTORATE GENERAL OF TRAINING
अपेक्स हाइ – टेक इन्स्टिट्यूट , बेंगलूरु - 560022
Skill India
APEX HI - TECH INSTITUTE
BENGALURU - 560022

CERTIFICATE OF PROFICIENCY

Certificate No: 8328

This is to certify that Shri/Smt/ Mr /Kum Hariharan .V
S/o or D/o Sri Venkatesh .S
sponsored by Private
has attended the training program conducted at this institute from 16-01-2017 to 20-01-2017
on Programming and Operation of S7 - 300 PLC
His/ Her performance is assessed and he/she has been declared to have successfully completed the course In testimony where of this certificate is issued.

Verified by :

Date : 20-01-2017

DIRECTOR

Figure 2.55 Internship Training Certification by APEX Hi tech institute.

➢ Industrial internships:

The department is very keen on industry institute interaction. In this respect all the students are educated about the importance of internship training and industrial visits. Industries' advertisements on internships are made available to the students through notice boards. The following table shows the list of students attended the Internship program in various industries over the last three academic years

List of internships from three academic years

CAY(2017-2018) **Table.2.2.5d List of students under Industry Internship**

Sl.No	Company Name	Student Name	Academic Year	Topic	Relevance of POs and PSOs
01	Tec- San Transformers	Priyank M patel IAY14MT040	2017-2018	Operation of production software	POs:1,2,4,3,9,11,12 PSOs:1&3
02	Chaitrika engineering works, bengaluru	Punith N 1AY16MT412	2017-2018	Machining operations (lath, turning and drilling and CNC)	POs:1,2,4,3,9,11,12 PSOs:1&3
03	BMTC, Bengaluru	Bharathkumar L	2017-2018	Engine transmission	POs:1,2,4,3,9,11,12 PSOs:1&3

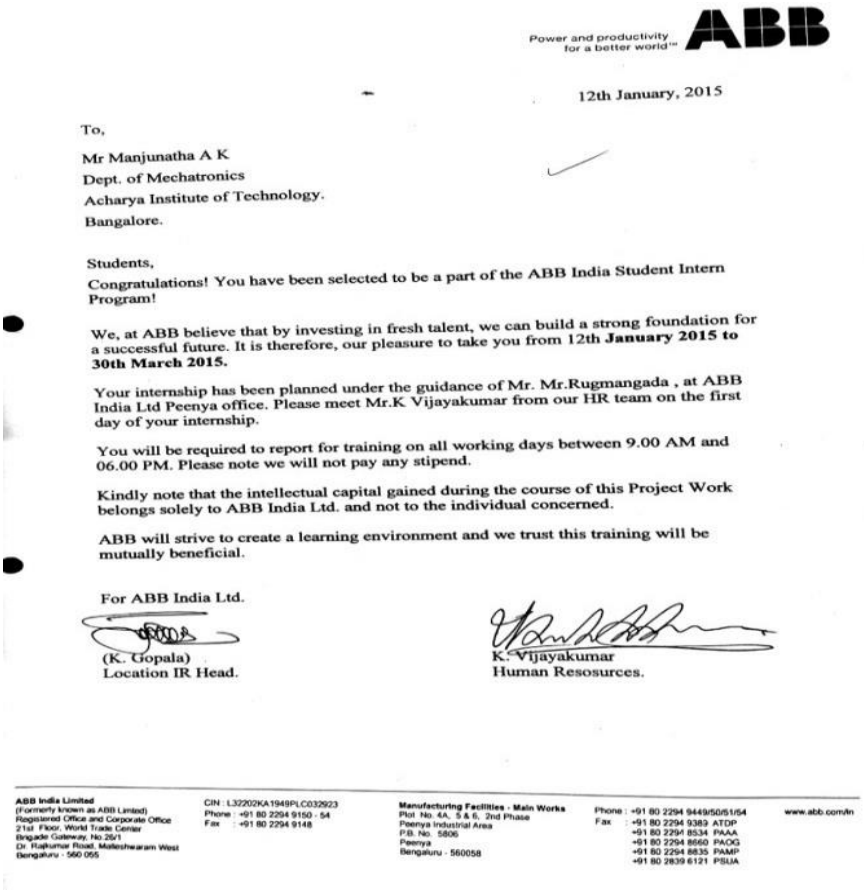
		1AY16MT402 Sakshath S J 1AY15MT039 Manojkumar M P 1AY16MT408		and bus body design, ITS, Electronics parts	
04	BestoMinning India PVT ltd, Chikkabalapur	Pradeep 1AY16MT402	2017-2018	Product development	POS:1,2,4,3,9,11,12 PSOS:1&3

CAYm1(2016-2017) **Table 2.2.5e**

Sl.No	Company Name	Student Name and USN	Academic Year	Topic	Relevance of POs and PSOs
01	Core Fab Projects Pvt Ltd	Shrishtivaid 1AY14MT009	2016-2017	Fabrication of technological structures	POS:1,2,4,3,6,9,11,12 PSOS:1&3
02	Origin D-Fab	Arjun datar 1AY14MT006 Tanmay n deshmukh 1AY14MT060 Sanjay r s 1AY14MT049 Fazilaifatimamohamadc 1AY14MT009 Shah ajaybharatkumar 1AY14MT050 Yaminiagarwal 1AY14MT064 Patel udaykamleshbhai 1AY14MT034 Kishore R 1AY14MT025 Shimrazrabbani S 1AY14MT053	2016-2017	Embedded systems and Rapid prototyping	POS:1,2,4,3,6,9,11,12 PSOS:1&3

CAYm2(2015-2016) **Table.2.2.5f**

Sl.No	Company Name	Student Name	Academic Year	Topic	Relevance of POs and PSOs
01	Centum Electronics Ltd	Lakshmi Shri M O 1AY15MT024	2015-2016	Advance manufacturing and design	POS:5,3,9,12 PSOS:1,2&3
02	ACE Designers Ltd	Satvika Sati 1AY12MT049	2015-2016	CNC and machine tool design	POS:5,3,9,12 PSOS:1,2&3
03	AICSM	Uday Patel 1AY12MT031	2015-2016	Product development	POS:5,3,9,12 PSOS:1,2&3
04	IFB Automotive Pvt Ltd Bengaluru	KeerthiVenugopal 1AY12MT026 Aswin V U 1AY12MT012	2015-2016	Seating and door system of an automotives	POS:5,3,9,12 PSOS:1,2&3
05	Robotech Labs Pvt Ltd	Kumar DhruvRamakrishnan 1AY12MT0	2015-2016	Embedded system and robotics	POS:5,3,9,12 PSOS:1,2&3
06	Nandi PowertronicsPvt Ltd	Satvika Sati 1AY12MT049	2015-2016	Design, manufacture of electrical and electronics process control devices and accessories	POS:5,3,9,12 PSOS:1,2&3
07	Origin d- Fab PvtLtd	RuchaMangesh Kathe 1AY14MT023 AkhilGopinath 1AY14MT004 Patel UdayKamalesh Bhai 1AY14MT034	2015-2016	Embedded systems and Rapid prototyping	POS:5,3,9,12 PSOS:1,2&3



Power and productivity for a better world™ ABB

12th January, 2015

To,

Mr Manjunatha A K
Dept. of Mechatronics
Acharya Institute of Technology.
Bangalore.

Students,

Congratulations! You have been selected to be a part of the ABB India Student Intern Program!

We, at ABB believe that by investing in fresh talent, we can build a strong foundation for a successful future. It is therefore, our pleasure to take you from 12th **January 2015 to 30th March 2015.**

Your internship has been planned under the guidance of Mr. Mr.Rugmangada , at ABB India Ltd Peenya office. Please meet Mr.K Vijayakumar from our HR team on the first day of your internship.

You will be required to report for training on all working days between 9.00 AM and 06.00 PM. Please note we will not pay any stipend.

Kindly note that the intellectual capital gained during the course of this Project Work belongs solely to ABB India Ltd. and not to the individual concerned.

ABB will strive to create a learning environment and we trust this training will be mutually beneficial.

For ABB India Ltd.

(K. Gopala)
Location IR Head.

K. Vijayakumar
Human Resosurces.

ABB India Limited
(Formerly known as ABB Limited)
Registered Office and Corporate Office
21st Floor, World Trade Center
Brigade Gateway, No.26/1
Dr. Rajkumar Road, Malleshwaram West
Bengaluru - 560 055

CIN : L32202KA1949PLC032923
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Manufacturing Facilities - Main Works
Plot No. 4A, 5 & 6, 2nd Phase
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+91 80 2294 8660 PAOG
+91 80 2294 8835 PAMP
+91 80 2839 6121 PSUA

www.abb.com/in

Figure 2.56 Internship Training Certification by ABB.

CRITERION 3 Course Outcomes and Program Outcomes (120)

3. COURSE OUTCOMES AND PROGRAM OUTCOMES (120)

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

(Program Outcomes as mentioned below and Program Specific Outcomes as defined by the Program). The following are the program outcomes:

Program Outcomes (POs)

Engineering Graduates shall be able to:
PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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.
PO 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.
PO 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.
PO 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.
PO 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.
PO 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.
PO 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

PSO 1: Have a thorough knowledge of design, analysis and modeling of mechanical components, concepts of fluid and thermal engineering, conventional and advanced manufacturing technology in engineering applications.
PSO 2: Be able to analyze, design and prototyping of electronics, communication and embedded systems.
PSO 3: Be able to apply domain knowledge and demonstrate technical competency in virtual instrumentation, PLC, SCADA, smart systems, artificial intelligence to integrate and interface electro-mechanical systems.

3.1.1. **Course Outcomes (COs) (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked) (05)**

Table B 3.1.1a

14ELE15- BASIC ELECTRICAL ENGINEERING	
14ELE15.1	Define fundamental laws of Electrical Engineering to solve simple electrical circuits.
14ELE15.2	Demonstrate fundamentals of AC circuits and solve simple problems in single phase and three phase balanced ac circuits involving Resistance, Inductance and Capacitance elements.
14ELE15.3	Identify the parts of electrical machines, (dc machine, induction machine, alternator)

	and transformers, and will be able to demonstrate their understanding in the construction and principle of operation of these machines.
14ELE15.4	Demonstrate the basic requirements of domestic wiring, earthing and its safety aspects and understand about different types of measuring instruments with their usage.

Table B 3.1.1b

14CHE22- ENGINEERING CHEMISTRY	
14CHE22.1	Types of electrodes, electrochemical and concentration cells. Classical & modern Batteries and fuel cells.
14CHE22.2	Causes & effects of corrosion of metals and control of corrosion. Modification of Surface properties of metals to develop resistance to corrosion, wear, tear, impact etc. by Electroplating and electro less plating.
14CHE22.3	Production & consumption of energy for industrialization of country and living Standards of people. Utilization of solar energy for different useful forms of energy.
14CHE22.4	Replacement of conventional materials by polymers for various applications.
14CHE22.5	Boiler troubles; sewage treatment and desalination of sea water, and Over viewing of synthesis, properties and applications of nanomaterials.

Table B 3.1.1c

10MT33- MECHANICS OF MATERIALS	
10MT33.1	Describe the concepts of stress, strain, Stress in Composite Section, Deformation and assumption in beams, columns and shafts, Stresses in thin cylinders, Work and strain energy, Strain energy in bar/beams,
10MT33.2	Apply concepts to determine the stresses, strains and strain energy in Bars, Beams, Shafts and Columns.
10MT33.3	Calculate the stresses and strains for plane stress condition analytically and graphically for structural members.
10MT33.4	Analyze shear forces, Bending moments, bending and shear stress in beams and stress in Columns.

Table B 3.1.1d

10MT44- POWER ELECTRONICS	
10MT44.1	Explain the different types of power semiconductor devices.
10MT44.2	Apply knowledge of power semiconductor devices in various real time applications and also to meet desired switching objectives.
10MT44.3	Analyze the characteristics and working principle of thyristors, AC voltage controllers, choppers and inverters.
10MT44.4	Design power electronic system for given specifications.

Table B 3.1.1e

10MT55- AUTOMOTIVE ELECTRONCIS	
10MT55.1	Understanding of Engine Parameters and a critical awareness of current problems within the automotive electronics domain using Various Measurement Technology.

10MT55.2	Apply the fundamental Concepts of automotive electronics on various Engine parts, Sensor, Actuator, Communication and Measurement System.
10MT55.3	Determine the extent and nature of electronic circuitry in automotive systems including monitoring and control circuits for engines, transmissions, brakes, steering, suspension
10MT55.4	Analyze climate control, instrumentation and radios and accessories involved in Automotive Industry.

Table B 3.1.1f

10MT64- EMBEDDED SYSTEM	
10MT64.1	Describe the architectural concepts of embedded systems, Embedded Hardware side, Concept of state machine, addressing modes and design and development Process using different models. .
10MT64.2	Understand the various Real-Time Kernels and Operating Systems, OS architecture and memory management.
10MT64.3	Classify memory and memory subsystems and its design process.
10MT64.4	Analyze the Performance and Optimization methods in Embedded system

Table B 3.1.1g

10MT71- THERMODYNAMICS AND HEAT TRANSFER	
10MT71.1	Understand the concepts of system, properties, energy interaction, laws of thermodynamics, and modes of heat transfer.
10MT71.2	Applications of laws of thermodynamics to open and closed system and laws of heat transfer to different shapes and types of boundary conditions. Determine energy change of a system, energy interaction in terms of work and heat between system and surrounding. Measurement of temperature and compare different temperature scale.
10MT71.3	Develop and apply conduction heat transfer and temperature distribution equation. Develop and apply thermal resistance concepts. Apply boundary conditions to solve heat transfer problems.
10MT71.4	Analyze the thermodynamic performance, heat transfer and temperature distribution.

Table B 3.1.1h

10MT831- NANO TECHNOLOGY	
10MT831.1	Illustrate the special features of nanomaterials, nanotechnology, various techniques involved in investigating & manipulating materials at nanoscale.
10MT831.2	Correlate the process of synthesis & purification of nanomaterials incorporated in nanotechnology.
10MT831.3	Analyze the characteristic features of nanomaterials, nanoparticles, nanoshells required in miniaturized systems.
10MT831.4	Examine the performance of nanomaterials, nanoparticles, nanoshells in nanomedicines, nanosensors&nanomachines.

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

Table B .3.1.2a

10MT33- MECHANICS OF MATERIALS												
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
10MT33.1	3	2	-	-	-	-	-	-	-	-	-	-
10MT33.2	2	3	1		-	-	-	-	-	-	-	-
10MT33.3	2	3	3	1	-	-	-	-	-	-	-	-
10MT33.4	2	3	3	2	-	-	-	-	-	-	-	-

Table B .3.1.2b

10MT44- POWER ELECTRONICS												
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
10MT44.1	2	-	-	-	-	-	-	-	-	-	-	-
10MT44.2	3	2	2	-	-	-	-	-	-	-	-	-
10MT44.3	2	3	2	-	-	-	-	-	-	-	-	-
10MT44.4	1	2	3	-	-	-	-	-	-	-	-	-

Table B .3.1.2c

10MT55- AUTOMOTIVE ELECTRONICS												
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
10MT55.1	3	-	1	-	-	-	-	-	-	-	-	-
10MT55.2	3	3	2	-	-	-	-	-	-	-	-	-
10MT55.3	2	3	2	-	-	-	-	-	-	-	-	-
10MT55.4	2	2	1	-	-	-	-	-	-	-	-	-

Table B .3.1.2d

10MT64- EMBEDDED SYSTEMS												
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

10MT64.1	2	1	-	-	-	-	-	-	-	-	-	-
10MT64.2	3	1	3	-	-	-	-	-	-	-	-	-
10MT64.3	2	1		-	-	-	-	-	-	-	-	-
10MT64.4	3	3	2	-	-	-	-	-	-	-	-	-

Table B .3.1.2e

10MT71- THERMODYNAMICS AND HEAT TRANSFER												
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
10MT71.1	3	1	-	-	-	-	-	-	-	-	-	-
10MT71.2	3	1	1	-	-	-	-	-	-	-	-	-
10MT71.3	2	2	3	1	-	-	-	-	-	-	-	-
10MT71.4	2	2	3	1	-	-	-	-	-	-	-	-

Table B .3.1.2f

10MT831- NANO TECHNOLOGY												
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
10MT831.1	1	1	1	-	-	-	-	-	-	-	-	-
10MT831.2	1	1	1	-	-	-	-	-	-	-	-	-
10MT831.3	1	3	2	-	-	-	-	-	-	-	-	-
10MT831.4	1	3	2	-	-	-	-	-	-	-	-	-

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

Table B. 3.1.2.1

CO	PSO1	PSO2	PSO3
10MT33- MECHANICS OF MATERIALS			
10MT33.1	3	-	1
10MT33.2	2	-	2
10MT33.3	3	-	2
10MT33.4	3	-	1
10MT44- POWER ELECTRONICS			
10MT44.1	-	3	1
10MT44.2	-	3	1
10MT44.3	-	3	1
10MT44.4	-	3	1
10MT55- AUTOMOTIVE ELECTRONICS			
10MT55.1	3	2	
10MT55.2	2	3	
10MT55.3	2	3	
10MT55.4	2	1	
10MT64- EMBEDDED SYSTEMS			
10MT64.1		3	
10MT64.2		3	3
10MT64.3		2	
10MT64.4		2	
10MT71- THERMODYNAMICS AND HEAT TRANSFER			
10MT71.1	1		1
10MT71.2	2		2
10MT71.3	3		2
10MT71.4	3		2
10MT831- NANO TECHNOLOGY			
10MT831.1		3	2
10MT831.2		3	2
10MT831.3		3	2
10MT831.4		3	2

3.1.3.1 PROGRAM LEVEL COURSE-PO MATRIX OF ALL COURSES INCLUDING FIRST YEAR COURSES (10)

Table B.3.1.3

1st SEMESTER													
SUBJECT CODE	SUBJECT NAME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
14MAT11	ENGG MATHEMATICS-1	2	2	0									0
14PHY12	ENGG PHYSICS	2	2										2
14CIV13	ELEMENTS OF CIVIL ENGG	2	2			2	2		2		2	2	0
14CED14	ELEMENTS OF MECHANICAL ENGG	2	0					2					2
14ELN15	BASIC ELECTRICAL ENGINEERING	2	2										2
14CPL16	WORK SHOP	3	3	3		3	3			3			3

	PRACTICES LAB												
14CHEL17	ENGG PHYSICS LAB	3	3	3									0
2nd SEMESTER													
14MAT21	ENGG MATHEMATICS-2	2	2										
14CHE22	ENGG CHEMISTRY	2	2	2			2	2					
14CCP23	C PROGRAMMING FOR PROBLEM SOLVING	3	3	3		3							2
14CED24	COMPUTER AIDED ENGG DRAWING	2	2	2		2				2	2		2
14ELN25	BASIC ELECTRONICS	2	2										
14CPL26	C PROGRAMMING LABORATORY	3	3	3	3	3							
14CHEL27	ENGG CHEMISTRY LAB	3	3				3	3	3		3		3
3rd SEMESTER													
10MAT31	ENGG MATHEMATICS-III	3	2	-	-	-	-	-	-	-	-	-	-
10MT32	MATERIAL SCIENCE AND TRAGET ACHIEVEDALLURGY	3	3	3	2	-	-	-	-	-	-	-	-
10MT33	MECHANICS OF MATERIAL	1	2	2	2	-	-	-	-	-	-	-	-
10 MT 34	FLUID MECHANICS	2	2	-	-	-	-	-	-	-	-	-	3
10 MT 35	ANALOG AND DIGITAL ELECTRONICS	2	2	2	-	-	-	-	-	-	-	-	-
10 MT 36	SIGNALS & SYSTEMS	2	2	2	-	-	-	-	-	-	-	-	-
10 MT L37	MATERIALS TESTING & TRAGET ACHIEVEDALLURGY LAB	3	3	3	-	-	-	-	-	-	-	-	-
10 MT L38	ANALOG AND DIGITAL ELECTRONICS LAB	3	2	3	3	-	-	-	-	-	-	-	-
4th SEMESTER													
10MAT41	ENGG MATHEMATICS-IV	3	2	-	-	-	-	-	-	-	-	-	-
10MT42	MANUFACTURING TECHNOLOGY	3	3	0	0	3	3	-	-	-	-	-	3
10MT43	KINEMATICS OF MACHINES	2	2	2	2	-	-	-	-	-	-	-	-
10MT44	POWER ELECTRONICS	2	2	2	-	-	-	-	-	-	-	-	-
10MT45	INSTRUMENTATION & MEASUREMENTS	3	3	3	-	-	-	-	-	-	-	-	-
10MT46	ELECTRICAL MACHINES & DRIVES	2	2	2	-	-	-	-	-	-	-	-	-
10MTL47	POWER ELECTRINICS LAB	3	3	3	3	-	-	-	-	-	-	-	-
10MTL48	ELECTRICAL MACHINES & DRIVES LAB	3	3	-	3	-	-	-	-	-	-	-	-
5th SEMESTER													
10MT51	TRAGET ACHIEVEDROLOGY AND MEASUREMENTS	3	3	3	3	-	-	-	-	-	-	-	-

10MT52	COMPUTER GRAPHICS	3	3	3	3	-	-	-	-	-	-	-	-
10MT53	HYDRAULICS AND PNEUMATICS	3	-	3	-	3	-	-	-	-	-	-	3
10MT54	MICROCONTROLLER	2	2	2	-	-	-	-	-	-	-	-	-
10MT55	AUTOMOTIVE ELECTRONICS	3	3	3	-	-	-	-	-	-	-	-	-
10MT56	SENSORS AND NETWORKS	3	3	3	3	-	-	-	-	-	-	-	-
10MTL57	TRAGET ACHIEVEDROLOGY AND MEASUREMENTS LAB	3	3	3	3	-	-	-	-	-	-	-	-
10MTL58	MICROCONTROLLER & PLC LAB	3	3	3	3	3	-	-	-	-	-	-	-
6th SEMESTER													
10AL61	MANAGEMENT AND ENTREPRENEURSHIP	3	3	-	-	-	-	-	3	3	3	3	-
10MT62	MODELING & SIMULATION	2	2	-	-	2	-	2	-	-	-	-	-
10MT63	MICRO AND SMART SYSTEM TECHNOLOGY	3	3	3	-	-	-	-	-	-	-	-	-
10MT64	EMBEDDED SYSTEMS	2	2	3	-	-	-	-	-	-	-	-	-
10MT65	ADVANCED COMPUTER PROGRAMMING	3	3	3	-	3	-	-	-	-	3	-	-
10MT661	COMPUTER VISION	1	2	3	-	-	-	-	-	-	-	-	-
10MT662	OPERATING SYSTEMS	1	2	3	-	-	-	-	-	-	-	-	-
10MT663	ELECTRICCAL/HYBRID VEHICLES	2	3	3	-	-	-	-	-	-	-	-	-
10MT664	PROGRAMMABLE LOGIC CONTROLLER (PLC)	3	3	3	3	3	-	-	-	-	-	-	-
10MT665	COMMUNICATION SYSTEM	3	3	3	-	-	-	-	-	-	-	-	-
10MTL67	MICRO AND SMART SYSTEMS TECHNOLOGY LAB	3	3	3	3	3	-	-	-	-	-	-	3
10MTL68	ADVANCED COMPUTER PROGRAMMING LAB	3	3	3	-	3	-	-	-	-	-	-	-
7th SEMESTER													
10MT71	THERMODYNAMICS & HEAT TRANSFER	2	2	3	-	-	-	-	-	-	-	-	-
10MT72	ROBOTICS AND MACHINE VISION SYSTEMS	2	2	3	3	-	-	-	-	-	-	-	-
10MT73	WIRELESS NETWORKS	3	3	-	-	-	-	-	-	-	-	-	-
10MT74	DIGITAL SIGNAL PROCESSING	2	2	3	-	2	-	-	-	-	-	-	-
10MT751	SMART MATERIALS	3	3	3	-	-	-	-	-	-	-	-	-
10MT752	MANAGEMENT INFORMATION SYSTEM	3	3	3	-	-	-	-	-	-	-	-	-
10MT753	ARTIFICIAL INTELLIGENCE	3	3	3	-	-	-	-	-	-	-	-	-
10MT754	MECHANICAL VIBRATIONS	3	3	3	-	-	-	-	-	-	-	-	-
10MT755	OPERATION RESEARCH	2	3	3	-	-	-	-	-	-	-	-	-
10MT761	REAL TIME SYSTEMS	2	3	-	3	-	-	-	-	-	-	-	-
10MT762	IMAGE PROCESSING	3	3	3	-	-	-	-	-	-	-	-	-
10MT763	DISPLAY SYSTEMS	3	3	3	-	-	-	-	-	-	-	-	-
10MT764	SOFT COMPUTING	3	3	-	-	-	-	-	-	-	-	-	-
10MT765	SAFETY AND SECURITY OF	3	2	2	-	-	-	-	-	-	-	-	-

	MECHATRONICS SYSTEMS												
10MTL77	ROBOTICS LAB	3	3	3	3	3	-	-	-	-	-	-	-
10MTL78	DSP (HW + MAT LAB)	3	3	3	3	3	-	-	-	-	-	-	-
8th SEMESTER													
10MT81	RAPID PROTOTYPING	3	3	-	-	-	-	-	-	-	-	-	-
10MT82	RELIABILITY & FAULT TOLERANCE	3	3	3	3	-	-	-	-	-	-	-	-
10MT831	NANO TECHNOLOGY	3	3	3	-	-	-	-	-	-	-	-	-
10MT832	DATA BASE MANAGEMENT SYSTEMS	2	2	2	-	-	-	-	-	-	-	-	-
10MT833	DESIGN OF EXPERIMENTS	3	2	2	-	-	-	-	-	-	-	-	-
10MT834	FINITE ELEMENT ANALYSIS	3	3	3	3	-	-	-	-	-	-	-	-
10MT835	INDUSTRIAL ENGINEERING & ERGONOMICS	3	3	3	3	-	-	-	-	-	-	-	-
10MT836	OPTIMUM DESIGN	2	2	2	-	-	-	-	-	-	-	-	-
10MT841	WIRELESS COMMUNICATION	3	3	-	-	-	-	-	-	-	-	-	-
10MT842	AUDIO & VIDEO PROCESSING	3	3	3	-	-	-	-	-	-	-	-	-
10MT843	VIRTUAL INSTRUMENTATION	3	3	3	3	3	-	-	-	-	-	-	-
10MT844	DSP ARCHITECTURES & ALGORITHMS	3	2	3	3	-	-	-	-	-	-	-	-
10MT845	LOW POWER RF	3	3	-	-	-	-	-	-	-	-	-	-
10MT85	PROJECT WORK	3	3	3	3	3	3	3	3	3	3	3	3
10MT86	SEMINAR ON CURRENT TOPICS	3	3	-	3	3	-	-	3	3	3	-	-

3.1.3.2 Program level course-PSO matrix of all courses including first year courses

Table B.3.1.3.1

SUBJECT CODE	SUBJECT NAME	PSO1	PSO2	PSO3
10MAT31	Engineering mathematics-iii			
10MT32	Material science and metallurgy	3	-	3
10MT33	Mechanics of material	2	-	2
10 MT 34	Fluid mechanics	2	-	2
10 MT 35	Analog and digital electronics	-	2	2
10 MT 36	Signals & systems	-	2	0
10 MT L37	Materials testing & metallurgy lab	3	-	-
10 MT L38	Analog and digital electronics lab	-	3	3
10MAT41	Engineering mathematics-iv	-	-	-
10MT42	Manufacturing technology	3	-	3
10MT43	Kinematics of machines	2	-	2
10MT44	Power electronics	-	2	2
10MT45	Instrumentation & measurements	-	3	3
10MT46	Electrical machines & drives	-	2	2

10MTL47	Power electronics lab	-	3	3
10MTL48	Electrical machines & drives lab	-	3	3
10MT51	Metrology and measurements	3	-	3
10MT52	Computer graphics	3	-	3
10MT53	Hydraulics and pneumatics	3	-	3
10MT54	Microcontroller	2	-	2
10MT55	Automotive electronics	-	3	3
10MT56	Sensors and networks	3	3	3
10MTL57	Metrology and measurements lab	3	3	3
10MTL58	Microcontroller & plc lab	-	3	3
10AL61	Management and entrepreneurship	3	3	3
10MT62	Modeling & simulation	2	-	-
10MT63	Micro and smart system technology	-	-	3
10MT64	Embedded systems	-	2	3
10MT65	Advanced computer programming	-	3	3
10MT661	Computer vision	-	1	3
10MT662	Operating systems	-	2	3
10MT663	Electrical/hybrid vehicles	2	3	-
10MT664	Programmable logic controller (plc)	3	3	3
10MT665	Communication system	-	3	3
10MTL67	Micro and smart systems technology lab	3	3	3
10MTL68	Advanced computer programming lab	-	3	3
10MT71	Thermodynamics & heat transfer	-	-	2
10MT72	Robotics and machine vision systems	3	-	2
10MT73	Wireless networks	-	3	-
10MT74	Digital signal processing	-	2	2
10MT751	Smart materials	2	3	-
10MT752	Management information system	2	3	-
10MT753	Artificial intelligence	-	-	3
10MT754	Mechanical vibrations	3	3	-
10MT755	Operation research	2	3	-
10MT761	Real time systems	2	2	3
10MT762	Image processing	-	3	3
10MT763	Display systems	-	3	3
10MT764	Soft computing	-	2	3
10MT765	Safety and security of Mechatronics systems	2	3	-
10MTL77	Robotics lab	3	3	3
10MTL78	DSP (HW + MAT lab)	-	3	3
10MT81	Rapid prototyping	3	3	-
10MT82	Reliability & fault tolerance	3	3	3
10MT831	Nano technology	-	3	3
10MT832	Data base management systems	-	3	3
10MT833	Design of experiments	2	2	-
10MT834	Finite element analysis	3	3	-
10MT835	Industrial engineering & ergonomics	3	3	-
10MT836	Optimum design	2	3	-
10MT841	Wireless communication	-	3	3
10MT842	Audio & video processing	-	3	3

10MT843	Virtual instrumentation	-	3	3
10MT844	DSP architectures & algorithms	-	3	3
10MT845	Low power RF	-	2	3
10MT85	Project work	3	3	3
10MT86	Seminar on current topics	3	3	3

3.2. Attainment of Course Outcomes: (50)

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

(Examples of data collection processes may include, but are not limited to, specific exam/ tutorial questions, assignments, laboratory tests, project evaluation, student portfolios(A portfolio is a collection of art if acts that demonstrate skills, personal characteristics and accomplishment is created by the student during study period), internally developed assessment exams, project presentations, oral exams etc.)

- The key aspects in Outcome-Based Education (OBE) are the assessment of course outcomes. At the initial stage of OBE implementation, the Course Outcomes (COs) for each course are defined based on the Program Outcome (POs) and other requirements.
- At the end of each course, the COs needs to be assessed and evaluated, to check whether it has been attained or not. Assessment is one or more processes, carried out by the department, that identify, collect, and prepare data to evaluate the achievement of program educational objectives and program Outcomes.
- Attainment is the action or fact of achieving a standard result towards accomplishment of desired goals. Primarily attainment is the standard of academic attainment as observed by test or examination result.
    - Attainment of the COs can be measured directly and indirectly. Direct attainment basically displays the student's knowledge and skills from their performance. It can be determined from the performance of the students in all the relevant assessment instruments – like internal assessments, assignments, quiz and final university examination.
- These methods provide a sampling of what students know and/or can do and provide strong evidence of student learning. Indirect methods such as surveys and interviews ask the stakeholders to reflect on student's learning. They assess opinions or thoughts

about the graduate's knowledge or skills. Indirect measures can provide information about graduate's perception of their learning and how this learning is valued by different stakeholders. The Internal Assessment marks in theory papers shall be based on two tests generally

- To record the attainment of courses outcomes the following assessment tools and table B 3.2.1 shows Assessment for over examination process.

Table B 3.2.1 Assessment tools

Assessment Tools			Weightage	Frequency	Responsibility
Direct Assessment	Continuous Internal Evaluation (CIE)	Theory Internal Assessment	60%	3 in a semester	Department level
		Lab IA		Once in a semester	Department level
		Final year project		In 8th Semester	Department level
		Technical Seminar		In 8th Semester	Department level
	Semester End Exam (SEE)		30%	Once at the end of the semester	University level
Indirect Assessment	Course End Survey		10%	At the end of the semester	Department level

(A) INTERNAL TESTS/EXAMS:

- The Internal Assessment marks in theory papers shall be based on two tests generally conducted thrice in each semester as per the academic calendar stipulated by the affiliated university.
- There shall be a maximum of 25 Internal Assessment Marks in each theory subjects.
- Question papers for the corresponding course will be prepared by the respective course faculty and will be submitted to the Internal Test Coordinator well in advance.
- Students' performance in the IA test is evaluated as per the scheme and solution prepared by the corresponding course faculty.
- Figure 3.2.1.1 (a) shows the flow of internal test assessments.

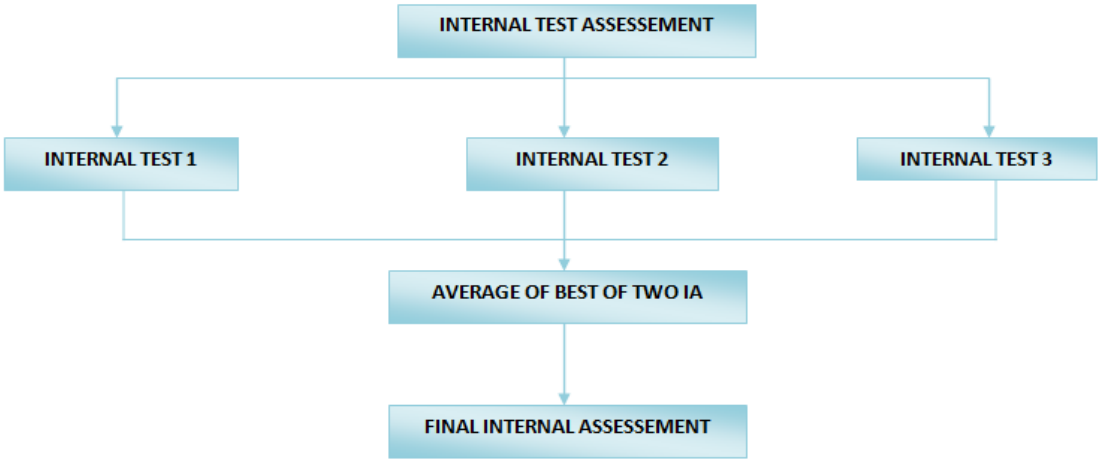


Figure: 3.2.1.1a internal tests

- Figure 3.2.1.2 (b) shows populating of marks scored by individual students for a particular questions and CO and subsequent calculations of CO-attainment for each CO's.

ACHARYA INSTITUTE OF TECHNOLOGY,
BENGALURU 560107
CO Attainment: Internal Assessment Test-2

SUBJECT:AUTOMOTIVE ELECTRONICS
SUBJECT CODE:10MT55
YEAR:THIRD YEAR B.E.
SEMESTER : 5th

LV THRESEHOLD: >=60%-3 >= 40% & < 60%-2 < 40% -1

			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Marks as per CO					
		USN No	CO2	CO2	CO2	CO2	CO4	CO4	CO4	CO4	CO3	CO3	CO2	CO3	CO4	CO2	CO3	CO4
SL NO	NAME	Max. Marks	5	5	5	5	5	5	5	5	5	5	10	5	10			
1	RAVI PRASAD B	1AY11MT043	5					3	5		5		5	5	8	2	3	3
2	KIRAN CHANDRAN	1AY12MT028											0	0	0	0	0	0
3	NAIR RATISH	1AY12MT036		3	2			3		4	5		5	5	7	2	3	3
4	SATISH KUMAR JAISWAL	1AY12MT048						5	5				0	0	10	0	0	3
5	TABISH QAMAR	1AY12MT060	2					3	2		4		2	4	5	1	3	2
6	ANIMESH PATHAK	1AY13MT008	2		2		3						4	0	3	2	0	1
7	KEVIN THOMAS	1AY13MT026		3				4		5	3		3	3	9	1	3	3
8	NANDAN N S	1AY13MT038		3		4		4	5		3		7	3	9	3	3	3

Figure: 3.2.1.2 b internal tests/Exams

- Figure 3.2.1.3 (c) shows average values of each CO computation of each Internal Assessments

CO	IA1	IA2	IA3	AVG
CO1	2.77		2.58	2.68
CO2	2.49	2.57		2.53
CO3		2.59	1.91	2.25
CO4		2.85	2.35	2.60

Figure: 3.2.1.2 c internal tests/Exams

Figure 3.2.1.3 [c] shows the final attainment calculations are based the following parameters

1. 60% weightage to Internal Assessments[IA]
2. 30% weightage to University Examination[SEE]
3. 10% weightage to Course End Survey[CES]

SUBJECT NAME		IA	SEE	CES	TOTAL
10MT55	CO-1	2.68	2.70	3	2.79
	CO-2	2.53	2.70	2.5	2.58
	CO-3	2.25	2.70	3	2.65
	CO-4	2.60	2.70	3	2.77

Figure: 3.2.1.3 c internal tests/Exams

(B) LABORATORY EXAM EVALUATION:

- The Internal Assessment marks shall be based on the laboratory reports and practical test.
- The laboratory in-charge will conduct the practical test.
- There shall be a maximum of 25 Internal Assessment Marks in each practical paper
- The evaluation procedure for laboratory courses are done by the laboratory In-Charge(s) based on the following parameters: Divided into three components: Continuous Assessment: 10 marks, Record: 5 marks and Internal Test: 10 marks

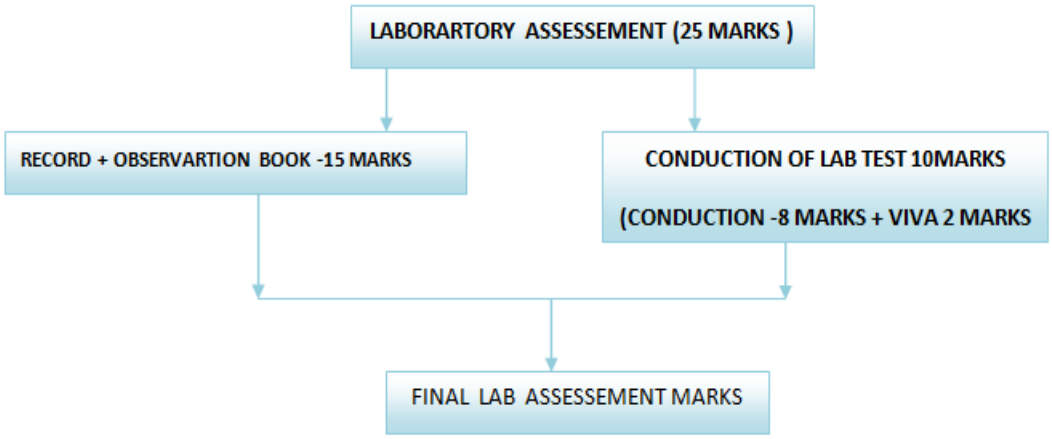


Figure: 3.2.1b; Laboratory exam evaluation

Table B.3.2.1a Rubrics for laboratory

Parameters	Marks Allocated	Rubrics
Observation/Procedure Writing	3	Low:(0 marks) Student does not write the procedure/program and the calculations Medium(1-2marks) Student incompletes the observations High: (3 marks) student Completes the calculations and the observation books.
Execution	3	Low:(0 marks)-Student does not execute the program Medium: (1-2 marks) Student incompletes the execution with errors High: (3 marks) -student completes the execution of the program
Record Submission	4	Low: (0 marks) -Student does not write the program and outputs in the record book Medium: (1-2 marks) Student incompletes the record book High: (3 marks)-student records the calculations and the executed program in the record books

(C) TECHNICAL SEMINAR EVALUATION:

- One seminar will be conducted per student in the final year 8th semester by a committee consisting of the Head of the Department and three senior faculty members of the department whom shall be the Seminar Coordinator(s).
- Seminar topic shall be selected from the emerging technical areas.
- The Internal Assessment marks are given based on the evaluation done by the committee members (Head of the Department and Seminar Coordinator(s)) along with the guide and reviewer following the rubrics set by the department.

(D) PROJECT WORK EVALUATION:

- Project work at 8th semester shall be completed batch wise, each batch consisting of a maximum of four candidates.
- The Project Coordinator(s) gives the instructions to the students by the end of 7th semester and project batches are formed among the student.
- Students will submit the synopsis of their project to the project coordinator(s) for scrutinizing.
- By the end of 7th semester zeroth review will be conducted to the students in order to approve and finalize the selected topic.
- Based on the area of specialization and competency skills of the faculties, project
- Coordinator will allocate the batches to the internal guides.
- The internal guide will continuously guide and monitor the students on weekly basis and get the updates of the works done by their corresponding batch of students.
- The Internal Assessment marks in case of project shall be based on the evaluation at the end of 8th semester by the committee consisting of Head of the Department, Project Coordinator(s) and faculty members of the department whom shall be the project guide.
- The Internal Assessment marks (awarded as per the rubrics) will be submitted to the department once the evaluation is done.
- Viva-voce examination in project work shall be conducted batch-wise by the panel of members assigned by the university. Based on the performance of the students, the external viva voce marks are awarded and the same is submitted to the university.
- The department encourages the students to showcase their skills by publishing papers in conferences/journals forum and participating in technical paper presentations.

BELOW SAID ATTAINMENT LEVELS ARE CONSIDERED IN ALL TRAGET ACHIEVEDHODS OF ASSESSMENT

Attainment Level 1: Students scoring less than or equal to 40% marks out of the relevant maximum marks is considered to be attainment level of "1"

Attainment Level 2: Students scoring 41-59 % marks out of the relevant maximum marks is considered to be attainment level of "2"

Attainment Level 3: Students scoring 60% or more than 60% marks out of the relevant maximum marks is considered to be attainment level of "3"

2) INDIRECT ASSESSMENT (Through Course End Survey)

- A set of questions will be framed by the course coordinator. These questions will be scrutinized by the module coordinator and the HOD.
- Each question will be mapped to a particular Course outcome. At the end of the semester students will be asked to enter their rating for the course end survey questions. The attainment of the course end survey will be calculated and 10% of that will be considered for the total course attainment calculation
- Finally, for calculation of the course outcome attainment 60% weightage is given to internal assessment and 30% weightage is given to semester end exam and 10% weightage is given to course end survey

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

Final attainment calculations are based the following parameters

4. 60% weightage to Internal Assessments
5. 30% weightage to University Examination
6. 10% weightage to Course End Survey

Table B.3.2.2a

Subject Code	CO	CIE (60%)	SEE (30%)	CES (10%)	CO Attainment
1ST SEMESTER					

14MAT11	14MAT11.1	0.86	1.58	2.59	1.25
	14MAT11.2	2.07	1.58	2.95	2.01
	14MAT11.3	2.46	1.58	3.00	2.25
	14MAT11.4	2.23	1.58	2.80	2.09
	14MAT11.5	2.32	1.58	2.90	2.16
14PHY12	14HY12.1	2.35	1.83	2.80	2.24
	14HY12.2	2.33	1.83	2.40	2.19
	14HY12.3	1.91	1.83	2.60	1.96
14CIV13	14CIV13.1	2.54	1.94	2.73	2.38
	14CIV13.2	2.50	1.94	2.47	2.33
	14CIV13.3	2.31	1.94	2.47	2.21
	14CIV13.4	2.35	1.94	2.47	2.24
14EME14	14EME14.1	2.50	1.28	2.73	2.16
	14EME14.2	2.50	1.28	2.47	2.13
	14EME14.3	2.20	1.09	2.47	1.89
14ELE15	14ELE15.1	2.50	1.64	2.21	2.21
	14ELE15.2	2.05	1.64	2.23	1.95
	14ELE15.3	2.30	1.64	2.50	2.12
	14ELE15.4	2.15	1.64	2.40	2.02
14WSL16	14WSL16.1	2.95	2.25	2.21	2.67
	14WSL16.2	2.95	2.25	2.23	2.67
	14WSL16.3	2.95	2.25	2.50	2.70
14PHYL17	14PHYL17.1	2.70	2.40	2.70	2.61
	14PHYL17.2	2.70	2.40	2.50	2.59
	14PHYL17.3	2.70	2.40	2.68	2.61
2ND SEMESTER					
14MAT21	14MAT21.1	2.03	1.59	2.29	1.93
	14MAT21.2	1.78	1.59	2.63	1.81
	14MAT21.3	1.66	1.59	2.48	1.72
	14MAT21.4	1.66	1.59	2.49	1.72
	14MAT21.5	1.91	1.59	2.48	1.87
14CHE22	14CHE22.1	2.45	2.20	2.60	2.39
	14CHE22.2	2.10	2.20	2.50	2.17
	14CHE22.3	2.20	2.20	2.20	2.20
	14CHE22.4	2.31	2.20	2.30	2.28
	14CHE22.5	2.40	2.20	2.70	2.37
14PCD23	14PCD23.1	2.42	2.42	2.60	2.44
	14PCD23.2	2.37	2.42	2.50	2.40
	14PCD23.3	2.82	2.42	2.20	2.64
	14PCD23.4	2.71	2.42	2.30	2.58
	14PCD23.5	2.70	2.42	2.70	2.62
14CED24	14CED24.1	2.58	2.13	2.45	2.43
	14CED24.2	1.84	2.13	2.79	2.02
	14CED24.3	1.84	2.13	2.60	2.00

14ELN25	14ELN25.1	2.00	2.10	2.00	2.03
	14ELN25.2	2.00	1.98	2.00	2.00
	14ELN25.3	2.00	2.00	2.00	2.00
	14ELN25.4	2.00	2.00	2.00	2.00
14CPL26	14CPL26.1	2.87	2.60	2.35	2.74
	14CPL26.2	2.87	2.60	2.60	2.76
	14CPL26.3	2.87	2.60	2.80	2.78
	14CPL26.4	2.87	2.60	2.74	2.78
	14CPL26.5	2.87	2.60	2.50	2.75
14CHEL27	14CHEL27.1	2.92	2.83	2.25	2.83
	14CHEL27.2	2.92	2.83	2.50	2.85
	14CHEL27.3	2.92	2.83	2.70	2.87
3RD SEMESTER					
10MAT31	10MAT31.1	1.88	2.21	2.30	2.02
	10MAT31.2	2.21	2.21	2.67	2.26
	10MAT31.3	2.56	2.21	2.39	2.44
	10MAT31.4	2.35	2.21	2.45	2.32
	10MAT31.5	1.86	2.21	2.44	2.03
	10MAT31.6	1.89	2.21	2.59	2.06
10MT32	10MT32.1	2.70	2.62	2.89	2.70
	10MT32.2	2.94	2.62	2.44	2.79
	10MT32.3	2.54	2.62	2.89	2.60
	10MT32.4	2.16	2.62	3.00	2.38
10MT33	10MT33.1		2.57	3.00	1.07
	10MT33.2	1.85	2.57	2.50	2.13
	10MT33.3	2.51	2.57	3.00	2.57
	10MT33.4	2.24	2.57	3.00	2.42
10MT34	10MT34.1	2.50	2.02	2.89	2.40
	10MT34.2	2.36	2.02	2.44	2.27
	10MT34.3	2.59	2.02	2.94	2.45
	10MT34.4	2.83	2.02	2.89	2.59
10MT35	10MT35.1		2.47	2.80	1.02
	10MT35.2	1.69	2.47	2.80	2.03
	10MT35.3	1.72	2.47	2.80	2.05
	10MT35.4	1.67	2.47	2.80	2.02
10MT36	10MT36.1	2.07	1.69	2.56	2.01
	10MT36.2	1.85	1.69	2.22	1.84
	10MT36.3	2.00	1.69	2.11	1.92
	10MT36.4	2.55	1.69	2.33	2.27
10MTL37	10MTL37.1	2.90	3.00	2.72	2.91
	10MTL37.2	2.99	3.00	2.72	2.97
	10MTL37.3	2.99	3.00	3.00	2.99
10MTL38	10MTL38.1	3.00	2.86	2.89	2.95
	10MTL38.2	2.06	2.86	2.89	2.38
	10MTL38.3	2.80	2.86	2.83	2.82

	10MTL38.4	2.62	2.86	3.00	2.73
4TH SEMESTER					
10MAT41	10MAT41.1	2.52	1.82	2.36	2.29
	10MAT41.2	1.92	1.82	2.70	1.97
	10MAT41.3	1.42	1.82	2.52	1.65
	10MAT41.4	2.20	1.82	2.45	2.11
	10MAT41.5	2.09	1.82	2.45	2.04
	10MAT41.6	1.32	1.82	2.61	1.60
10MT42	10MT42.1	2.78	2.54	2.78	2.71
	10MT42.2	2.74	2.54	2.44	2.65
	10MT42.3	2.71	2.54	2.94	2.68
	10MT42.4	2.83	2.54	2.72	2.73
10MT43	10MT43.1	2.44	1.98	2.89	2.35
	10MT43.2	1.71	1.98	2.61	1.88
	10MT43.3	2.28	1.98	2.89	2.25
	10MT43.4	2.38	1.98	2.83	2.31
10MT44	10MT44.1	2.32	2.00	3.00	2.29
	10MT44.2	2.15	2.00	2.67	2.16
	10MT44.3	2.49	2.00	2.50	2.34
	10MT44.4	2.52	2.00	2.56	2.37
10MT45	10MT45.1	2.75	3.00	2.72	2.82
	10MT45.2	2.60	3.00	2.78	2.74
	10MT45.3	2.58	3.00	2.50	2.70
	10MT45.4	2.43	3.00	2.67	2.62
10MT46	10MT46.1	2.70	3.00	3.00	2.82
	10MT46.2	2.33	3.00	3.00	2.60
	10MT46.3	2.97	3.00	3.00	2.98
	10MT46.4		3.00	3.00	1.20
10MTL47	10MTL47.1	2.91	2.82	2.89	2.88
	10MTL47.2	2.74	2.78	2.89	2.77
	10MTL47.3	2.82	2.78	2.83	2.81
10MTL48	10MTL48.1	3.00	2.94	2.89	2.97
	10MTL48.2	3.00	2.94	2.89	2.97
	10MTL48.3	2.98	2.94	2.83	2.96
	10MTL48.4	2.94	2.94	2.83	2.93
5TH SEMESTER					
10MT51	10MT51.1	2.88	2.30	2.72	2.69
	10MT51.2	2.80	2.30	2.61	2.63
	10MT51.3	2.93	2.30	2.89	2.74
	10MT51.4	2.85	2.30	2.83	2.68
10MT52	10MT52.1	2.29	2.81	2.72	2.49
	10MT52.2	2.92	2.81	2.61	2.85
	10MT52.3	2.56	2.81	2.89	2.67
	10MT52.4	2.76	2.81	2.83	2.78
10MT53	10MT53.1	2.55	2.46	2.89	2.56

	10MT53.2	3.00	2.46	2.44	2.78
	10MT53.3	2.95	2.46	2.94	2.80
	10MT53.4	2.69	2.46	2.89	2.64
10MT54	10MT54.1	2.68	1.98	3.00	2.50
	10MT54.2	2.53	1.98	2.80	2.39
	10MT54.3	2.70	1.98	3.00	2.51
	10MT54.4	1.80	1.98	3.00	1.97
10MT55	10MT55.1	2.68	2.70	3.00	2.72
	10MT55.2	2.53	2.70	2.50	2.58
	10MT55.3	2.25	2.70	3.00	2.46
	10MT55.4	2.60	2.70	3.00	2.67
10MT56	10MT56.1	2.90	2.67	3.00	2.84
	10MT56.2	2.91	2.67	2.50	2.80
	10MT56.3	2.69	2.67	3.00	2.71
	10MT56.4	2.71	2.67	3.00	2.72
10MTL57	10MTL57.1	3.00	3.00	2.67	2.97
	10MTL57.2	2.99	3.00	2.72	2.96
	10MTL57.3	3.00	3.00	2.72	2.97
	10MTL57.4	3.00	3.00	2.67	2.97
10MTL58	10MTL58.1	2.90	2.80	3.00	2.88
	10MTL58.2	2.80	2.80	2.80	2.80
	10MTL58.3	2.80	2.80	3.00	2.82
6TH SEMESTER					
10AL61	10AL61.1	2.87	1.97	2.78	2.59
	10AL61.2	2.79	1.97	2.44	2.51
	10AL61.3	2.51	1.97	2.83	2.38
	10AL61.4	2.97	1.97	2.72	2.65
10MT62	10MT62.1	2.83	2.54	2.61	2.72
	10MT62.2	1.77	2.54	2.44	2.07
	10MT62.3	2.63	2.54	2.83	2.62
	10MT62.4	1.97	2.54	2.56	2.20
10MT63	10MT63.1	2.86	2.46	3.00	2.75
	10MT63.2	2.84	2.46	2.50	2.69
	10MT63.3	2.54	2.46	3.00	2.56
10MT64	10MT64.1	2.18	1.90	3.00	2.18
	10MT64.2	2.86	1.90	2.50	2.54
	10MT64.3	2.70	1.90	3.00	2.49
	10MT64.4	2.40	1.90	3.00	2.31
10MT65	10MT65.1	2.61	2.91	3.00	2.74
	10MT65.2	2.22	2.91	2.50	2.46
	10MT65.3	2.70	2.91	3.00	2.79
	10MT65.4	2.64	2.91	3.00	2.76
10MT664	10MT664.1	2.86	2.67	3.00	2.82
	10MT664.2	2.84	2.67	2.50	2.76
	10MT664.3	2.54	2.67	3.00	2.63

	10MT664.4	2.83	2.67	3.00	2.80
10MTL67	10MTL67.1	2.97	3.00	2.72	2.95
	10MTL67.2	2.99	3.00	2.56	2.95
	10MTL67.3	2.97	3.00	2.83	2.97
10MTL68	10MTL68.1	2.97	2.94	3.00	2.96
	10MTL68.2	3.00	2.94	2.80	2.96
	10MTL68.3	3.00	2.94	3.00	2.98
	10MTL68.4	3.00	2.94	3.00	2.98
7^{TH} SEMESTER					
10MT71	10MT71.1	2.58	2.41	2.72	2.55
	10MT71.2	1.88	2.41	2.39	2.09
	10MT71.3	2.12	2.41	2.78	2.27
	10MT71.4	2.96	2.41	3.00	2.80
10MT72	10MT72.1	1.99	3.00	2.72	2.37
	10MT72.2	2.55	3.00	2.61	2.69
	10MT72.3	2.80	3.00	2.78	2.86
	10MT72.4	1.74	3.00	2.78	2.22
10MT73	10MT73.1	2.18	2.60	3.00	2.39
	10MT73.2	2.86	2.60	2.60	2.76
	10MT73.3	2.70	2.60	3.00	2.70
	10MT73.4	2.40	2.60	3.00	2.52
10MT74	10MT74.1	2.97	1.38	2.89	2.48
	10MT74.2	1.83	1.38	2.50	1.76
	10MT74.3	2.60	1.38	2.67	2.24
	10MT74.4	2.80	1.38	2.67	2.36
10MT753	10MT753.1	2.83	3.00	2.85	2.88
	10MT753.2	3.00	3.00	3.00	3.00
	10MT753.3	2.72	3.00	3.00	2.83
	10MT753.4	2.96	3.00	2.89	2.97
10MT761	10MT761.1	1.38	2.30	3.00	1.82
	10MT761.2	2.78	2.30	2.50	2.61
	10MT761.3	2.93	2.30	2.39	2.69
	10MT761.4	2.86	2.30	2.72	2.68
10MTL77	10MTL77.1	3.00	2.97	2.78	2.97
	10MTL77.2	2.98	2.97	2.83	2.96
	10MTL77.3	2.98	2.97	2.78	2.96
10MTL78	10MTL78.1	3.00	2.78	2.89	2.92
	10MTL78.2	2.86	2.78	2.89	2.84
	10MTL78.3	2.78	2.78	2.83	2.79
8^{TH} SEMESTER					
10MT81	10MT81.1	2.81	2.85	2.89	2.83
	10MT81.2	2.80	2.85	2.44	2.78
	10MT81.3	2.24	2.85	2.83	2.48
	10MT81.4	2.24	2.85	2.72	2.47
10MT82	10MT82.1	2.90	2.80	2.83	2.86

	10MT82.2	2.86	2.80	2.44	2.80
	10MT82.3	2.91	2.80	2.83	2.87
	10MT82.4	2.75	2.80	2.72	2.76
10MT831	10MT831.1	2.94	2.45	2.80	2.78
	10MT831.2	3.00	2.45	3.00	2.84
	10MT831.3	2.92	2.45	3.00	2.79
	10MT831.4	2.91	2.45	3.00	2.78
10MT843	10MT843.1	2.85	2.09	3.00	2.64
	10MT843.2	2.94	2.09	2.50	2.64
	10MT843.3	2.90	2.09	3.00	2.67
	10MT843.4	2.86	2.09	3.00	2.64
10MT85	10MT85.1	3.00	3.00	3.00	3.00
10MT86	10MT86.1	3.00	3.00	3.00	3.00

Table B.3.2.2b CO Attainment

Course Code	Course Outcome	Target (%)	CO attainment level	CO Percentage	Target achieved/target not achieved
14MAT11	14MAT11.1	70	1.25	41.56	Target not achieved*
	14MAT11.2	70	2.01	67.03	Target not achieved*
	14MAT11.3	70	2.25	75.07	Target achieved
	14MAT11.4	70	2.09	69.76	Target not achieved*
	14MAT11.5	70	2.16	71.88	Target achieved
14PHY12	14PHY12.1	70	2.24	74.63	Target achieved
	14PHY12.2	70	2.19	72.90	Target achieved
	14PHY12.3	70	1.96	65.23	Target not achieved*
14CIV13	14CIV13.1	70	2.38	79.23	Target achieved
	14CIV13.2	70	2.33	77.61	Target achieved
	14CIV13.3	70	2.21	73.78	Target achieved
	14CIV13.4	70	2.24	74.53	Target achieved
14EME14	14EME14.1	70	2.16	71.91	Target achieved
	14EME14.2	70	2.13	71.02	Target achieved
	14EME14.3	70	1.89	63.12	Target not achieved*
14ELE15	14ELE15.1	70	2.21	73.77	Target achieved
	14ELE15.2	70	1.95	64.83	Target not achieved*
	14ELE15.3	70	2.12	70.73	Target achieved

	14ELE15.4	70	2.02	67.40	Target not achieved*
14WSL16	14WSL16.1	70	2.67	88.87	Target achieved
	14WSL16.2	70	2.67	88.93	Target achieved
	14WSL16.3	70	2.70	89.83	Target achieved
14PHYL17	14PHYL17.1	70	2.61	87.00	Target achieved
	14PHYL17.2	70	2.59	86.33	Target achieved
	14PHYL17.3	70	2.61	86.93	Target achieved
14MAT21	14MAT21.1	70	1.93	64.19	Target not achieved*
	14MAT21.2	70	1.81	60.39	Target not achieved*
	14MAT21.3	70	1.72	57.42	Target not achieved*
	14MAT21.4	70	1.72	57.47	Target not achieved*
	14MAT21.5	70	1.87	62.34	Target not achieved*
14CHE22	14CHE22.1	70	2.39	79.67	Target achieved
	14CHE22.2	70	2.17	72.33	Target achieved
	14CHE22.3	70	2.20	73.33	Target achieved
	14CHE22.4	70	2.28	75.87	Target achieved
	14CHE22.5	70	2.37	79.00	Target achieved
14PCD23	14PCD23.1	70	2.44	81.27	Target achieved
	14PCD23.2	70	2.40	79.93	Target achieved
	14PCD23.3	70	2.64	87.93	Target achieved
	14PCD23.4	70	2.58	86.07	Target achieved
	14PCD23.5	70	2.62	87.20	Target achieved
14CED24	14CED24.1	70	2.43	81.07	Target achieved
	14CED24.2	70	2.02	67.40	Target not achieved*
	14CED24.3	70	2.00	66.77	Target not achieved*
14ELN25	14ELN25.1	70	2.03	67.63	Target not achieved*
	14ELN25.2	70	2.00	66.51	Target not achieved*
	14ELN25.3	70	2.00	66.67	Target not achieved*
	14ELN25.4	70	2.00	66.67	Target not achieved*

14CPL26	14CPL26.1	70	2.74	91.23	Target achieved
	14CPL26.2	70	2.76	92.07	Target achieved
	14CPL26.3	70	2.78	92.73	Target achieved
	14CPL26.4	70	2.78	92.53	Target achieved
	14CPL26.5	70	2.75	91.73	Target achieved
14CHEL27	14CHEL27.1	70	2.83	94.29	Target achieved
	14CHEL27.2	70	2.85	95.13	Target achieved
	14CHEL27.3	70	2.87	95.79	Target achieved
10MAT31	10MAT31.1	70	1.99	66.26	Target not achieved*
	10MAT31.2	70	2.26	75.25	Target achieved
	10MAT31.3	70	2.47	82.47	Target achieved
	10MAT31.4	70	2.33	77.73	Target achieved
	10MAT31.5	70	1.99	66.36	Target not achieved*
	10MAT31.6	70	2.03	67.58	Target not achieved*
10MT32	10MT32.1	70	2.70	90.10	Target achieved
	10MT32.2	70	2.82	94.13	Target achieved
	10MT32.3	70	2.59	86.41	Target achieved
	10MT32.4	70	2.34	77.88	Target achieved
10MT33	10MT33.1	70	0.81	27.13	Target not achieved*
	10MT33.2	70	2.06	68.73	Target not achieved*
	10MT33.3	70	2.57	85.61	Target achieved
	10MT33.4	70	2.38	79.43	Target achieved
10MT34	10MT34.1	70	2.44	81.43	Target achieved
	10MT34.2	70	2.30	76.67	Target achieved
	10MT34.3	70	2.51	83.70	Target achieved
	10MT34.4	70	2.67	89.13	Target achieved
10MT35	10MT35.1	70	0.77	25.80	Target not achieved*

	10MT35.2	70	1.95	65.12	Target not achieved*
	10MT35.3	70	1.98	65.88	Target not achieved*
	10MT35.4	70	1.94	64.80	Target not achieved*
10MT36	10MT36.1	70	2.04	68.13	Target not achieved*
	10MT36.2	70	1.85	61.82	Target not achieved*
	10MT36.3	70	1.95	65.04	Target not achieved*
	10MT36.4	70	2.36	78.50	Target achieved
10MTL37	10MTL37.1	70	2.90	96.73	Target achieved
	10MTL37.2	70	2.97	98.83	Target achieved
	10MTL37.3	70	2.99	99.77	Target achieved
10MTL38	10MTL38.1	70	2.96	98.70	Target achieved
	10MTL38.2	70	2.30	76.78	Target achieved
	10MTL38.3	70	2.82	93.84	Target achieved
	10MTL38.4	70	2.71	90.20	Target achieved
10MAT41	10MAT41.1	70	2.36	78.67	Target achieved
	10MAT41.2	70	1.98	65.99	Target not achieved*
	10MAT41.3	70	1.61	53.72	Target not achieved*
	10MAT41.4	70	2.15	71.55	Target achieved
	10MAT41.5	70	2.07	69.07	Target not achieved*
	10MAT41.6	70	1.55	51.55	Target not achieved*
10MT42	10MT42.1	70	2.73	91.07	Target achieved
	10MT42.2	70	2.67	89.00	Target achieved
	10MT42.3	70	2.70	89.97	Target achieved
	10MT42.4	70	2.76	92.03	Target achieved
10MT43	10MT43.1	70	2.39	79.79	Target achieved

	10MT43.2	70	1.85	61.72	Target not achieved*
	10MT43.3	70	2.28	76.06	Target achieved
	10MT43.4	70	2.35	78.21	Target achieved
10MT44	10MT44.1	70	2.32	77.37	Target achieved
	10MT44.2	70	2.17	72.35	Target achieved
	10MT44.3	70	2.39	79.66	Target achieved
	10MT44.4	70	2.42	80.62	Target achieved
10MT45	10MT45.1	70	2.79	93.17	Target achieved
	10MT45.2	70	2.70	90.03	Target achieved
	10MT45.3	70	2.66	88.54	Target achieved
	10MT45.4	70	2.57	85.60	Target achieved
10MT46	10MT46.1	70	2.79	93.08	Target achieved
	10MT46.2	70	2.53	84.32	Target achieved
	10MT46.3	70	2.98	99.26	Target achieved
	10MT46.4	70	0.90	3	Target not achieved*
10MTL47	10MTL47.1	70	2.89	96.30	Target achieved
	10MTL47.2	70	2.76	92.16	Target achieved
	10MTL47.3	70	2.81	93.74	Target achieved
10MTL48	10MTL48.1	70	2.98	99.23	Target achieved
	10MTL48.2	70	2.98	99.23	Target achieved
	10MTL48.3	70	2.96	98.68	Target achieved
	10MTL48.4	70	2.93	97.62	Target achieved
10MT51	10MT51.1	70	2.74	91.48	Target achieved
	10MT51.2	70	2.68	89.36	Target achieved
	10MT51.3	70	2.80	93.32	Target achieved

	10MT51.4	70	2.74	91.27	Target achieved
10MT52	10MT52.1	70	2.43	81.10	Target achieved
	10MT52.2	70	2.87	95.54	Target achieved
	10MT52.3	70	2.64	88.07	Target achieved
	10MT52.4	70	2.78	92.55	Target achieved
10MT53	10MT53.1	70	2.57	85.53	Target achieved
	10MT53.2	70	2.84	94.53	Target achieved
	10MT53.3	70	2.85	95.03	Target achieved
	10MT53.4	70	2.66	88.80	Target achieved
10MT54	10MT54.1	70	2.57	85.73	Target achieved
	10MT54.2	70	2.45	81.57	Target achieved
	10MT54.3	70	2.59	86.20	Target achieved
	10MT54.4	70	1.96	65.20	Target not achieved*
10MT55	10MT55.1	70	2.71	90.42	Target achieved
	10MT55.2	70	2.56	85.37	Target achieved
	10MT55.3	70	2.42	80.50	Target achieved
	10MT55.4	70	2.66	88.67	Target achieved
10MT56	10MT56.1	70	2.86	95.35	Target achieved
	10MT56.2	70	2.82	94.03	Target achieved
	10MT56.3	70	2.71	90.45	Target achieved
	10MT56.4	70	2.73	90.92	Target achieved
10MTL57	10MTL57.1	70	2.97	98.89	Target achieved
	10MTL57.2	70	2.96	98.73	Target achieved
	10MTL57.3	70	2.97	99.07	Target achieved
	10MTL57.4	70	2.97	98.89	Target achieved

10MTL58	10MTL58.1	70	2.89	96.33	Target achieved
	10MTL58.2	70	2.80	93.33	Target achieved
	10MTL58.3	70	2.82	94.00	Target achieved
10AL61	10AL61.1	70	2.68	89.37	Target achieved
	10AL61.2	70	2.59	86.37	Target achieved
	10AL61.3	70	2.43	81.13	Target achieved
	10AL61.4	70	2.75	91.50	Target achieved
10MT62	10MT62.1	70	2.75	91.67	Target achieved
	10MT62.2	70	1.99	66.37	Target not achieved*
	10MT62.3	70	2.63	87.73	Target achieved
	10MT62.4	70	2.14	71.43	Target achieved
10MT63	10MT63.1	70	2.79	93.13	Target achieved
	10MT63.2	70	2.73	91.00	Target achieved
	10MT63.3	70	2.57	85.67	Target achieved
10MT64	10MT64.1	70	2.21	73.53	Target achieved
	10MT64.2	70	2.63	87.73	Target achieved
	10MT64.3	70	2.57	85.67	Target achieved
	10MT64.4	70	2.36	78.67	Target achieved
10MT65	10MT65.1	70	2.71	90.31	Target achieved
	10MT65.2	70	2.39	79.55	Target achieved
	10MT65.3	70	2.77	92.41	Target achieved
	10MT65.4	70	2.73	91.07	Target achieved
10MT664	10MT664.1	70	2.84	94.53	Target achieved
	10MT664.2	70	2.77	92.40	Target achieved
	10MT664.3	70	2.61	87.07	Target achieved

	10MT664.4	70	2.82	93.83	Target achieved
10MTL67	10MTL67.1	70	2.95	98.37	Target achieved
	10MTL67.2	70	2.95	98.30	Target achieved
	10MTL67.3	70	2.96	98.73	Target achieved
10MTL68	10MTL68.1	70	2.97	98.90	Target achieved
	10MTL68.2	70	2.97	98.93	Target achieved
	10MTL68.3	70	2.99	99.60	Target achieved
	10MTL68.4	70	2.99	99.60	Target achieved
10MT71	10MT71.1	70	2.56	85.42	Target achieved
	10MT71.2	70	2.04	67.95	Target not achieved*
	10MT71.3	70	2.24	74.76	Target achieved
	10MT71.4	70	2.85	95.05	Target achieved
10MT72	10MT72.1	70	2.27	75.51	Target achieved
	10MT72.2	70	2.65	88.20	Target achieved
	10MT72.3	70	2.84	94.59	Target achieved
	10MT72.4	70	2.10	69.86	Target not achieved*
10MT73	10MT73.1	70	2.35	78.20	Target achieved
	10MT73.2	70	2.78	92.73	Target achieved
	10MT73.3	70	2.71	90.33	Target achieved
	10MT73.4	70	2.50	83.33	Target achieved
10MT74	10MT74.1	70	2.64	88.04	Target achieved
	10MT74.2	70	1.81	60.28	Target not achieved*
	10MT74.3	70	2.36	78.80	Target achieved
	10MT74.4	70	2.50	83.44	Target achieved
10MT753	10MT753.1	70	2.87	95.50	Target achieved

	10MT753.2	70	3.00	10	Target achieved
	10MT753.3	70	2.80	93.41	Target achieved
	10MT753.4	70	2.96	98.81	Target achieved
10MT761	10MT761.1	70	1.73	57.53	Target achieved
	10MT761.2	70	2.66	88.53	Target achieved
	10MT761.3	70	2.75	91.67	Target achieved
	10MT761.4	70	2.73	91.13	Target achieved
10MTL77	10MTL77.1	70	2.97	99.05	Target achieved
	10MTL77.2	70	2.97	98.87	Target achieved
	10MTL77.3	70	2.96	98.69	Target achieved
10MTL78	10MTL78.1	70	2.95	98.17	Target achieved
	10MTL78.2	70	2.85	94.89	Target achieved
	10MTL78.3	70	2.79	92.88	Target achieved
10MT81	10MT81.1	70	2.83	94.20	Target achieved
	10MT81.2	70	2.77	92.47	Target achieved
	10MT81.3	70	2.42	80.70	Target achieved
	10MT81.4	70	2.41	80.33	Target achieved
10MT82	10MT82.1	70	2.87	95.77	Target achieved
	10MT82.2	70	2.81	93.53	Target achieved
	10MT82.3	70	2.88	96.00	Target achieved
	10MT82.4	70	2.76	91.90	Target achieved
10MT831	10MT831.1	70	2.83	94.27	Target achieved
	10MT831.2	70	2.89	96.33	Target achieved
	10MT831.3	70	2.83	94.47	Target achieved
	10MT831.4	70	2.83	94.23	Target achieved

10MT843	10MT843.1	70	2.71	90.43	Target achieved
	10MT843.2	70	2.72	90.75	Target achieved
	10MT843.3	70	2.75	91.60	Target achieved
	10MT843.4	70	2.72	90.55	Target achieved
10MT85	10MT85.1	70	3.00	10	Target achieved
10MT86	10MT86.1	70	3.00	10	Target achieved

* In case of COs for which the target is not achieved, the course coordinator makes analysis for the shortfall and suggests recommendations to enhance the same in the subsequent semesters.

3.3. Attainment of Program Outcomes and Program Specific Outcomes: (50)

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

- Evaluation of attainment of PO's and PSO's is based on direct and indirect assessment tools. Direct assessment of PO's and PSO's is based on students' performance in internal assessments and university exams. Indirect assessment is based on exit survey of the particular outgoing batch students.

To record the attainment of program outcomes the following assessment tools are used:

Assessment Tools		Weightage	Frequency	Responsibility
Direct Assessment	Course Outcomes Attainment	80%	End of the semester	Department level
Indirect Assessment	Exit Survey	20%	At the end of the program	Department level

1) Direct Assessment

- **Course outcomes attainment**

Performance of the students in internal assessments and university exams will lead to the attainment of Course Outcomes'. The course end survey also contributes to the Course Outcome attainment. Course Outcomes' of a particular subject will be mapped to the relevant PO's in the scale of 3, 2, and 1. Attainment for particular PO is calculated by taking weighted average of all course outcome attainment addressing that particular PO. Similar calculation will

be done for all the POs and for every subject. The PO attainment for a batch of students will be calculated by taking the sum of all attainments for a particular PO and dividing by the number of courses mapped to the same PO.

2) Indirect Assessment

- **Exit Survey**

Acharya Institute of Technology has an Internal Quality Assessment Cell (IQAC) responsible for academic quality monitoring and assessment. IQAC prepares a set of questions relevant to the program outcomes/graduate attributes and also questions relevant to Program Specific Outcomes. These questions will be asked to get the various information regarding the opinion and observations about the student's course from the final year students. The questions will be rated by the outgoing batch in the range of 3, 2 and 1 and the exit survey attainment will be calculated accordingly.

Finally, PO attainment of a particular batch will be calculated by giving 80% Weightage to the direct attainment and 20% Weightage to exit survey.

3.3.2 PROVIDE RESULTS OF EVALUATION OF EACH PO & PSO: (40)

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

Table B.3.3.2a PO attainment

SUBJECTS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
14MAT11	1.95	1.95										
14PHY12	2.21	1.96										2.23
14CIV13	2.24	2.24			2.17	2.32		2.21		2.23	2.37	
14EME14	2.10						2.15					2.06
14ELE15	2.08	2.00										2.02
14WSL16	2.70	2.68	2.67		2.66	2.67			2.68			2.67
14PHYL17	2.61	2.59	2.60									
14MAT21	1.81	1.81										
14CHE22	2.37	2.39	2.17			2.17	2.26					
14PCD23	2.53	2.53	2.63		2.58							2.49
14CED24	2.15	2.15	2.15		2.15				2.15	2.15		2.15
14ELN25	2.00	2.00										
14CPL26	2.75	2.76	2.75	2.75	2.75							
14CHEL27	2.85	2.87				2.87	2.87	2.87		2.85		2.82
10MAT31	2.19	2.19										

10MT32	2.65	2.63	2.57	2.45								
10MT33	1.59	1.85	2.40	2.47								
10MT34	2.41	2.44										2.52
10MT35	1.87	2.04	2.03									
10MT36	1.95	1.97	2.11									
10MTL37	2.96	2.96	2.96									
10MTL38	2.78	2.50	2.77	2.72								
10MAT41	1.94	1.94										
10MT42	2.70	2.71			2.68	2.71						2.71
10MT43	2.27	2.20	2.12	2.15								
10MT44	2.24	2.31	2.32									
10MT45	2.72	2.66	2.74									
10MT46	2.47	2.55	1.84									
10MTL47	2.86	2.79	2.81	2.82								
10MTL48	2.96	2.95		2.96								
10MT51	2.69	2.68	2.68	2.68								
10MT52	2.60	2.69	2.78	2.81								
10MT53	2.65		2.72		2.72							2.72
10MT54	2.31	2.10	2.22									
10MT55	2.61	2.58	2.58									
10MT56	2.80	2.78	2.78	2.76								
10MTL57	2.97	2.96	2.97	2.97								
10MTL58	2.82	2.83	2.80	2.85	2.83							
10AL61	2.52	2.54						2.62	2.62	2.67	2.56	
10MT62	2.40	2.41			2.07		1.99					
10MT63	2.66	2.63	2.56									
10MT64	2.39	2.33	2.45									
10MT65	2.69	2.75	2.73		2.76					2.73		
10MT664	2.76	2.75	2.78	2.77	2.75							
10MTL67	2.96	2.95	2.96	2.95	2.95							2.95
10MTL68	2.97	2.98	2.97		2.97							
10MT71	2.38	2.35	2.80									
10MT72	2.46	1.90	2.60	2.59								
10MT73	2.59	2.58										
10MT74	2.20	2.23	2.36		2.21							
10MT753	2.91	2.88	2.97									
10MT761	2.47	2.54		2.63								
10MTL77	2.97	2.96	2.96	2.96	2.96							
10MTL78	2.90	2.84	2.80	2.85	2.85							
10MT81	2.64	2.64										
10MT82	2.81	2.83	2.80	2.82								
10MT831	2.80	2.79	2.79									
10MT843	2.64	2.65	2.64	2.65	2.65							
10MT85	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10MT86	3.00	3.00		3.00	3.00			3.00	3.00	3.00		

Average Value of	151.46	145.76	107.35	60.61	50.72	15.74	12.27	13.70	13.45	18.64	7.93	30.34

POs												
Number Subject Mapped	60	58	42	22	19	6	5	5	5	7	3	12
Direct Attainment Of POs	2.52	2.51	2.56	2.76	2.67	2.62	2.45	2.74	2.69	2.66	2.64	2.53
Percentage	84.14	83.77	85.20	91.83	88.98	87.43	81.81	91.33	89.67	88.74	88.09	84.29
Indirect Attainment Of POs	2.50	2.50	2.50	2.50	2.5	2.50	2.2	2.2	2.2	2.2	2.2	2.2
%	83.33	83.33	83.33	83.33	83.33	83.33	73.33	73.33	73.33	73.33	73.33	73.33
Final PO Attainment	2.52	2.51	2.54	2.70	2.64	2.60	2.40	2.63	2.59	2.57	2.55	2.46
Final %	83.98	83.68	84.82	90.13	87.85	86.61	80.11	87.73	86.40	85.66	85.14	82.10

Table b.3.3.2b: PSO attainment

SUBJECTS	PSO1	PSO2	PSO3
10MAT31			
10MT32	2.66		2.65
10MT33	1.98		2.08
10MT34	2.47		2.42
10MT35		1.66	1.66
10MT36		2.05	
10MTL37	2.95		
10MTL38		2.70	2.70
10MAT41			
10MT42	2.72		2.70
10MT43	2.23		2.27
10MT44		2.33	2.33
10MT45		2.68	2.68
10MT46		2.30	2.30
10MTL47		2.82	2.82
10MTL48		2.96	2.96
10MT51	2.75		2.74
10MT52	2.66		2.65
10MT53	2.65		2.78
10MT54	2.48		2.33
10MT55		2.60	2.56
10MT56	2.82	2.86	2.74

10MTL57	2.97	2.97	2.97
10MTL58		2.84	2.80
10AL61	2.61	2.61	2.61
10MT62	2.29		
10MT63			2.70
10MT64		2.44	2.63
10MT65		2.62	2.62
10MT664	2.77	2.75	2.76
10MTL67	2.95	2.95	2.95
10MTL68		2.98	2.97
10MT71			2.42
10MT72	2.54		2.37
10MT73		2.58	
10MT74		2.33	2.33
10MT753			2.91
10MT761	2.37	2.40	2.70
10MTL77	2.97	2.97	2.97
10MTL78		2.86	2.86
10MT81	2.61	2.61	
10MT82	2.82	2.83	2.83
10MT831		2.84	2.84
10MT843		2.73	2.73
10MT85	3.00	3.00	3.00
10MT86	3.00	3.00	3.00
Average Value Of PSOs	61.26	77.25	103.33
Number Subject Mapped	23.00	29.00	39.00
Direct Attainment Of PSOs	2.66	2.66	2.65
Percentage	88.78	88.79	88.31
Indirect Attainment Of PSOs	2.50	2.50	2.50
Percentage	83.33	83.33	83.33
Final PSO Attainment	2.63	2.63	2.62

CRITERION 4	STUDENTS PERFORMANCE(150)

4. STUDENTS' PERFORMANCE

Table B.4a Admission details for past three years

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2018-2019	2017-2018	2016-2017
Sanctioned intake of the program (N)	60	60	60
Total number of students admitted in first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	49	58	57
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	NA	15	14
Separate division students, if applicable(N3)	NA	NA	NA
Total number of students admitted in the Program (N1 + N2 + N3)	49	73	71

Table B.4b Number of students successfully graduated without backlogs

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester/year of study(Without Backlog means no compartment or failures in any semester/year of study)			
		1Year	II year	III year	IV year
2018-19 (CAY)	49(49+0)	NA	NA	NA	NA
2017-18 (CAY m1)	73(58+15)	27	NA	NA	NA
2016-17 (CAY m2)	71(57+14)	18	21(14+7)	NA	NA
2015-16 (CAY m3)	63(44+19)	22	16(16+0)	13(13+0)	NA
2014-15(CAY m4 - LYG)	71(55+16)	17	18(16+2)	16(14+2)	16(14+2)
2013-14(CAY m5 - LYG m1)	73(60+13)	33	31(28+3)	30(28+2)	27(25+2)
2012-13(CAY m5 - LYG m1)	68(55+13)	24	16(14+2)	15(13+2)	15(13+2)

Table B.4cNumber of students graduated successfully with backlog

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated (Students with backlog in stipulated period of study)			
		1Year	II Year	III Year	IV Year
2018-19 (CAY)	49(49+0)	NA	NA	NA	NA
2017-18 (CAY m1)	73(58+15)	24	NA	NA	NA
2016-17 (CAY m2)	72(58+14)	28	33 (27+6)	NA	NA
2015-16 (CAY m3)	63(44+19)	17	36(17+19)	38(20+18)	NA
2014-15(CAY m4 - LYG)	71(55+16)	24	32(19+13)	31(21+10)	31(21+10)
2013-14(CAY m5 - LYG m1)	73(60+13)	20	32(22+10)	26(18+08)	26(20+6)
2012-13(CAY m5 - LYG m1)	69(56+13)	24	49(38+11)	37(27+10)	37(27+10)

4.1 Enrolment Ratio

Table 4.1.1 Enrolment Ratio

	CAY (2018-19)	CAY m1 (2017-18)	CAY m2 (2016-17)
Sanctioned intake of the program (N)	60	60	60
Total number of students admitted in first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	49	58	57
Enrolment Ratio	0.8166	0.9666	0.95
Enrolment Percentage	81.66	96.66	95
Average Enrolment percentage = (49+58+57)*100/180	**91.1**		

Item (Students enrolled at the First Year Level on Average basis during the previous three academic years starting from current academic year)	Marks
>= 90 % students enrolled	20
>= 80 % students enrolled	18
>= 70 % students enrolled	16
>= 60 % students enrolled	14
>= 50 % students enrolled	12
Otherwise	0

4.2 Success Rate in the Stipulated Period of the Program

4.2.1 Success Rate without Backlogs in any Semester/Year of Study

SI= (Number of students who have graduated from the program without backlog)/ (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable).

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

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

Table 4.2.1.1 Success rate without backlogs

Item	Latest Year of Graduation, LYG (CAY m4) 2018 (2014-15)	Latest Year of Graduation minus 1, LYGm1 (CAYm5) 2017 (2013-14)	Latest Year of Graduation minus 2, LYGm2(CAY m6) 2 016 (2012-13)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	71(55+16)	73(60+13)	68(55+13)
Number of students who have graduated without backlogs in the stipulated period	16(14+2)	27(25+2)	15(13+2)
Success Index (SI)	0.225	0.3698	0.2173
Average SI	0.2735		

Success rate without backlogs in any year of study = 25×Average SI= 6.83

4.2.2 Success Rate with Backlogs in any Semester/Year of Study

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

Average SI = mean of Success Index (SI) for past three batches Success rate = 15 ×Average SI

Table 4.2.2.1 Success rate in stipulated period

Item	Latest Year of Graduation, LYG (CAY m4) 2018 (2014-15)	Latest Year of Graduation minus 1, LYGm1 (CAYm5) 2017 (2013-14)	Latest Year of Graduation minus 2, LYGm2 (CAYm6 2016 (2012-13)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	71(55+16)	73(60+13)	68(55+13)
Number of students who have graduated in the stipulated period	31(21+10)	26(18+8)	35(25+10)
Success Index (SI)	0.4366	0.3561	0.5147
Average SI	0.4339		

Success rate = 15 ×Average SI= 6.50

4.3 Academic Performance in Third Year (15)

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

API = ((Mean of 3rdYear Grade Point Average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in Third Year/10)) x (number of successful students/number of students appeared in the examination) Successful students are those who are permitted to proceed to the final year.

Table 4.3.1 Academic Performance in Third Year

Academic Performance	CAY m1 (2017-18)	CAYm2 (2016-17)	CAY m3 (2015-16)
Mean Percentage of all successful students/10 (X)	7.1	6.891	6.931
Total no. of successful students (Y)	50(32+18)	47(35+12)	57(46+11)

Total no. of students appeared in the examination (Z)	51(33+18)	50(35+15)	61(48+13)
API = X* (Y/Z)	6.96	6.477	6.476
Average API = (AP1 + AP2 + AP3)/3	6.637		

Academic Performance = 1.5 * Average API (Academic Performance Index) = 9.956

4.4 Academic Performance in Second Year (15)

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

API = ((Mean of 2nd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (number of successful students/number of students appeared in the examination) Successful students are those who are permitted to proceed to the Third year.

Table 4.4.1 Academic Performance in Second Year

Academic Performance	CAY m1 (2017-18)	CAY m2 (2016-17)	CAY m3 (2015-16)
Mean of CGPA or Mean Percentage of all successful students/10 (X)	6.479	6.245	5.843
Total no. of successful students (Y)	55(42+13)	53(34+19)	52(37+15)
Total no. of students appeared in the examination (Z)	60(46+14)	58(39+19)	57(41+16)
API = X* (Y/Z)	5.93	5.70	5.33
Average API = (AP1 + AP2 + AP3)/3	5.65		

Academic Performance Level = 1.5 * Average API (Academic Performance Index) = 8.48

4.5 Placement, Higher Studies and Entrepreneurship (40)

Assessment Points = 40 x average placement

Table 4.5.1: Placement, higher studies and **e**ntrepreneurship for past three years

Item	Latest Year of Graduation, LYG (CAY m4) 2018 (2014-15)	Latest Year of Graduation minus 1, LYGm1 (CAYm5) 2017 (2013-14)	Latest Year of Graduation minus 2, LYGm2 (CAYm6) 2016 (2012-13)
Total No. of Final Year Students(N)	49	55	51
No. of students placed in companies or Government Sector (x)	35	31	38
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	03	9	4
No. of students turned entrepreneur in engineering/technology (z)	1	1	2
x + y + z =	39	41	44
Placement Index : (x + y + z)/N	0.79	0.74	0.86
Average placement= (P1 + P2 + P3)/3	0.79		

Assessment Points = 40 x average placement = 31.6

4.6. Professional Activities (20)

4.6.1. Professional Societies/Chapters and Organizing Engineering Events (5)

Table 4.6.1.1 List of Professional Societies / Chapters and Organizing Engineering events CAY (2018-19)

Sl. No.	Academic Year	Name of Professional Societies / Chapters	Organized Event & Title	Event Outcome
1			Talk on "Advancement in composite materials"	Students learnt the applications and processing of Advanced composite materials.
2				

3	2018-19	Forum Renaissance	Training program on Industrial robotics	Students learnt the basics of robotic systems using ABB software and also worked on Robot modules./VI sem

Table 4.6.1.2 List of Professional Societies / Chapters and Organizing Engineering events CAY m1(2017-18)

Sl. No.	Academic Year	Name of Professional Societies / Chapters	Organized Event & Title	Event Outcome
1	2017-18	Forum Renaissance	Technical Talk on " SCADA System"	Students learnt about the basics of SCADA systems
2			Technical Talk on "Self Pace Learning Solutions for Engineers"	Students got awareness on how to learn the new technologies.
3			Technical Talk on "Humanoid robot using ANNs"	Students are able to understand ANNs as shown in Fig 4.2.
4			Workshop on 3D Printing	Students are able to use the 3D printer as shown in Fig 4.4.
5			Talk on "Aggression Detection "	Students learnt how to implement AI as shown in Fig 4.1.
6			Two days' workshop on UAV (Drones)	Students are able to understand and design the drone as shown in Fig 4.3.
7			Talk on "Green energy from thorium and bio fuel"	Students got awareness on how to produce energy

				from thorium and bio fuel.
8			Awareness program on donor registration on blood stem cell transplant for saving lives of people disapproval with fatal blood disorder like blood cancer.	Students got Awareness on blood stem cell transplant. III & VII sem/ 70 No's

Fig 4.1 Talk on Aggression detection.

Fig 4.2 Talk on "Humanoid robot using ANNs

Fig 4.3 workshop on UAV (Drones)


Fig 4.4 Workshop on 3D Printing

Table 4.6.1.3 List of Professional Societies / Chapters and Organizing Engineering events CAY m2 (2016-17)

Sl. No.	Academic Year	Name of Professional Societies / Chapters	Organized Event & Title	Event Outcome
1	2016-17	Forum Renaissance	Technical Talk on "Discover the inventor in India"	Students got insight on focus in life and innovations./III,VI,VIII sem
2			Workshop on Physical Computing with Python and Raspberry PI	Students Gain insights on usage of Raspberry pi and python for physical computing and Robotics/III & VI sem as shown in Fig 4.5.
3			Two Days Workshop on Autonomous Robotic systems	Have gained a deeper understanding about working of autonomous robotic system as shown in Fig 4.6.
4			Two days' Workshop on Lab View	Students Gain insight on usage of LabVIEW for physical computing and robotics as shown in Fig 4.8.
5			Three days' workshop on Electronics circuits and Control for Micro and Smart systems design	Students Gain insight on Micro and Smart systems design as shown in Fig 4 7.

6			Technical talk on "Multi sensor Data Fusion"	Students got insight on Multi sensor Data Fusion" IV & VI Sem

Fig 4.5 Workshop on Physical Computing with Python and Raspberry PI

Fig 4.6 workshop on Autonomous Robotic system

Fig 4.7 Workshop Micro and Smart systems design

Fig 4.8 Workshop on Lab View

4.6.2. Publication of Technical Magazines, Newsletters, etc. (5)

Table 4.6.2.1 List of Publication of Technical Magazine, Newsletters in CAY (2018-19)

Sl. No	Year	Name of the Newsletter	Month of Publication
1	2018-19	Sem Acharya	**Twice a year**
2		Times of Mechatron-forum Rennaisance.	**Twice a year**-Odd Sem- Aug and Oct Even Sem- Feb and April Additionally: post departmental events

Table 4.6.2.2 List of Publication of Technical Magazines, Newsletters in CAY m2 (2017-18)

Sl. No	Year	Name of the Newsletter	Month of Publication
1	2017-18	Sem Acharya	**Twice a year**
2		Times of Mechatron-forum Rennaisance.	**Twice a year-** Odd Sem- Aug and Oct Even Sem- Feb and April Additionally: post departmental events

Table 4.6.2.3 List of Publication of Technical Magazines, Newsletters in CAY m2 (2016-17)

Sl. No	Year	Name of the Newsletter	Month of Publication
1	2016-17	Sem Acharya	**Twice a year**
2		Times of Mechatron-forum Rennaisance.	**Twice a year-** Odd Sem- Aug and Oct Even Sem- Feb and April Additionally: post departmental events

4.6.3. Participation in Inter-Institute Events by Students of the Program of Study (10)

Table 4.6.3.1 Participation in inter- institute events by students in CAY (2018-19)

Sl. No	Year	Name of The Student/ USN	Event	Place	Outcome
1		1.Mr. Tanmay Deshmukh 2.Mr. Kishore.R	National Conference	GSSSIETW, Mysuru.	Best paper award as shown in Fig 4.12.
2		1.Mr. Gagan Reddy 2.Mr. Hemanth N	National Conference	GSSSIETW, Mysuru	Best paper award as shown in Fig 4.11.
3		1.Mr. Tanmay Deshmukh	SRISHITI-18, A state level	Bangalore	Won 3rd prize as shown in Fig 4.13.

	2018-19	2.Mr. Kishore.R 3.Mr. Aatif 4.Ms. Yamini	project Exhibition Competition by ABVP-18		
4		Mr. Tanmay Deshmukh Mr. Kishore.R Mr. Aatif Ms. Yamini	IEAE **Student Project award**	Bangalore	IEAE **Student Project Year Award**-2018" **as shown in Fig 4.10.**
5		Mr. Tanmay Deshmukh Mr. Kishore.R Mr. Aatif Ms. Yamini	National Level Inter College Project Exhibition And Competition	Sambhram Institue of technology.	Won 3rd Prize as shown in Fig 4.9.

Fig 4.9 National Level Inter College Project Exhibition and Competition

Fig 4.10 IEAE Student Project Year Award-2018"

Fig 4.11 Best paper award

Fig 4.12 Best paper award

Fig 4.13 Won 3rd Prize in SRISHITI-18

Table 4.6.3.2 Participation in inter- institute events by students in CAY (2017-18)

Sl. No	Year	Name Of The Student/ USN	Event	Place	Outcome
1		Mr. Arjun Datar Mr. Pradeep	SRISHTI 2017 National level technical Project Competition & Exhibition	Bangalore	Best instrumentation engineering project award as shown in Fig 4.14.
2		Mr. Arjun Datar Mr. Pradeep T	Innovation festival Organised by Visveswariah industrial &	Bangalore	1st prize. The project won a cash price of Rs. 3500/- as shown in Fig 4.15(a)

			Technological museum		and (b).
3	2017-18	Mr. Sandeep M	National Level Aero modelling Workshop - TECHNO-FLY 2017	Hindustan College of Engineering and Technology, Chennai.	Best RC Pilot in HAND MADE ELECTRIC MODEL as shown in Fig 4.16.

Fig 4.14 Best instrumentation engineering project award

Fig 4.15(a) 1st prize Innovation festival

Fig 4.15(b) 1st prize in Innovation festival

Fig 4.16 Best RC pilot in hand made electric model.

Table 4.6.3.3 Participation in inter- institute events by students in CAY (2016-17)

Sl. No.	Year	Name of The Student/ USN	Event	Place	Outcome

1	2016-17	Mr. Shah Darshan	Tech Top National Innovation Competiton-2016 organized by	Sahrdaya College of Engineering, Thrissur, Kerala	Won 1st prize as shown in Fig 4.18.
2		Mr. Darshan Shah Mr. Vaibhav Desai	IEEE TECH EXPO	R.N.S.I.T, Bangalore	won second place in the event
3		Mr. Manju Bhargav Mr. Girish BV and team	National Level Bike Design Competition and Auto Expo,	AIT Bangalore	First Prize Rs.1.25 Lakhs cash prize as shown in Fig 4.17.
4		Mr. Tanmay Deshmukh	National conference on recent trends in Engineering & Management - 2016, Held at	Amrutha institute of Technology	Best technical paper award
5		Mr. Darshan Shah Mr. Vaibhav Desai	SRISTHI 2K16 state level project exhibition & competition	Bangalore	Won 4th place as shown in Fig 4.19.
6		Mr. Arjun Datar	National Level Techno-cultural, Management & Sporting Extravaganza	REVAMP	First Prize
7		Mr. Tanmay Deshmukh	National conference on recent trends in Electrical and Electronics-2016	SKIT,Bangalore	Presented
8		Mr. Utsav, Mr. Rito Sruvo Chakraborthy, Mr. Srivatsa Rao, Mr. Vedanth Das	National conference on recent trends in Electrical and Electronics-2016	SKIT, Bangalore	Presented
9		Arjun Dattar	National conference on recent trends in Electrical and	SKIT, Bangalore	Presented

			Electronics-2016		

Fig 4.17 First Prize in National Level Bike Design Competition

Fig 4.18 Won 1st prizeTech Top National Innovation Competition.

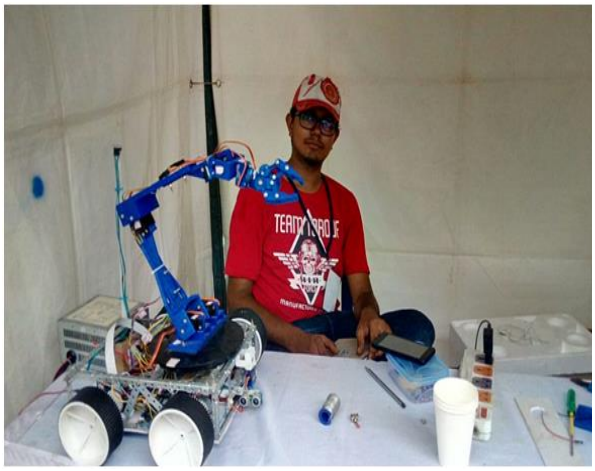


Fig 4.19 Won 4th place in SRISTHI 2K16 state level project exhibition & competition

CRITERION 5 Faculty Information and Contributions (200)

Faculty information and their contributions details are tabulated, and explained under various headings as shown in the table in the next page.

Table B. 5a Faculty Information and contribution 2018-19

Sl. No.	Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date of which Designated as professor/ Associate Professor	Date of Joining the institution	Department	Specialization	Academic Research			Currently Associated (Y/N) Date of Leaving)	Nature of Association (Regular/Contract)
		Degree (starting from highest degree)	University	Year of Attaining Higher Qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during		
1	Dr. Devarajaiah R M	Ph. D	VTU	2015	Full Time	Professor and Head	Designated as Prof. on 01-01-2017 (In the Department of Mechanical Engineering)	21-01-2007 (Transferred to the Department of Mechatronics Engineering as Prof and Head, on 01.08.2018)	MT	Polymer composite Tribology	03	02	--	Y	Regular
2	Mr. Shivakumar Swamy R	M.Tech	VTU	2009	Full Time	Asst. Prof	--	01-08-2016	MT	Electrical Energy Systems	01	--	--	Y	Regular

3	Ms. Bhagirathi V	M. Tech	VTU	2009	Full Time	Asst. Prof	--	15-07-2011	MT	Digital Electronics and Communicatio n	--	--	--	Y	Regular
4	Mr. Ranganath Gowda L	M. Tech	VTU	2010	Full Time	Asst. Prof	--	11-08-2011	MT	Computer Integrating Manufacturing	--	--	--	Y	Regular
5	Mr. Dilip R	M E (Ph. D)	BU	2012	Full Time	Asst. Prof	--	04-07-2012	MT	Control and Instrumentatio n	--	--	--	Y	Regular
6	Mr. KiranKumar Kommu	M.E	BU	2010	Full Time	Asst. Prof	--	23-07-2012	MT	Electronics and Communicatio n	--	--	--	Y	Regular
7	Mr. Chandrashek har L	M.Tech	VTU	2011	Full Time	Asst. Prof	--	23-07-2012	MT	Electronics and Communicatio n Engineering	--	--	--	Y	Regular
8	Mr. Kesari Hanumanthu	M. Tech	VTU	2012	Full Time	Asst. Prof	--	01-08-2016	MT	Power Electronics	--	--	--	Y	Regular
9	Mr. M Hari Babu	M. Tech	JNTU	2012	Full Time	Asst. Prof	--	01-08-2017	MT	Power electronics and Electrical Drives	01	--	--	Y	Regular
10	Mr. Sandeep K	M.Tech	VTU	2013	Full Time	Asst. Prof	--	15-02-2017	MT	Thermal Power Engineering	--	--	--	Y	Regular
11	Ms. Mallika	M.Tech	VTU	2015	Full Time	Asst. Prof	--	16-08-2017	MT	Electronics	--	--	--	Y	Regular
12	Mr. Gopala Reddy	M.Tech	VTU	2017	Full Time	Asst. Prof	--	12-10-2018	MT	Machine Design	03	--	--	Y	Regular
13	Mr. Dayananda L N	M.Tech	VTU	2011	Full Time	Asst. Prof	--	01-08-2018	MT	Micro electronics and Control System	01	--	--	N (31-01-2019)	Regular

Table B.5b: Faculty Information and contribution 2017-18

Sl. No	Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date of which Designated as professor/Associate Professor	Date of Joining the institution	Department	Specialization	Academic Research			Currently Associated (Y/N) Date of Leaving)	Nature of Association (Regular/Contract)
		Degree (starting from highest degree)	University	Year of Attaining Higher Qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during		
1	Dr ARK Swamy	Ph.D	DR.M G R Deemed University	2013	Full Time	Head and Professor	09-07-2010	09-07-2010	MT	Composite materials	--	--	--	Y	Regular
2	Mr. Shivakumar Swamy R	M.Tech	VTU	2009	Full Time	Asst. Prof	--	01-08-2016	MT	Electrical Energy Systems	01	--	--	Y	Regular
3	Mr. .Sridhar S Jetty	M. Tech	VTU	2008	Full Time	Asst. Prof	--	06-08-2012	MT	Product Design& Manufacturing	--	--	--	N (07/04/2018)	Regular
4	Ms. Bhagirathi V	M. Tech	VTU	2009	Full Time	Asst. Prof	--	15-07-2011	MT	Digital Electronics and Communication	12	--	--	Y	Regular
5	Mr. Ranganath Gowda L	M. Tech	VTU	2010	Full Time	Asst. Prof	--	11-08-2011	MT	Computer Integrating Manufacturing	--	--	--	Y	Regular

6	Mr. Dilip R	M E (Ph. D)	BU	2012	Full Time	Asst. Prof	--	04-07-2012	MT	Control and Instrumentation	04	--	--	Y	Regular
7	Mr. KiranKumar Kommu	M.E	BU	2010	Full Time	Asst. Prof	--	23-07-2012	MT	Electronics and Communication	--	--	--	Y	Regular
8	Mr. Chandrashekhar L	M.Tech	VTU	2011	Full Time	Asst. Prof	--	23-07-2012	MT	Electronics and Communication Engineering	--	--	--	Y	Regular
9	Mr. Venkatashiva Reddy	M. Tech	VTU	2014	Full Time	Asst. Prof	--	20-11-2014	MT	CIM	-	-	-	Y	Regular
10	Mr. Jayasimha S L N	M. Tech	VTU	2012	Full Time	Asst. Prof	--	01-02-2016	MT	CIM	-	-	-	N (09-04-2018)	Regular
11	Mr. Kesari Hanumanthu	M. Tech	VTU	2012	Full Time	Asst. Prof	--	01-08-2016	MT	Power Electronics	--	--	--	Y	Regular
12	Mr. M Hari Babu	M. Tech	JNTU	2012	Full Time	Asst. Prof	--	01-08-2017	MT	Power Electronics and Electrical Drives	01	--	--	Y	Regular
13	Mr. Sandeep K	M.Tech	VTU	2013	Full Time	Asst. Prof	--	15-02-2017	MT	Thermal Power Engineering	--	--	--	Y	Regular
14	Ms. Mallika	M.Tech	VTU	2015	Full Time	Asst. Prof	--	16-08-2017	MT	Electronics	--	--	--	Y	Regular

Table B.5c: Faculty Information and contribution 2016-17

Sr. No.	Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date of which Designated as professor/Associate Professor	Date of Joining the institution	Department	Specialization	Academic Research			Currently Associated (Y/N) Date of Leaving)	Nature of Association (Regular/ Contract)
		Degree (starting from highest degree)	University	Year of Attaining Higher Qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during		
1	Dr ARK Swamy	Ph. D	DR.M G R Deemed University	2013	Full Time	Head and Professor	09-07-2010	09-07-2010	MT	Composite materials	01	--	--	Y	Regular
2	Mr. Shivakumar Swamy R	M.Tech	VTU	2009	Full Time	Asst. Prof	--	01-08-2016	MT	Electrical Energy Systems	01	--	--	Y	Regular
3	Mr . Shridhar S Jetty	M. Tech	VTU	2008	Full Time	Asst. Prof	--	06-08-2012	MT	Product Design& Manufacturing	--	--	--	N (07/04/2018)	Regular
4	Ms. Bhagirathi V	M. Tech	VTU	2009	Full Time	Asst. Prof	--	15-07-2011	MT	Digital Electronics and Communication	09	--	--	Y	Regular
5	Mr. Ranganath Gowda L	M. Tech	VTU	2010	Full Time	Asst. Prof	--	11-08-2011	MT	Computer Integrating Manufacturing	01	--	--	Y	Regular

6	Mr. Dilip R	M E (Ph. D)	BU	2012	Full Time	Asst. Prof	--	04-07-2012	MT	Control and Instrumentation	--	--	--	Y	Regular
7	Mr. KiranKumar Kommu	M.E	BU	2010	Full Time	Asst. Prof	--	23-07-2012	MT	Electronics and Communication	--	--	--	Y	Regular
8	Mr. Chandrashekhar L	M. Tech	VTU	2011	Full Time	Asst. Prof	--	23-07-2012	MT	Electronics and Communication Engineering	--	--	--	Y	Regular
9	Ms. Meghana M Sintre	M. Tech	VTU	2012	Full Time	Asst. Prof	--	25-07-2012	MT	VLSI Design & Embedded Systems	--	--	--	Y	Regular
10	Mr. Kesari Hanumanthu	M. Tech	VTU	2012	Full Time	Asst. Prof	--	26-07-2012	MT	Power Electronics	--	--	--	Y	Regular
11	Mr. Venkatashiva Reddy	M. Tech	VTU	2014	Full Time	Asst. Prof	--	20-11-2014	MT	CIM	-	-	-	Y	Regular
12	Mr. Jayasimha S L N	M. Tech	VTU	2012	Full Time	Asst. Prof	--	1-2-2016	MT	CIM	-	-	-	Y	Regular

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

No. of UG Programs in the Department (n): 01

No. of PG Programs in the Department: 00

Table 5.1.1 Student Faculty Ratio (SFR)

Year	2018-19	2017-18	2016-17
u1.1 – 2nd year	60+15	60+14	60+19
u1.2 – 3rd year	60+13	60+19	60+13
u1.3 – 4th year	60+18	60+13	60+11
UG1 = u1.1+u1.2+u1.3	180+46	180+46	180+43
Total No. of Students in the Department(S)	226	226	223
No. of Faculty in the Department(F)	12	12	12
Student Faculty Ratio(SFR)	18.83	18.83	18.58
Average SFR	**18.75**		

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

Year	Total number of regular faculty in the department	Total number of contractual faculty in the department
2018-2019	12	Nil
2017-2018	12	Nil
2016-2017	12	Nil

5.2. Faculty Cadre Proportion (25)

Table B.5.2 Cadre ratio details

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F1	Available	Required F1	Available
2018-2019	1	1	2	0	6	11
2017-2018	1	1	2	0	6	11
2016-2017	1	1	2	0	6	11
Average Numbers	RF1=1	AF1=1	RF2=2	AF2=0	RF3=6	AF3=11

Cadre Ratio Marks = [(AF1/RF1) + (AF2/RF2) *0.6 + (AF3/RF3) * 0.4] *12.5

= [(1/1)+0/2*0.6+11/9*0.4]*12.5= 21.6

Cadre Ratio Marks = 21.6

5.3. Faculty Qualification (25)

FQ =2.5 x [(10X +4Y)/F)] where x is no. of regular faculty with Ph.D., Y is no. of regular faculty with M.Tech. F is no. of regular faculty required to comply 20:1 Faculty Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1)

Table B.5.3

Years	X	Y	F	FQ=2.5 x [(10X +4Y)/F)]
2018-19	1	11	12	11.25
2017-18	1	11	12	11.25
2016-17	1	11	12	11.25
Average Assessment				**11.25**

5.4. Faculty Retention (25)

Table 5.4 Faculty retained during the period of assessment keeping CAYm3 as base year.

No. of regular faculty members in	2016-17	2017-18	2018-19
	100%	88.89%	55.56%
AVG Faculty Retention Percentage	81.48 %		

Percentage of faculty retained during the period of assessment keeping CAYm3 as base year is 81.48 >=75% of required Faculty members retained during the period of assessment (keepingCAYm3 as base year). **Therefore, a mark is 20.**

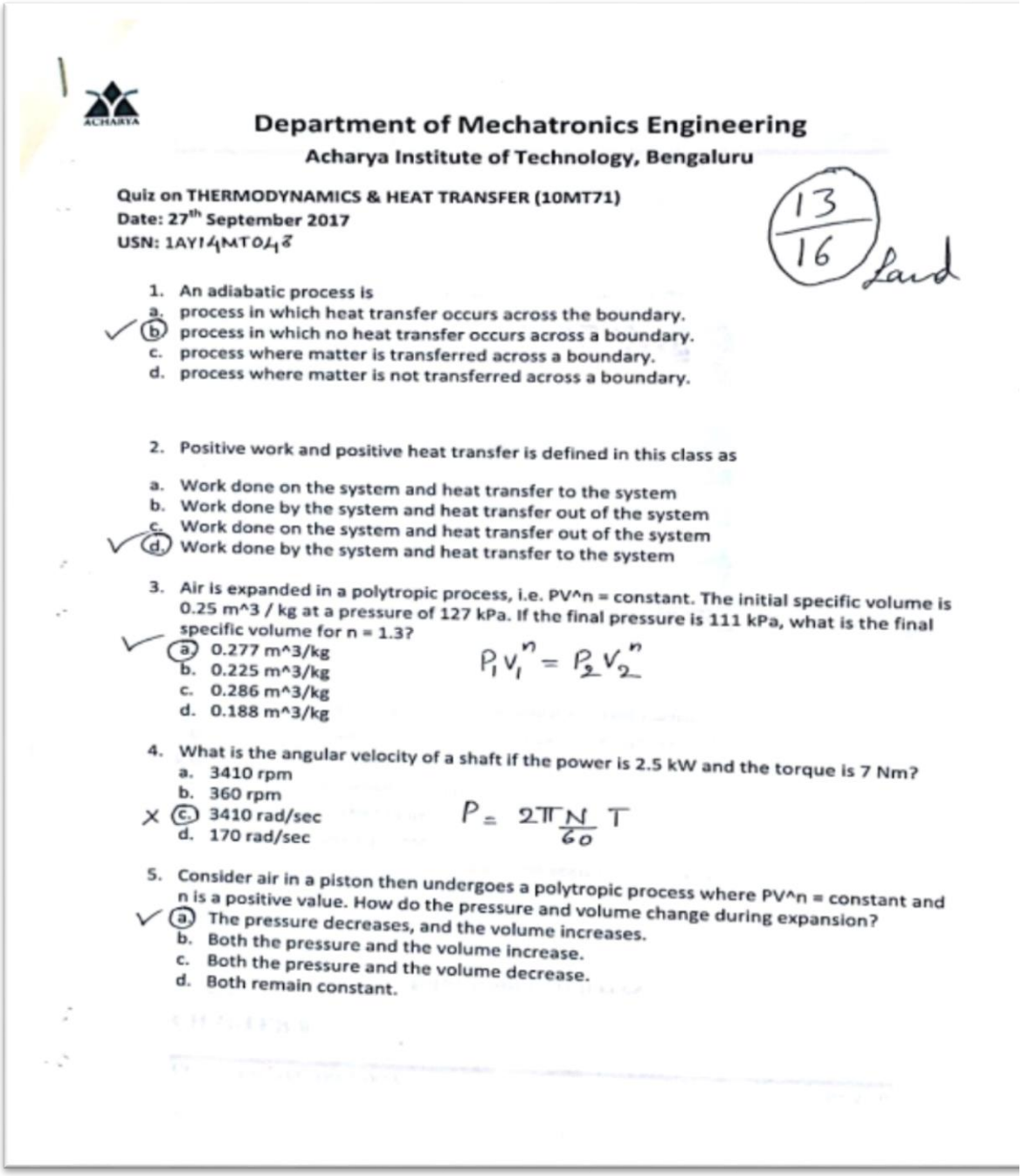
5.5. Innovations by the Faculty in Teaching and Learning (20)

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

- Quiz is conducted to assess students' knowledge of thermodynamics
- Students learnt the topics by developing models in the subjects - Theory of Machines, Fluid Mechanics and Machines, and network.
- Faculties made use of physical models at the time of teaching.
- Other innovative methods adopted are open book assignment and group discussion.
- Real world examples are taken up while teaching.

1) Written Quiz

Quiz test on basics of thermodynamics (7^{th} Semester) was conducted on 24th September 2018. This activity helped students to improve application of laws of thermodynamics, energy transfer, modes of heat transfer, analysis of temperature gradient and heat flow. This also helped us to explore their technical knowledge of the subject. A sample quiz paper is shown in Figure 5.5.1.



Department of Mechatronics Engineering

Acharya Institute of Technology, Bengaluru

Quiz on THERMODYNAMICS & HEAT TRANSFER (10MT71)
Date: 27th September 2017
USN: 1AY14MT041

13/16 Good

1. An adiabatic process is
   a. process in which heat transfer occurs across the boundary.
   ✓ b. process in which no heat transfer occurs across a boundary.
   c. process where matter is transferred across a boundary.
   d. process where matter is not transferred across a boundary.

2. Positive work and positive heat transfer is defined in this class as
   a. Work done on the system and heat transfer to the system
   b. Work done by the system and heat transfer out of the system
   c. Work done on the system and heat transfer out of the system
   ✓ d. Work done by the system and heat transfer to the system

3. Air is expanded in a polytropic process, i.e. PV^n = constant. The initial specific volume is 0.25 m^3 / kg at a pressure of 127 kPa. If the final pressure is 111 kPa, what is the final specific volume for n = 1.3?
   ✓ a. 0.277 m^3/kg
   b. 0.225 m^3/kg
   c. 0.286 m^3/kg
   d. 0.188 m^3/kg

   $P_1 V_1^n = P_2 V_2^n$

4. What is the angular velocity of a shaft if the power is 2.5 kW and the torque is 7 Nm?
   a. 3410 rpm
   b. 360 rpm
   X c. 3410 rad/sec
   d. 170 rad/sec

   $P = \frac{2\pi N}{60} T$

5. Consider air in a piston then undergoes a polytropic process where PV^n = constant and n is a positive value. How do the pressure and volume change during expansion?
   ✓ a. The pressure decreases, and the volume increases.
   b. Both the pressure and the volume increase.
   c. Both the pressure and the volume decrease.
   d. Both remain constant.

Figure 5.5.1 Quiz question paper sample

2) Model Based Learning

Students learnt the concepts by developing models related to fluid mechanics and machines subject. Fluid Mechanics and Machines subject models works on theory of immiscible fluids of 5 different fluid layers and concepts of fluid statics hydraulic arm and bridge. Figure 5.5.2 depicts Hydraulic Bridge developed by a team of students. Mr. Sandeep K faculty of MTE Department initiated the activity for 4th semester students (Academic year 2017-18).

Fig: 5.5.2 Model based learning.

3) Model Based Teaching

Model based teaching was conducted for the subject kinematics of Machine by Dr. ARK Swamy. The activity was demonstration of kinematic links and mechanisms. Professor explaining the kinematics links and mechanisms can be seen in the Figure 5.5.3. This helped students the understanding of concepts in better way.

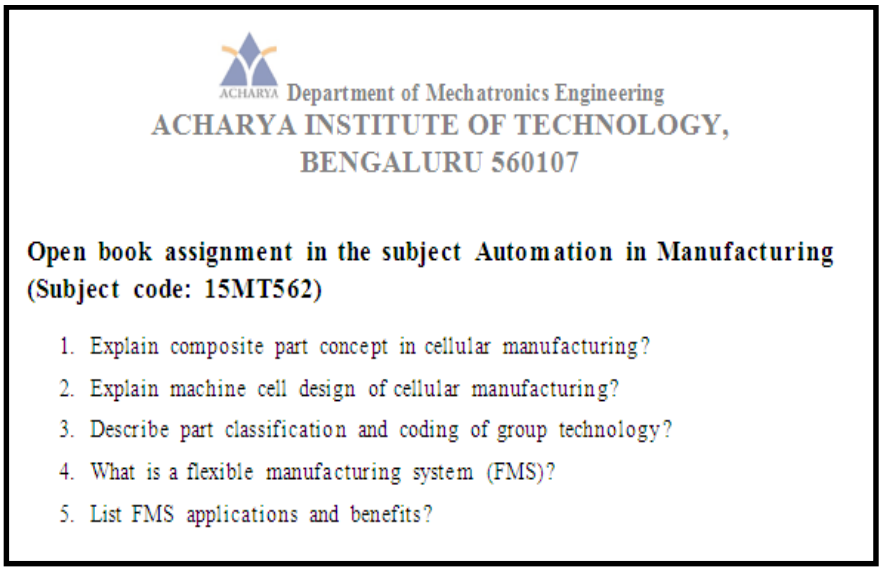
Fig: 5.5.3 Model based teaching

4) Open Book Assignment

Student did assignment (Fig. 5.5.4) by searching the data from the available resources such as books, articles, websites, etc. This helps them to get different explanation and point of view for the same questions and enhance their note preparation skills. This technique is implemented on 31/10/2018 by Mr. Sandeep K

and the assignment questions are shown in the Fig 5.5.5.

Figure: 5.5.4 Students writing assignment of Automation in manufacturing subject.



Department of Mechatronics Engineering
ACHARYA INSTITUTE OF TECHNOLOGY,
BENGALURU 560107

Open book assignment in the subject Automation in Manufacturing (Subject code: 15MT562)

1. Explain composite part concept in cellular manufacturing?
2. Explain machine cell design of cellular manufacturing?
3. Describe part classification and coding of group technology?
4. What is a flexible manufacturing system (FMS)?
5. List FMS applications and benefits?

Figure 5.5.5: Questions given as open book assignment.

5) Group Discussion

Group discussion was conducted for 5thsem students on the topics "Industrial revolution and production planning" in the month of August 2018. Figure 5.5.6 shows the group discussion held in the classroom by faculty Ms. Bhagirathi V.

Figure: 5.5.6 Students in Group discussion

6) Faculty took up real world examples while teaching.

This technique adapted by our faculty helped students to correlate their understanding with actual practice.

Subject: Mechanics of Materials, 3rd Semester

Topic: hear force and Bending Moment Diagrams

Faculty: Dr. Devarajaiah R.M.

The following interesting story was taken as a case study to solve a problem which enhances the clarity of understanding of the students.

Story:

The Moghul emperor Akbar, once asked Birbal to identify four biggest fools in his kingdom. Birbal sets out on a journey and finds four fools. The biggest fool, according to Birbal, was travelling on a horse and carrying a bundle of grass on his head. Upon enquiry, the person responds that his poor horse is already carrying his weight and he doesn't want to further burden with the grass bundle, and hence he is carrying it. Sounds funny but forms an interesting case study.

Two cases were simulated using the above story, (a) person carrying the grass bundle on his head as shown in figure 5.5.7 and (b) the grass bundle is kept on the horse back as shown in figure 5.5.8.

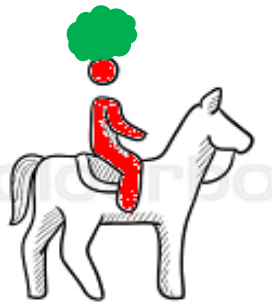


Figure 5.5.7 The person carrying grass bundle on his head

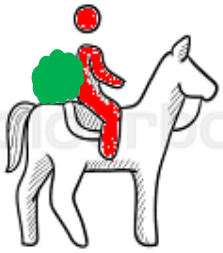


Figure 5.5.8 The grass bundle is kept on the horse-back

The above two scenarios are simulated by taking the weight of the person as 600 N and that of the grass bundle as 50 N. The horse back was simulated as a beam and its limbs as supports as shown in figures 3 and 4 respectively.

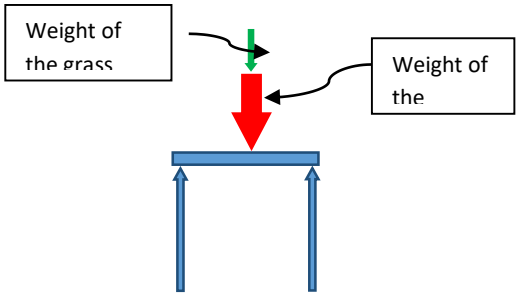


Figure 5.5.9 Simulation of scenario depicted in figure 5.5.7

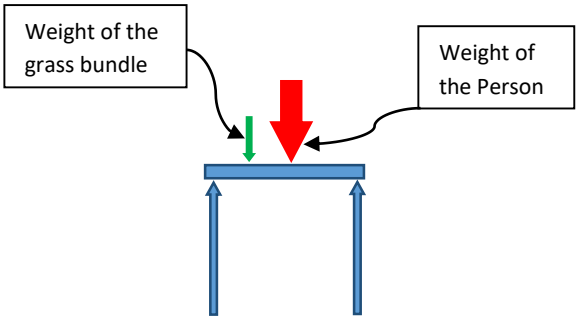


Figure 5.5.10 Simulation of scenario depicted in figure 5.5.8

The above two models were solved using NASTRAN software to identify maximum deflection of the horse-back in both the scenarios, and the results of the analysis is shown below.

Maximum deflection = 23 mm

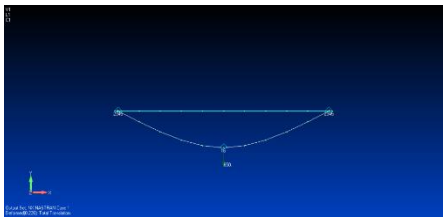


Figure 5.5.11 Deflection analysis of scenario depicted in figure 5.5.7

Maximum deflection = 19 mm

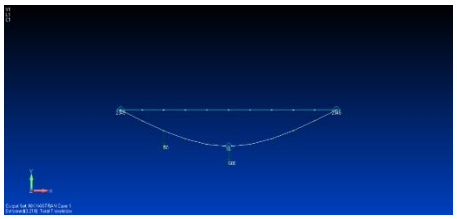


Figure 5.5.12 Deflection analysis of scenario depicted in figure 5.5.8

Similarly, bending moment is calculated in either scenarios and the result is shown below.

Maximum Bending Moment = 325 Nm

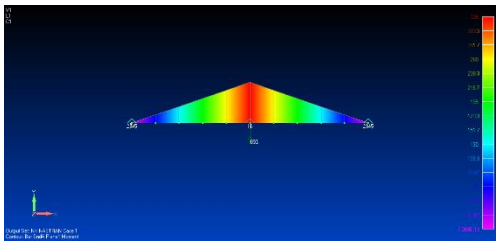


Figure 5.5.13 Bending moment analysis of scenario depicted in figure 5.5.7

Maximum Bending Moment = 314 Nm

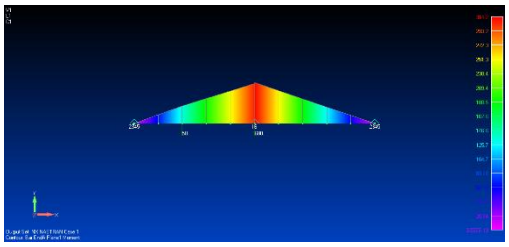


Figure 5.5.14 Bending moment analysis of scenario depicted in figure 5.5.7

The above analysis clearly explains that carrying grass bundle on the horse-back is beneficial as both the maximum deflection as well as the bending moment is smaller for scenario 2.

Inference: Concentration of Loads at same point is always dangerous as in scenario 1, whereas, shifting the grass bundle on horse-back results in more uniform distribution of load resulting in the safety of the beam.

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

The FDP/training activities/STTPs attended by the faculties of the department for three academic years are considered and weights of points are shown in Table 5.6.1. A Faculty scores maximum five points for participation. Participation for the duration of 2 to 5 days faculty development program carries 3 Points. Participation>5 days Faculty development program carries 5 points.

Table 5.6.1 Faculty scores for their participation in FDP/training activities/STTPs.

Name of the Faculty	Max. 5 per Faculty			
	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-2017)	CAYm3 (2015-16)
Dr. ARK Swamy	-	-	3	3
Dr. Devarajaiah R.M.		-	-	-
Prof. Bhagirathi V	3		3	5
Prof. Ranganath Gowda L	3	-	3	-
Prof. Dilip R	3	3	3	3
Prof. Chandrashekhar L	3	3	3	3
Prof. KiranKumar Kommu	3	3	3	-
Prof. Sandeep K	3	5	-	-
Prof. Mallika	3			
Prof. Gopala Reddy	-	-	-	-
Prof. Shivakumar Swamy	3	3	3	-
Prof. Kesari Hanumanthu	3			
Prof. M.Hari Babu	3	3	-	-
Prof. Dayanand	3	5	-	-
Prof. Jayasimha S L N	-	-	3	-
Prof. Sridhar S Jetty	-	-	-	-
Prof. Venkatashiva Reddy	-	5	3	-

Prof. Meghana M Sinthre	-	-	-	5
Sum	**33**	**30**	**27**	**19**
RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1	12	12	12	12
Assessment = 3 × (Sum/0.5RF) (Marks limited to 15)	16.5	15	13.5	9.5
Average assessment over three years (Marks limited to 15) = 15				

5.7. Research and Development (30)

5.7.1 Academic research (10)

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

Table B.5.7.1a: Academic Research details

Year	International Journal	National Journal	International conference	National conference	Number of Publication
2017-2018	6	-	-	-	06
2016-2017	3	1	-	-	04
2015-2016	2	-	-	-	02

Table B.5.7.1b Publications in the Academic Year 2017-18

Sl. No	Name of the author	Title/topic	Name of the journal	International / national journal	Year of publication
1	Bhagirathi V	Aggression Detection in Alzheimer's and Dementia Patients	IJSRCSEIT	International	2018 Volume 4, Issue 6, May-June 2018.ISSN: 2456-3307,pages 446-450

2	Bhagirathi V	Design of A Miniature Humanoid and Perception of Objects In Space-An Effective Method of Object Localization	IJSRCSEIT	International	Volume 4, Issue 6, May-June 2018.ISSN: 2456-3307,pages 451-455
3	Bhagirathi V	Emulation Of Associative Learning in a Humanoid Robot using Artificial Neural Networks	IJSRCSEIT	International	Volume 4, Issue 6, May-June 2018. ISSN: 2456-3307,pages: 452-462
4	Bhagirathi V	Design And Implementation Of Auto Stabilizing Bike	AIJR	International	April 28, 2018, ISBN: 978-81-936820-0-5.
5	Bhagirathi V	Android Application For Product Enquiry And Navigation	AIJR	International	April 28, 2018, ISBN: 978-81-936820-0-5.
6	Shivakumara Swamy R	Test and Comparison of Vegetable Oil Impregnated Polypropylene Film A C Capacitors	Jour of Adv Research in Dynamical & Control Systems	International	Scopus index, 15-Special Issue, 2017, pp-860-869. IF: 3.12

Table B.5.7.1c Publications in the Academic Year 2016-17

Sl. No.	Name of the Author	Title/Topic	Name of the Journal	International / National Journal with Impact factor	Publication Details
1	Dr. ARK Swamy	Tribological Behavior of Wc-Gr Reinforced Hybrid Composites	International Journal Of Advanced Technology in Engineering and Science (IJATES)	International	Jan - 2017, ISSN 2348-7550
2	Dr. Devarajaiah R M	Optimization of testing methods on two-body abrasive wear behaviour of Nano-MMT filled carbon epoxy composites based on the Taguchi Method in International Journal of Nanotechnology.	Inderscience Publications	International	Vol 14, No's 9/10/11 (2017), pp 915-929.
3	Dr. Devarajaiah R M	Role of Oregano-modified Montmorillonite on wet sand abrasion of carbon fabric reinforced epoxy composites.	Indian Journal of Engineering & Material Sciences,	National	Vol 23, Dec 2016, pp 411-417
4	Mr. Dayananda L N	A study on undesirable impacts of implementing frequency support controllers in PMSG and DFIG	International journal for science and advance research in technology	International	Volume 3,Issue 7 in July 2017 ISSN [ONLINE] : 2395-1052

Table B.5.7.1d Publications in the Academic Year 2015-16

Sl. No	Name of the Author	Title/Topic	Name of the Journal	International / National Journal with Impact factor	Publication Details
1	Dr. Devarajaiah R M	Dynamic analysis of vibration isolation system for satellite transportation	International Conference on Applied Science Engineering and Technology (ICASET-1)	International	June, 2016.
2	Mr. Shivakumara Swamy R,	Study on self healing Metalized polypropylene Film Capacitor and its Uncoupling behavior of current gates	IJPSPE (International Journal of Power Systems and Power Electronics)	International	Vol. 6 No. 1 April. 2016 IF: 1.2

Table B5.7.1e Faculty academic research details.

Sl. No.	Faculty Name	Scopus/Web of Science/ Google scholar index/ UGC/IEEE	H-index	i10-index	No of Citations
1	Dr. Devarajaiah R M	4	2	2	68
2	Prof. Bhagirathi V	6	-	-	-
3	Prof. Dilip	4	-	-	-
4	Prof. Gopala Reddy	3	-	-	-
5	Prof. Shivakumar Swamy	2	-	-	-
6	Prof. Dayanand L N	1	-	-	-

Table B5.7.1f No. of students Registered

Name of the guide	Name of research scholar	Area of research	Year of registration	Status
Dr. Devarajaiah R M	Vijay Kumar Pujar	Composite Tribology	2017	Course Work Done
	Naveen Kumar T	Functionally graded Materials	2018	Registered

Table B5.7.1g Number of Faculties pursuing PhD.

Name of research scholar	Area of research	Year of registration	status
Prof. Bhagirathi Bai V	Industrial Automation	2013	Comprehensive viva completed
Prof. Dilip	Signal Processing control system	2013	Comprehensive viva completed
Prof..Gopala Reddy	Vehicle Dynamics	2018	Registered
Prof. Ranaganath	Composite materials	2013	waiting for Comprehensive viva
Prof. Shivakumar Swamy R	High voltage capacitor	2012	Thesis Submitted
Prof. Hari Babu	Renewable Energy	2017	Course work Completed

5.7.2. Sponsored Research (5)

---NIL----

5.7.3. Development activities (10)

5.7.3.1 Product Development

Final year students developed products to fulfill the various requirements of industry and society. Under the guidance of department staff, they did their academic projects are listed below.

1. Associative learning in a humanoid robot through ANN
2. 3D-Printer (Additive Manufacturing Using Rapid Prototyping Technology).
3. iMERSI (Intelligent mine exploration recovery and securing instruments).
4. Identification of disease on coconut tree and spraying of pesticides by UAV.

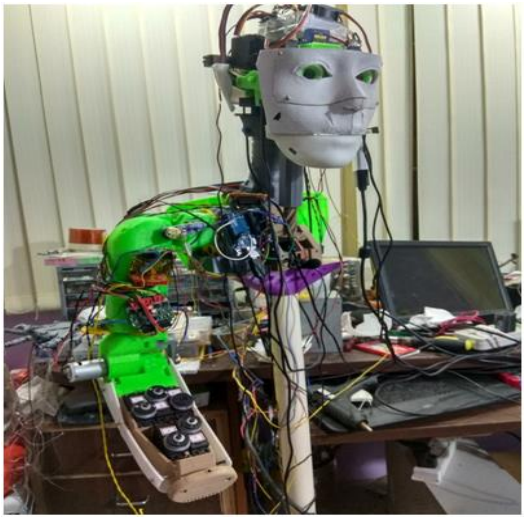


Figure 5.7.3.1.1 Development and Implementation of Associative Learning in a Humanoid Robot.

1. **Associative learning in a humanoid bot through ANN:** This project is executed by a team of students Tanmay N. Deshmukh, Kishore R, Aatif Junaid S and Yamini Agarwal under the guidance of Prof. Bhagirathi V. Figure 5.7.3.1 depicts the product developed out of the project. The important objectives of the projects were to develop a robotic

platform allowing the implementation of the concept of associative learning. Modelling robot tools of interaction around the human hand and eye. Gather spatial information about the platform's environment and interpret it accordingly to simulate human vision.

Outcome: Students Won

- Best Project award in National level project competition a Sambhram Institute of technology.
- Best project of the year from IEAE
- Best Technical Paper award
- Sristi-2018 Award
- Best project at Technotsava- inter department project competition.

2. **3D printing**: Students have designed and developed 3D printer Machine which is an expanding technology that can bloom to excellence in very near future. The use of fewer raw materials, saving a lot of time, low need of manpower, low need of tools etc. lead to the most advantageous manufacturing techniques in multiple industries.

The prototype developed and implemented. Figure 5.7.3.2 A & B shows the developed product with and without outer casing.

A sample of model 3D printed is as shown in Figure 5.7.3.3

Outcomes: Project won

- **Best Technical Paper Award**
- Best project at Technotsava- inter department project competition.
- **RUSI Award.**
- **Students have become Entrepreneur after developing this product**

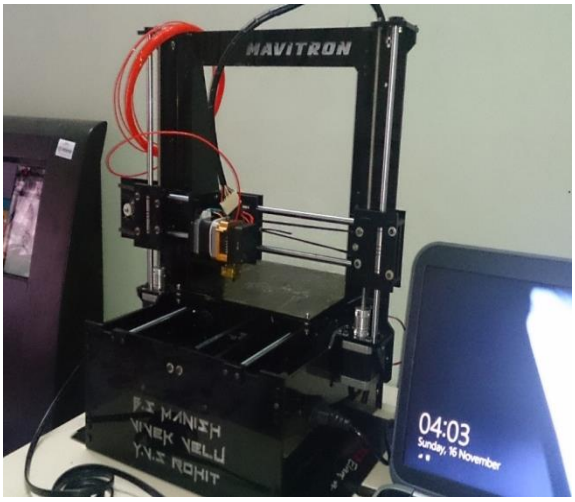


Fig 5.7.3.1.2 a 3D printer with outer casing **b) 3D printer with no outer casing,**

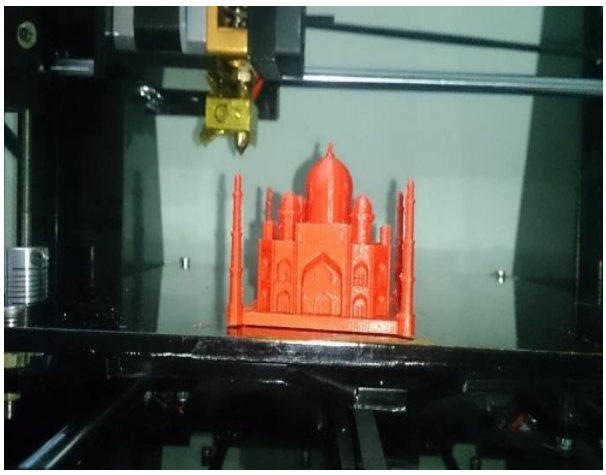


Fig 5.7.3.1.3: Printing a product using 3D printer.

3. iMERSI (Intelligent mine exploration recovery and securing instruments).

Students have developed Intelligent mine exploration recovery and securing instruments used landmines. The objective is two parts:

1. The detection and mapping of the land mines.

2. Recovery and securing of the land mines.

MERSI is specialized equipment that will help soldiers recover mines without getting too close to them themselves. MERSI will be able to detect possible mine locations and then send a prodding tool into the ground to propel out the mine from the ground. Then an arm placed on the rover will pick up the mine and place it on the Rover where it can be disarmed safely.

Outcome: Students won

- **Best project Awarded by KSCST**
- **Project was funded by KSCST**
- **Best project at Technotsava- inter department Project competition.**

4. Identification of Disease on Coconut Tree and Spraying Of Pesticides by UAV.

Unmanned Aerial vehicle was designed and developed by students to carry the Pesticides on coconut trees and spray it on the infected trees (Figure 5.7.3.4). This was successful in identifying and reducing the infection of coconut trees at less cost.

Project was used in our NSS activity at Hosahalli.

Fig 5.7.3.1.4 UAV used to spray the pesticides on infected coconut tree at Hosahalli, Tumkur.

Outcome: Students won

- **SRISTI -2017 Award**
- **Best Paper award**
- **Revamp Award- National Level Techno cultural competition**
- **First prize at innovation festival organized by Visheshwaraiha Technological museum.**

5.7.3.3. Instructional materials:

The instructional materials used in class room and laboratories are

-laboratory Manuals, Data Sheets, PowerPoint Presentation, Subject notes.

5.7.3.4. Working models/charts/monograms etc.

Charts displayed in all Laboratories. The department has models created by students. This prototype models help the students to understand the working concepts in Practical.

5.7.4. Consultancy (from Industry) (5)

---NIL----

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

Performance Appraisal of Faculty and Support Staff

Faculty and staff appraisal systems in AIT have been operational in various forms over the past few years. With the introduction of ERP systems and to facilitate on-line entries by students and to inculcate efficacy in appraisals by peers and management levels, the formats are made more user friendly. The written and subjective parts have been modified to facilitate quantifying quality.

The Performance Based Appraisal System is modelled on recommendations made by MHRD, Pay Commission Report and the Guidelines issued by UGC. These have been enunciated clearly with appraisals based on performance.

Annual Staff and faculty performance appraisal systems have been introduced. The system consists of: 1) Self-appraisal 2) TLP 3) head of department / Section 4) Appraisal by the principal5) Appraisal by students. Weight ages given to the faculty appraisals are:

Self-appraisal	:	40%
IQAC assessment of TLP	:	20%
Evaluation by HOD	:	10%
Evaluation by Principal	:	10%
Appraisal by students	:	20%

Source Data for Appraisal

while student's appraisals are on-line, are supervised by a group of mentor to avoid bias or fear, the peer team- HOD, principal-management and even the annual confidential report shall use the data for the year of appraisal available with each Institution or department in the faculty. IQAC documents are submitted by the faculty are

1) Personal Folder,

2) Mentor Folder

3) Performance Folder and

4)Course file.

These documents are with the respective heads of departments under quality implementation system

System of Awards and Accountability

The appraisal system is the basis for the increments promotions and appreciation of service. The accountability is appraised yearly based upon participation in academic curricular and extracurricular activities. The performance below the targets is counseled by the head of the department and / or the principal.

The student feedback is communicated to faculty by the head of the department. In the PBAS format, after the self-appraisal, the head of the department, the principal, audit of the IQAC for TLP practices and student feedback are assessed cumulatively on a scale of 100. Provision is also made for any grievance in the PBAS process and ratification is done by an independent committee of senior faculty. This score is communicated to the faculty and filled in the personal files. Any faculty getting less than 65/100 is counseled and advised with hand folding for

subsequent improvement.

Welfare schemes for teaching and non-teaching employees

Facilities provided to teaching and non-teaching staff are:

1) Free lunch for class 4 employees
2) Health center in the campus and periodical medical check-up facilities for staff.
3) Grant of Rs 5000/- for marriage for the administrative staff, maintenance, housekeeping staff and drivers of Acharya transport vehicle / freight.
4) Interest free advances during emergency on discretion basis.
5) Free admission for first child of employees and 50% concession on fees for the second child.
6) In the event of death of an employee, while in service his/her dependent will be considered for Employment on compassionate grounds, depending upon the merit of the case, limited to cadre Junior Assistant, subject to eligibility of the individual concerned and availability of vacant posts.
7) All the employees are covered under employee's provident fund scheme as per the act. The employees and management contribute 12% of the pay of such employees towards the fund.
8) Group Insurance: with collaboration of AIT and Tata AIG general insurance company Ltd., with coordination from Axis bank, students, first parent of students and staff members come under the purview of group Insurance provided by Tata AIG general insurance company ltd.
9) Employs State Insurance facility is extended to all non-teaching and technical staff.
10) Financial Benefits(Sponsor) up to Rs. 10,000/- is provided for every faculty every year towards the publication of research papers, articles, attending conference, workshops and faculty development program.
11) Leave facilities: Leave facilities like vacation leave, earned leave, maternity leave and medical leave in addition to casual leave and restricted holidays are availed by the employees.

a) **Vacation leave** for those faculty who have completed one year of service and are vacation staff can avail 18days of vacation per year generally split into 9 days each after every semester.

b) **Marriage leave** can be available for a duration of 10days.

c) **Earned leave** for non-vacation staff is permissible for 18 days per year.

d) **Maternity leave** for 6 months can be availed by the lady staff with full pay only once during the entire service period for first child only and who have completed at least 2 years of service in the institution

e) **Paternity leave** of 5 days is provided with full pay only once during the entire service period after completion of one year.

f) **Extension to vacation leave:** 12 days for pursuing PhD Programmes.

i) **Sabbatical leave** for period up to 30 days in a year is permitted for the sponsored research and projects.

To enhance the professional development of teaching and nonteaching staff, the institution has initiated the following efforts:

1) Faculty members are encouraged and allowed to improve their qualifications and knowledge up graduations by permitting them to join for courses, PhDs. Official leave is also granted.
2) Encourage the faculty to participate in workshops and present papers in conferences and seminars.
3) Faculty development programs and skills enhancement programs are organized regularly on campus. Also faculty is deputed to participate in refresher courses, FDPs summer/winter training programs etc.
4) Faculty internships in industries has helped to a great extent to gain practical experience to face the challenges and changing needs of learning and industries.
5) The faculty are also encouraged to deliver to various groups and engage themselves in extension programs
6) In house skill development programs are organized at regular intervals to upgrade the skills of non-teaching staff.
7) For administrative skill development of staff, the Institute organizes corporate training programs
8) For personality development, teaching skill development and social and technical up gradation, the Institute organizes training program.

9) The institute deputes the faculty for training programs organized by other organizations.
10) The institute invites resources persons such as industrialists, researchers and academicians of reports for interactions with the staff.
11) Conducting orientation program about the policies and procedures prevailing in the institution
12) The institute encourages the senior faculty to motivate the junior faculty in following ways:
    a) Giving essential inputs, providing personal training on lecture/ laboratory work delivery/seminar-project guiding, counseling on career advancement.
    b) Involving them in discussions syllabus.
    c) Creating an open atmosphere for personal growth and to clarify the doubts, concepts and difficulties.

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

-------NIL-----

CRITERION 6 — Facilities and Technical Support (80)

6.1. Adequate and Well Equipped Laboratories and Technical Manpower (30)

Table B.6.1 Laboratories & Technical Manpower Details

Sl. No.	Name of the Laboratory	Name of the important equipment	No. of students per setup (Batch Size)	Weekly utilization of the lab	Technical Man Power Support		
					Name of the technical staff	Designation	Qualification
1	Robotics Lab	ABB Robot Irb1410 Elgi Make Air Compressor 3plg02/160ltr RW 5 Boot Package Robot Simulation Software Robo Studio Software M.S Robot Stand Bottom Plate	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	BE
2	MEMS Lab	BEL Pressure Sensor Kit MEMS based college kit ANSYS Software	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	BE
3	Virtual Instrumentation Lab	NI Academic site license- Lab view teaching only (small). Cdaq-9174, Compact DAQ chassis (4 slots USB). NI Std Service Program for Hardware for PN:784336-01	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	BE
4	PLC &SCADA	PLC & SCADA Software	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	B.E

5	Analog and Digital Electronics lab	Digital trainer kit CRO Function generator 1MHz	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	B.E
		Digital Multi meter. Linear IC trainer kits Decade resistance box					
6	Power Electronics Lab	Static Characteristics of SCR IGBT MOSFET TRIAC Generation of Firing Signal for Thyristor / Triac using up Single Phase Full Wave rectifier with R/RL Load DC Chopper SCR Turn of circuit using LC Ckt Auxiliary commutation Speed Control of DC motor Speed Control of Universal motor & Single phase induction motor Universal motor SCR Turn on ckt using UJT Relaxation Oscillator Synchronized UJT Firing ckt for HWR & FWR ckt Controlled HWR & FWR using RC Triggering AC Voltage controller using Triac and Diac Combination Speed control of Stepper Motor	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	B.E
		Vernier caliper					

7	M&M lab	Slip Gauges Screw Pitch Gauge Floating Carriage Micrometer		3 Batches		Instructor	Dip in
		Profile Projector Sine Centre Thermo Couple Liner Variable Differential transformer Lathe tool Dynamometer Modulus of Elasticity Apparatus Load Cell, Autocollimator	20	per week	Jay Shankar R		Mechanical
8	FM Lab	LCR Meter	20	3 Batches per week	Siddeshwara D	Instructor	Dip in Mechanical
9	CAMD	RPS 0-300 Volts Solid Edge software	20	3 Batches per week	Harish T Nayak	Instructor	B E in CS
10	MT Lab	Universal testing machine Torsion testing machine Impact testing machine hardness testing machine (BHN and RHN)	20	3 Batches per week	Narayana	Instructor	Dip in Mechanical
11	Machine shop and Material testing	Lathe machine Shaping and milling machine.	20	3 Batches per week	1.Manjunatha D R 2.Paul D	1.Instructor 2.Asst. Instructor	1.Dip in Mechanical 2.ITI
12	Micro controller Lab	Micro controller kits DAC interface, Temperature Sensor Stepper motor, interfacing card DC motor with Driver LCD with driver	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	B.E
		MAT Lab software					

13	DSP lab	DSP kits	20	3 Batches per week	Mrs. Vijayalakshmi Urs	Instructor	B.E

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

Table B.6.2: Additional Facilities

Sl. No	Facility Name	Details	Reason for creating facility	Utilization	Areas in which students are expected to have enhanced learning.	Relevance to POS/PSO
1	ANSYS software e	ANSYS•18	To Analyze nodal unknown parameters like stress, strain, displacements and temperature gradient of structural element.	Vibration analysis	Vibration analysis and memes	PO1, PO2, PO3, PO 4, PO5, PSO2, PSO3
2	Robots	ABB	To Enhance skills in industrial Environments main in Manufacturing and Automation.	Manufacturing and Automation.	Manufacturing and Automation.	PO1,PO2,PO3,PO 4,PO5,PO6,PSO1, PSO2,PSO3
3	Pressure sensor	BEL 2No's	To calibrate the sensor	Manufacturing and Automation.	Study the output of sensor under pressure loading condition	PO1,PO2,PO3,PO 4,PSO1,PSO3
4	RIO	NI	To Enhance skills in industrial Environments mainly in Real time monitoring	Robots , Data Acquisition, Image Processing , signal Processing	Robots, Data Acquisition, Image Processing , signal Processing	PO1,PO2,PO3,PO 4,PSO2,PSO3
5	Lab VIEW Software	NI	To Enhance skills in industrial Environments mainly in Real time monitoring	Robots , Data Acquisition, Image Processing , signal Processing	Robots , Data Acquisition, Image Processing , signal Processing	PO1, PO2, PO3, PO 4, PO5, PSO2,PSO3

6	PLC	Allen Bradely-1	To Enhance skills in industrial Environments main in Manufacturing and Automation.	To build automation Processing for various Industrial Application	Manufacturing and Automation.	PO1, PO2, PO3, PO 4, PO5, PSO2, PSO3
7	SCADA software(PO is not there)	Allen Bradely-1	To Enhance skills in industrial Environments main in Manufacturing and Automation.	To build automation Processing for various Industrial Application	Manufacturing and Automation.	PO1, PO2, PO3, PO 4, PO5, PSO2, PSO3
8	Microcontroller Kits	Scientific	To demonstrate and learn the interfacing of the external devices with microcontroller to run an application.	To build real time application.	Develop an embedded application.	PO1, PO2, PO3, PO4, PO5, PSO2, PSO3
9	Lathe Machine	Hitch 30 No	To Demonstrate machining operations like thread cutting, facing, taper turning, step turning etc.	Machining operations	Production and Manufacturing	PO1,PO2,PO3,PO 4,PSO1,PSO3
10	Universal Testing machine	1 No	To demonstrate experiments to determine the mechanical properties of engineering materials like young's modulus, compressive strengths, yielding and fracture strength.	To test engineering materials	To test engineering materials for mechanical properties.	PO1,PO2,PO3,PO 4,PSO1,PSO3

11	Torsion Testing machine	1 No	To find out modulus of rigidity	To test engineering materials	To test engineering materials for mechanical properties.	PO1, PO2, PO3, PO4, PO6, PSO1, PSO3
12	IZORD and CHARPY testing machine	1 No	To find impact strength of materials	To test engineering materials	To test engineering materials for mechanical properties.	PO1, PO2, PO3, PO4, PO6, PSO1, PSO3
13	Motorized Vicker Hardness Testing Machine	1 No	To find hardness number of the material	To test engineering materials	To test engineering materials for mechanical properties.	PO1, PO2, PO3, PO 4, PO6, PSO1, PSO3
14	Solid edge	V-19	For modeling 2D and 3D modeling	To create 2D and 3D models.	Creation 2D and 3D models.	PO1, PO2, PO3, PO 4, PO5, PSO1, PSO3
15	Pneumatic kit	1 No	To construct and verify pneumatic circuit diagram for electromechanical application	To construct pneumatic circuit	Practical analysis of pneumatic systems.	PO1, PO2, PO3, PO 4, PO5, PSO1, PSO3

6.3 Laboratories: Maintenance and overall ambiance (10)

Maintenance of Laboratory Equipment

- Periodic checkup of equipment is carried out regularly.
- Separate maintenance register is maintained in the department along with the stock register.
- As per the requirement minor repairs/services are carried out by the lab instructors
- Maintenance of computers is taken care by centralized system maintenance staff.
- Major repairs are outsourced as per institute norms.

Overall Ambience

- All laboratories are having adequate space and well ventilated with good lighting.
- The lab is equipped with one LCD projector, one white screen and one white board.
- All equipment's are in working conditions with instruction materials.
- All laboratories are well furnished with uninterrupted power supply.
- Overall ambience of laboratories is excellent.

6.4 Project laboratory: (5)

The facilities available in the project laboratory to carry out UG projects & Research are as follows.

- NI DAQ kits, PLC, MATLAB kits, Microcontroller Kits.
- LABVIEW, SCADA, MATLAB, ANSYS, SOLID EDGE softwares will be used for student project on modeling and analysis
- Pneumatic Kit is used to study and analyze the working of pneumatic system before development.
- All students' projects are exhibited in the project laboratory along with their project reports.

Some of the projects carried out in project lab are as follows:

- Associative learning in a humanoid bot through ANN.
- iMERSI (Intelligent mine exploration recovery and securing instruments).
- Diagnosis of Human Body Parameters using Virtual Instrumentation.
- PLC based Automatic Hatcher unit.
- Wireless ECG heart monitoring and representation on Lab VIEW.

- Jarvis-A Smart Robotic Arm.
- Medical Monitoring System Using Zigbee.
- Advanced Remote Irrigation System.

6.5 Safety Measures in Laboratories (10)

Table B.6.5

Sl. No.	Name of the Laboratory	Safety Measures
1	Robotics Lab	• Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • First Aid Box in place. • Instructions are given to students to wear shoes to the lab. • Preventive measures taken in case of accident in handling Robots. • Preliminary Medical facility (clinic) is available inside campus for emergency. • Do's and Don'ts board.
2	Virtual Instrumentation Lab	• Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • First Aid Box in place. • Instructions are given to students to wear shoes to the lab. • Preliminary Medical facility (clinic) is available inside campus for emergency. • Do's and Don'ts board.
3	MEMS Lab	• Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • First Aid Box in place. • Do's and Don'ts board.
4	PLC & SCADA LAB	• Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • Do's and Don'ts board • Preliminary Medical facility (clinic) is available inside campus for emergency. • Instructions are given to students to wear shoes to the lab.

5	Material Testing and Machine shop	• Instructions are given to students to wear shoes to Machine Shop. • Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • First Aid Box in place. • Preventive measures taken in case of accident
		handling • Preliminary Medical facility (clinic) is available inside campus for emergency. • Do's and Don'ts board.
6	FM lab	• Wear shoes and uniforms before entering the Machine Shop • Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • First Aid Box in place. • Instructions are given to students to wear shoes to the lab. • Preventive measures taken for case of accident in handling machines. • Preliminary Medical facility (clinic) is available inside campus for emergency. • Do's and Don'ts board.
7	CAMD	• Fire extinguisher (CO_2)-for B and C Type (Both fire and electrical fire)-8 liters Capacity. • First Aid Box in place. • Instructions are given to students to wear shoes to the lab. • Preliminary Medical facility (clinic) is available inside campus for emergency. • Do's and Don'ts board.

CRITERION 7 Continuous improvement (50)

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

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

The below table B.7.1a shows the POs Attainment Levels and Action taken for improvement for the year 2017-18.

Table B.7.1a POs Attainment Levels and Action taken for improvement (2017-18)

POs	Target level	Attainment level	Observation
PO1. Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	**2.5**	**2.52**	Target met
Action taken : NIL			
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.	**2.5**	**2.51**	Target met
Action taken : NIL			
PO3. Design/development of solutions: Design solutions for complex 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.	**2.5**	**2.54**	Target met
Action taken : NIL			

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.	**2.5**	**2.70**	Target met
Action taken : NIL			
PO5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	**2.5**	**2.64**	Target met
Action taken : NIL			
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.	**2.5**	**2.60**	Target met
Action taken : NIL			
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.	**2.5**	**2.40**	Target not met
Action taken 1 :	Organized a technical talk from industry experts as shown in table B.2.1.2.a of criterion 2		
Action taken 2 :	Proposed to engage soft skill programs by industry experts as shown in table B.2.1.2.a of criterion 2		
Action taken 3 :	Conducted NSS activities on to bring awareness to use renewable energy sources Effectively as shown in table B.2.1.2.a		
PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice**.**	**2.5**	**2.63**	Target met
Action taken : NIL			

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	**2.5**	**2.59**	Target met
Action taken : NIL			
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.	**2.5**	**2.57**	Target met
Action taken : NIL			
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.	**2.5**	**2.55**	Target met
Action taken : NIL			
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.	**2.5**	**2.46**	Target not met
Action taken 1 :	Organized a technical talk from industry experts as shown in table B.2.1.2.a of criterion 2		
Action taken 2:	Proposed to engage soft skill programs by industry experts as shown in table B.2.1.2.a of criterion 2		

The below table B.7.1b shows the PSOs Attainment Levels and Action taken for improvement for the year 2017-18.

Table B.7.1b PSOs Attainment Levels and Action taken for improvement – (2017-18)

PSOs	Target level	Attainment level	Observation
PSO1. Apply knowledge of design, analysis and modeling of mechanical components, concepts of fluid and thermal engineering, conventional and advanced manufacturing technology in engineering applications.	**2.5**	**2.63**	**Target met**
Action taken : NIL			
PSO2. Apply technical knowledge in analysis, design and prototyping of electronics, communication and embedded systems.	**2.5**	**2.63**	**Target met**
Action taken : NIL			
PSO3. Apply domain knowledge and demonstrate technical competency in virtual instrumentation, PLC, SCADA, smart systems, artificial intelligence to integrate and interface electro-mechanical systems.	**2.5**	**2.62**	**Target met**
Action taken : NIL			

The below table B.7.1c shows the POs Attainment Levels and Action taken for improvement for the year 2016-17.

Table B.7.1c POs Attainment Levels and Action taken for improvement – (2016-17)

POs	Target level	Attainment level	Observation
PO1. Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems	**2.4**	**2.44**	Target met
Action taken : NIL			

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.	**2.4**	**2.43**	Target met
Action taken : NIL			
PO3. Design/development of solutions: Design solutions for complex problems and design system components or processes that meet the specified needs with appropriate	**2.4**	**2.51**	Target met
consideration for the public health and safety, and the cultural, societal, and environmental considerations			
Action taken : NIL			
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.	**2.4**	**1.66**	Target not met
Action taken 1:	Students are encouraged to read the journals and reference text books.		
Action taken 2:	Students are encouraged to carry out real time projects investigating the current trends.		
Action taken 3:	Students are asked to solve the complex problems in analysis and synthesis of machine elements		
PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	**2.4**	**2.65**	Target met
Action taken : NIL			
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.	**2.4**	**2.42**	Target met

Action taken : NIL			
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.	**2.4**	**2.41**	Target met
Action taken : NIL			
PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities	**2.4**	**2.61**	Target met
and norms of the engineering practice**.**			
Action taken : NIL			
PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	**2.4**	**2.51**	Target met
Action taken : NIL			
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.	**2.4**	**2.55**	Target met
Action taken : NIL			
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.	**2.4**	**2.52**	Target met
Action taken : NIL			
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.	**2.4**	**2.32**	Target not met

Action taken 1:	Proposed and organized a Mock Interview by training and placement director as shown in table B.2.1.2.b of criterion 2
Action taken 2:	Students are encouraged to undergo internship in leading industries
Action taken 3:	Proposed to conduct technical talk from industry experts table B.2.1.2.b of criterion 2
Action taken 4:	To do more industrial training programs

The below table B.7.1a shows the PSOs Attainment Levels and Action taken for improvement for the year 2016-17.

Table B.7.1d PSOs Attainment Levels and Action taken for improvement – (2016-17)

PSOs	Target level	Attainment level	Observation
PSO1. Apply knowledge of design, analysis and modeling of mechanical components, concepts of fluid and thermal engineering, conventional and advanced manufacturing technology in engineering applications.	**2.4**	**2.69**	Target met
Action taken : NIL			
PSO2. Apply technical knowledge in analysis, design and prototyping of electronics, communication and embedded systems.	**2.4**	**2.54**	Target met
Action taken : NIL			
PSO3. Apply domain knowledge and demonstrate technical competency in virtual instrumentation, PLC, SCADA, smart systems, artificial intelligence to integrate and interface electro-mechanical systems.	**2.4**	**2.51**	Target met
Action taken : NIL			

The below table B.7.1e shows the POs Attainment Levels and Action taken for improvement for the year 2015-16.

Table B.7.1e POs Attainment Levels and Action taken for improvement – (2015-16)

POs	Target level	Attainment level	Observation
PO1. Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems	**2.3**	**2.39**	Target met
Action taken : NIL			

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.	**2.3**	**2.38**	Target met
Action taken : NIL			
PO3. Design/development of solutions: Design solutions for complex 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	**2.3**	**2.45**	Target met
Action taken : NIL			
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.	**2.3**	**2.54**	Target met
Action taken : NIL			
PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	**2.3**	**2.33**	Target met
Action taken : NIL			
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 professionals engineering practice.	**2.3**	**2.28**	Target not met
Action taken 1:	Students created drone for agricultural need as shown in table B.2.1.2.b		
Action taken 2:	Community service activities are to be conducted to serve the societal issues.		
Action taken 3:	Motivate the students to participate in intra and inter college technical fest.		

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	**2.3**	**2.29**	Target not met
Action taken 1:	Students are asked to attend more technical seminars from industry experts table B.2.1.2.c of criterion 2		
Action taken 2:	Students are encouraged to attend soft skill programs conducted by industry experts as shown in table B.2.1.2.c of criterion 2		
Action taken 3:	Conducted NSS activities on to bring awareness to use renewable energy sources Effectively as shown in table B.2.1.2.a		
PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	**2.3**	**2.55**	Target met
Action taken : NIL			
PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	**2.3**	**2.47**	Target met
Action taken : NIL			
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.	**2.3**	**2.50**	Target met
Action taken : NIL			
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.	**2.3**	**2.52**	Target met

Action taken : NIL			
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.	**2.3**	**2.20**	Target not met
Action taken 1:	Organized a workshop by training and placement director table B.2.1.2.c of criterion 2.		
Action taken 2:	Students are asked to attend more technical seminars from industry experts table B.2.1.2.c of criterion 2		
Action taken 3:	Students are encouraged to attend soft skill programs conducted by industry experts as shown in table B.2.1.2.c of criterion 2		

The below table B.7.1f shows the PSOs Attainment Levels and Action taken for improvement for the year 2015-16.

Table B.7.1f PSOs Attainment Levels and Action taken for improvement – (2015-16)

PSOs	Target level	Attainment level	Observation
PSO1. Apply knowledge of design, analysis and modeling of mechanical components, concepts of fluid and thermal engineering, conventional and advanced manufacturing technology in engineering applications.	**2.3**	**2.61**	Target met
Action taken : NIL			
PSO2. Apply technical knowledge in analysis, design and prototyping of electronics, communication and embedded systems.	**2.3**	**2.49**	Target met
Action taken : NIL			
PSO3. Apply domain knowledge and demonstrate technical competency in virtual instrumentation, PLC, SCADA, smart systems, artificial intelligence to integrate and interface electro-mechanical systems.	**2.3**	**2.49**	Target met

Action taken : NIL

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

The institution has adopted an integrated framework for quality assurance of academic and administrative activities.

1) Internal Quality Assurance cell continuously acts to improve the academic performance of the institution.
2) Calendar of events (CoE) for every semester is released at the starting of the semester. Some of the details comprised in CoE are semester start date, schedule of internal assessment tests, institute fest, annual sports meet and each department add schedule of department activities.
3) Faculty growth and development is kept track by maintaining personal file and performance file by each faculty. These files are regularly audited by IQAC.
4) Course folder for each course is maintained by the faculty handling that particular course. This folder comprises of course objectives and outcomes, lesson plan, lecture notes, teaching aids used, assignments, question bank, mapping of course outcomes to program outcomes and programme educational objectives. This folder is monitored and audited by concerned department heads and also by IQAC.
5) Proctorial system is in place catering to student community by closely monitoring and guiding the students in making them responsible citizens.
6) Academic audit is carried out by the IQAC committee and the report is finally approved by the Principal.
7) The members in the audit committee will be drawn from the IQAC, Heads of the various Departments and senior faculty in the institution.
8) An academic audit format is prepared with different criteria of TLP as columns and names of faculty of a given department constituting the rows and circulated to the departments. The audit teams are to evaluate each and every faculty with respect to criteria along with substantial documentation and proof.
9) The Heads of the Departments have to take the responsibility for smooth implementation of the Academic audit process.

10) The short comings listed by the TLP audit committee are communicated to the faculty through the respective heads indicating the areas which need the attention for improvements.
11) The faculty overcome the shortcomings by making necessary changes and reports the same to the TLP audit committee.
12) The good practices followed by a faculty are also briefed to the faculty through heads and the concerned faculty is given a word of encouragement by appreciation.
13) The TLP audit takes place twice in a semester. In the beginning of the semester, the preparedness of the faculty to deliver the curriculum effectively is checked wherein the course outcomes, lesson plans are to be kept ready and presented to the audit committee. At the end of the semester, the CO attainment, PO attainment, proctor file and performance file is audited to find out the work carried out by the faculty. In the event of curricular gap, it is advised by the IQAC to the department to conduct appropriate workshops/ seminars/ conferences/ industrial visits etc. to bridge the gap.
14) All faculty undergoing the audit process have been able to successfully implement Outcome Based Education based on the inputs given by the internal audit teams by taking up activities such as Group Discussions, Role plays, Seminars, Video lectures and model based learning to enhance the TLP.
15) Also all the departments have undertaken appropriate measures like conducting workshops, seminars, guest lectures, quizzes, industrial visits and mini project activities to fill the curricular gap.

FACULTY PERFORMANCE APPRAISAL AND DEVELOPMENT SYSTEM

Performance Appraisal of Faculty and Support Staff

Faculty and staff appraisal systems in AIT have been operational in various forms over the past few years. With the introduction of ERP systems and to facilitate on-line entries by students and to inculcate efficacy in appraisals by peers and management levels, the

formats are made more user friendly. The written and subjective parts have been modified to facilitate quantifying quality.

The Performance Based Appraisal System is modelled on recommendations made by MHRD, Pay Commission Report and the Guidelines issued by UGC. These have been enunciated clearly with appraisals based on performance.

Annual Staff and faculty performance appraisal systems have been introduced. The system consists of: 1) Self-appraisal 2) TLP 3) head of department / Section 4) Appraisal by the principal5) Appraisal by students. Weightages given to the faculty appraisals are:

Self-appraisal	:	40%
IQAC assessment of TLP	:	20%
Evaluation by HOD	:	10%
Evaluation by Principal	:	10%
Appraisal by students	:	20%

Source Data for Appraisal

while student's appraisals are on-line, are supervised by a group of mentor to avoid bias or fear, the peer team- HOD, principal-management and even the annual confidential report shall use the data for the year of appraisal available with each Institution or department in the faculty. IQAC documents are submitted by the faculty are 1) Personal Folder, 2) Mentor Folder 3) Performance Folder and 4) Course file. These documents are with the respective heads of departments under quality implementation system

System of Awards and Accountability

The appraisal system is the basis for the increments promotions and appreciation of service. The accountability is appraised yearly based upon participation in academic curricular and extracurricular activities. The performance below the targets is counseled by the head of the

department and / or the principal.

The student feedback is communicated to faculty by the head of the department. In the PBAS format, after the self-appraisal, the head of the department, the principal, audit of the IQAC for TLP practices and student feedback are assessed cumulatively on a scale of 100. Provision is also made for any grievance in the PBAS process and ratification is done by an independent committee of senior faculty. This score is communicated to the faculty and filled in the personal files. Any faculty getting less than 65/100 is counseled and advised with hand folding for subsequent improvement.

Welfare schemes for teaching and non-teaching employees

Facilities provided to teaching and non-teaching staff are:

1) Free lunch for class 4 employees
2) Health center in the campus and periodical medical check-up facilities for staff.
3) Grant of Rs 5000/- for marriage for the administrative staff, maintenance, housekeeping staff and drivers of Acharya transport vehicle / freight.
4) Interest free advances during emergency on discretion basis.
5) Free admission for first child of employees and 50% concession on fees for the second child.
6) In the event of death of an employee, while in service his/her dependent will be considered for Employment on compassionate grounds, depending upon the merit of the case, limited to cadre Junior Assistant, subject to eligibility of the individual concerned and availability of vacant posts.
7) All the employees are covered under employee's provident fund scheme as per the act. The employees and management contribute 12% of the pay of such employees towards the fund.
8) Group Insurance: with collaboration of AIT and Tata AIG general insurance company Ltd., with coordination from Axis bank, students, first parent of students and staff members come under the purview of group Insurance provided by Tata AIG general insurance company ltd.
9) Employs State Insurance facility is extended to all non-teaching and technical staff.

10) Financial Benefits(Sponsor) up to Rs. 10,000/- is provided for every faculty every year towards the publication of research papers, articles, attending conference, workshops and faculty development program.

11) Leave facilities: Leave facilities like vacation leave, earned leave, maternity leave and medical leave in addition to casual leave and restricted holidays are availed by the employees.

a) **Vacation leave** for those faculty who have completed one year of service and are vacation staff can avail 18days of vacation per year generally split into 9 days each after every semester.

b) **Marriage leave** can be available for a duration of 10days.

c) **Earned leave** for non-vacation staff is permissible for 18 days per year.

d) **Maternity leave** for 6 months can be availed by the lady staff with full pay only once during the entire service period for first child only and who have completed at least 2 years of service in the institution

e) **Paternity leave** of 5 days is provided with full pay only once during the entire service period after completion of one year.

f) **Extension to vacation leave:** 12 days for pursuing PhD Programmes.

i) **Sabbatical leave** for period up to 30 days in a year is permitted for the sponsored research and projects.

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

Assessment is based on improvement in:

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

The below table B7.3a shows the Placement, Higher studies and Entrepreneurship details for past 3 years.

Table B7.3a Placement, Higher studies and Entrepreneurship details for past 3 years

Year	Number of companies visited	Number of students placed (a)	Highest salary	Average salary	Number of Students selected for Higher studies (b)	Number of students opted for Entrepreneurship (c)	Total (a+b+c)
2017-2018 (49)	10	35	6.00 LPA	3.03 LPA	3	1	20
2016-2017 (55)	7	31	3.5 LPA	2.6 LPA	9	1	28
2015-2016 (55)	9	38	4.5 LPA	3.0 LPA	4	2	14

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

Assessment is based on improvement in terms of ranks/score in qualifying state level/national level entrances tests, percentage marks in Physics, Chemistry and Mathematics in 12th Standard and percentage marks of the lateral entry students. The below table B7.4 shows the admission details for the year 2017-18, 2016-17, 2015-16.

Table B7.4 Student admissions for past 3 years

Item	Student Details	(2017-18)	(2016-17)	(2015-16)
National Level Entrance Examination	Number of students admitted	--	--	--
	Opening Score/Rank	--	--	--
	Closing Score/Rank	--	--	--
Karnataka Common Entrance Test-CET	Number of students admitted	25	27	27
	Opening Score/Rank	14543	11264	6021
	Closing Score/Rank	86839	75101	99483
Consortium of Medical, Engineering and Dental Colleges of Karnataka - COMEDK	Number of students admitted	10	9	9
	Opening Score/Rank	9392	28141	15900
	Closing Score/Rank	55610	34686	41232
Name of the Entrance Examination for Lateral Entry or lateral entry details : (Diploma CET)	Number of students admitted	11	15	13
	Opening Score/Rank	945	964	658
	Closing Score/Rank	5453	12778	10045
Average CBSE/Any other board result of admitted students (Physics, Chemistry &Maths)	--	--	--	--

CRITERION 8	First year Academics (50)

8. FIRST YEAR ACADEMICS (50)

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

Data for first year courses to calculate the FYSFR:

Year	Number of students(approved intake strength)	Number of faculty members(Considering fractional workload)	FYSFR	Assessment=(5x20)/FYSFR (Limited to Max.5)
CAY (2018-19)	1020	59	1:17.2	5x20/17.2=5.81
CAYm1 (2017-18)	1170	60	1:19.5	5x20/19.5=5.12
CAYm2 (2016-17)	1170	57	1:20.5	5x20/20.5=4.87
Average	1120	58.6	19.0	5.0

TableB.8.1

*Note: If FYSFR is greater than 25, then assessment equal to zero.

8.2. Qualification of 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 20:1,

Year	X	Y	RF	Assessment of faculty Qualification(5x+3y)/RF
CAY (2018-19)	10	49	51	(5x10+3x49)/51=3.86
CAYm1 (2017-18)	9	51	58.5	(5x9+3x51)/58.5=3.38
CAYm2 (2016-17)	11	46	58.5	(5x11+3x46)/58.5=3.29
Average Assessment				3.51

Table B.8.2 Average Assessment Calculation

8.3. First Year Academic Performance (10)

Academic Performance = ((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the Percentage of marks in First Year of all successful students/10)) x (number of successful students/number of students appeared in the examination)

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

Table 8.3.1 Academic Performance at Department Level

Item	CAY (2017-18)	CAYm1 (2016-17)	CAYm2 (2015-16)
Mean of percentage of marks/Grade point average(X)	62	5.67	6.0
Total Number of successful students(Y)	61	54	46
No of students appeared in examination(Z)	68	67	51
AP=[X*(Y/Z)]	6.95	4.56	5.41
Average Academic Performance	5.64		

Table 8.3.2 Academic Performance at College Level

Branch/ Academic year	No. of students appeared in the exam	No. of successful students proceeded to 2nd year	Academic Performance AP = Mean of Successful Students X Successful Students/ No. of Students Appeare
CAY(2017-18)			
ECE	105	99	6.45
CSE	125	116	**6.7**
ME	91	83	**6.1**
CV	114	88	**5.64**
MT	68	61	**6.95**
CAYm1(2016-17)			
ECE	119	103	**5.9**
CSE	130	115	**6.4**
ME	119	92	**4.5**
CV	89	72	**4.7**
MT	67	54	**4.5**
CAYm2(2015-16)			
ECE	114	97	**5.4**
CSE	129	116	**6.44**
ME	131	110	**5.3**
CV	114	91	**4.8**
MT	51	46	**5.4**

8.4. Attainment of course outcome of first year courses (10)

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

(Examples of data collection processes may include, but are not limited to, specific exam questions, laboratory tests, internally developed assessment exams, oral exams assignments, presentations, tutorial sheets etc.).

Assessment process for course outcomes (CO's) computation

<table>
<tr><td rowspan="2">Direct Assessment</td><td colspan="2">Continuous Internal Assessment(CIE)</td><td colspan="2">60%</td></tr>
<tr><td colspan="2">Semester End Exams(SEE)</td><td colspan="2">40%</td></tr>
<tr><td rowspan="4">CIE(Theory)</td><td colspan="2">Internal Assessment</td><td colspan="2">30</td></tr>
<tr><td colspan="2">Assignments</td><td colspan="2" rowspan="3">10</td></tr>
<tr><td colspan="2">Seminars</td></tr>
<tr><td colspan="2">Quiz</td></tr>
<tr><td>CIE(Lab)</td><td colspan="4">Divided in to two components</td></tr>
<tr><td rowspan="7">Marks breakup for Engineering chemistry Lab(17CHEL17)</td><td colspan="2">Continuous Assessment(30marks)</td><td colspan="2">Internal Assessment(10marks)</td></tr>
<tr><td colspan="2">➢ The student will be assessed during the performance of each experiment.
➢ Each experiment will be evaluated for 30 marks.</td><td colspan="2">After the completion of all experiments an internal test shall be conducted for 100 marks and scaled to 10 marks.</td></tr>
<tr><td>Attributes</td><td>Marks</td><td>Attributes</td><td>Marks</td></tr>
<tr><td>Procedure write-up</td><td>5</td><td>Procedure write-up</td><td>15</td></tr>
<tr><td>Conduction of Experiment</td><td>16</td><td>Conduction of Experiment</td><td>52</td></tr>
<tr><td>Calculations and Record submission</td><td>4</td><td>Calculations</td><td>18</td></tr>
<tr><td>Viva voce</td><td>5</td><td>Viva voce</td><td>15</td></tr>
<tr><td>Total</td><td>30</td><td></td><td>100</td></tr>
</table>

8.4.2. Record the attainment of course outcomes of all first year courses (5)

Program shall have set attainment levels for all first-year courses. (The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect to the COs of a subject plus the performance in the University examination). Refer to 3.2.2 for further details

C. No.*	SUBJECT CODE SUBJECT	NAME
101	17MAT11	Engineering Mathematics I
102	17CHE12	Engineering Chemistry
103	17PCD13	Programming in C & Data structures

104	17CED14	Computer Aided and Engineering Drawing
105	17ELN15	Basic Electronics
106	17CPL16	Computer Engineering Lab
107	17CHEL17	Engineering Chemistry Lab
201	17MAT21	Engineering Mathematics II
202	17PHY22	Engineering Physics
203	17CIV23	Elements of Civil Engineering and Mechanics
204	17EME24	Elements of Mechanical Engineering
205	17ELE25	Basic Electrical Engineering
206	17WSL26	Workshop Practice
207	17PHYL27	Engineering Physics Lab

Table.8.4.2.1

The Table above shows the entries of all first-year courses of 2017-18 CBCS batch with VTU code (second column) and NBA Code (first column).

Course is delivered and attainment of CO's is determined using internal tests 1, 2 and 3 and semester end university examination results.

For CO attainments, level threshold is set by First Year Academic Committee (FYAC) as given in the Table 8.1.

Level threshold set by FYAC	
Level 1	Students scoring <40% marks in internal assessments (IA) and semester end examination (SEE).
Level 2	Students scoring 40 to 59% marks in internal assessments (IA) and semester end examination (SEE)
Level 3	Students scoring 60% marks or above in internal assessments (IA) and semester end examination (SEE)

Table.8.4.2.2

While analysing direct assessments for attainment of CO's, 60% weightage is given to internal assessments and 40% weightage is given to semester end examinations as recommended by FYAC.

Attainment of all course outcomes of all first year courses

are tabulated below CAY 2017-18

SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17MAT11/21	1	2.52	1.57	2.14	71.43	2.13	71.05
	2	2.51	1.57	2.14	71.24		
	3	2.48	1.57	2.11	70.48		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
	1	2.75	1.90	2.41	80.30		

	2	2.67	1.90	2.36	78.73		
17PHY12/22	3	2.36	1.90	2.18	72.53	2.32	77.19
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17CIV13/23	1	2.74	1.14	2.10	69.98	2.06	68.69
	2	2.72	1.14	2.09	69.58		
	3	2.56	1.14	2.00	66.52		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17EME14/24	1	2.90	1.40	2.30	76.67	2.03	67.78
	2	2.90	1.40	2.30	76.67		
	3	1.90	0.90	1.50	50.00		
	4	1.90	0.90	1.50	50.00		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17ELE15/25	1	2.63	1.57	2.20	73.47	1.98	66.08
	2	2.22	1.59	1.97	65.60		
	3	1.93	1.54	1.78	59.18		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17WSL16/26	1	2.97	2.00	2.58	86.07	2.58	86.07
	2	2.97	2.00	2.58	86.07		
	3	2.97	2.00	2.58	86.07		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17PHYL17/27	1	2.86	2.30	2.64	87.87	2.64	87.87
	2	2.86	2.30	2.64	87.87		
	3	2.86	2.30	2.64	87.87		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17MAT22	1	2.41	1.34	1.98	65.99	1.99	66.31
	2	2.56	1.34	2.07	69.05		
	3	2.30	1.34	1.92	63.89		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17CHE12/22	1	2.63	2.00	2.38	79.17	2.41	80.42
	2	2.75	2.00	2.45	81.67		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17PCD13/23	1	2.39	1.49	2.03	67.67	2.11	70.40
	2	2.70	1.49	2.22	73.87		
	3	2.49	1.49	2.09	69.67		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17CED14/24	1	2.40	1.88	2.19	73.07	2.19	73.07
	2	2.40	1.88	2.19	73.07		

	3	2.40	1.88	2.19	73.07		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17ELN15/25	1	3.00	2.00	2.60	86.67	2.60	86.67
	2	3.00	2.00	2.60	86.67		
	3	3.00	2.00	2.60	86.67		
	4	3.00	2.00	2.60	86.67		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17CPL16/26	1	2.90	2.67	2.81	93.60	2.81	93.60
	2	2.90	2.67	2.81	93.60		
	3	2.90	2.67	2.81	93.60		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
17CHEL17/27	1	2.99	2.76	2.90	96.60	2.90	96.60
	2	2.99	2.76	2.90	96.60		
	3	2.99	2.76	2.90	96.60		

CAYm1 (2016-17)

SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15MAT11	1.00	2.28	2.34	2.30	76.83	2.30	76.73
	2.00	2.42	2.34	2.39	79.54		
	3.00	2.13	2.34	2.21	73.81		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15PHY21/22	1.00	2.53	1.62	2.17	72.27	2.21	73.60
	2.00	2.72	1.62	2.28	76.09		
	3.00	2.54	1.62	2.17	72.43		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CIV13/23	1.00	2.39	1.07	1.86	62.13	1.86	62.13
	2.00	2.31	1.07	1.82	60.52		
	3.00	2.47	1.07	1.91	63.73		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15EME15/25	1.00	1.90	1.90	1.90	63.33	1.55	51.67
	2.00	1.90	1.90	1.90	63.33		
	3.00	1.20	1.20	1.20	40.00		
	4.00	1.20	1.20	1.20	40.00		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15ELE14/24	1.00	2.45	0.94	1.85	61.53	1.92	63.92
	2.00	2.38	1.39	1.98	66.08		

	3.00	2.32	1.33	1.92	64.13		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15WSL16/26	1.00	2.67	2.67	2.67	89.00	2.67	89.00
	2.00	2.67	2.67	2.67	89.00		
	3.00	2.67	2.67	2.67	89.00		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15PHYL17/27	1.00	2.38	2.38	2.38	79.49	2.38	79.49
	2.00	2.38	2.38	2.38	79.49		
	3.00	2.38	2.38	2.38	79.49		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15MAT22	1.00	2.57	1.52	2.15	71.70	2.07	68.92
	2.00	2.48	1.52	2.09	69.83		
	3.00	2.25	1.52	1.96	65.22		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CHE11/22	1.00	2.63	1.70	2.26	75.20	2.14	71.17
	2.00	2.52	1.70	2.19	73.10		
	3.00	2.13	1.70	1.96	65.20		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15PCD13/23	1.00	2.14	1.66	1.95	64.93	1.73	57.80
	2.00	1.39	1.66	1.50	49.93		
	3.00	1.82	1.66	1.76	58.53		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CED14/24	1.00	1.96	1.96	1.96	65.33	1.96	65.33
	2.00	1.96	1.96	1.96	65.33		
	3.00	1.96	1.96	1.96	65.33		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15ELN15/25	1.00	2.43	2.21	1.46	48.60	2.11	70.25
	2.00	2.73	2.21	2.52	83.89		
	3.00	2.42	2.21	2.27	75.62		
	4.00	2.57	2.21	2.19	72.89		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CPL16/26	1.00	3.00	2.63	2.85	95.07	2.85	95.07
	2.00	3.00	2.63	2.85	95.07		
	3.00	3.00	2.63	2.85	95.07		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CHEL17/27	1.00	2.85	2.85	2.85	95.00	2.85	95.00
	2.00	2.85	2.85	2.85	95.00		
	3.00	2.85	2.85	2.85	95.00		

CAYm2 (2015-16)

SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15MAT11	1	1.69	1.90	1.78	59.23	1.83	60.96
	2	1.87	1.90	1.88	62.69		
	3	2.04	1.90	1.98	66.15		
	4	1.92	1.90	1.92	63.85		
	5	1.56	1.90	1.70	56.54		
	6	1.60	1.90	1.72	57.31		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15PHY21/22	1	2.22	1.30	1.85	61.80	1.80	59.98
	2	2.38	1.30	1.95	64.93		
	3	1.79	1.30	1.60	53.20		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CIV13/23	1	2.36	1.92	2.19	72.88	2.16	72.05
	2	2.35	1.92	2.18	72.69		
	3	2.25	1.92	2.12	70.57		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15EME15/25	1	1.96	**1.96**	1.96	65.42	1.57	52.33
	2	1.96	1.96	1.96	65.42		
	3	1.57	1.57	1.57	52.33		
	4	1.18	1.18	1.18	39.25		
	5	1.18	1.18	1.18	39.25		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15ELE14/24	1	2.05	1.36	1.77	59.13	1.93	64.47
	2	2.13	1.53	1.89	63.00		
	3	2.46	1.52	2.08	69.47		
	4	2.48	1.25	1.99	66.27		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15WSL16/26	1	2.67	2.67	2.67	89.00	2.67	89.00
	2	2.67	2.67	2.67	89.00		

	3	2.67	2.67	2.67	89.00		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15PHYL17/27	1	1.92	1.92	1.92	64.05	1.92	64.05
	2	1.92	1.92	1.92	64.05		
	3	1.92	1.92	1.92	64.05		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15MAT21	1	1.88	2.02	1.93	64.49	1.90	63.47
	2	1.71	2.02	1.84	61.22		
	3	1.10	2.02	1.47	48.98		
	4	1.98	2.02	2.00	66.53		
	5	2.20	2.02	2.13	71.02		
	6	2.08	2.02	2.06	68.57		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CHE11/22	**1**	2.00	2.27	**2.11**	70.22	1.79	59.56
	2	1.88	2.27	**2.03**	67.82		
	3	2.34	2.27	**2.31**	77.02		
	4	0.94	2.27	1.47	49.02		
	5	0.42	2.27	1.16	38.62		
	6	1.22	2.27	1.64	54.62		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15PCD13/23	1	2.87	1.86	2.47	82.20	2.21	73.53
	2	2.08	1.86	1.99	66.40		
	3	2.88	1.86	2.47	82.40		
	4	2.91	1.86	2.49	83.00		
	5	2.36	1.86	2.16	72.00		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CED14/24	1	2.48	**2.48**	2.48	82.67	2.48	82.67
	2	2.48	2.48	2.48	82.67		
	3	2.48	2.48	2.48	82.67		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15ELN15/25	1	1.76	1.76	1.76	58.67	1.76	58.67
	2	1.76	1.76	1.76	58.67		
	3	1.76	1.76	1.76	58.67		
	4	1.76	1.76	1.76	58.67		
	5	1.76	1.76	1.76	58.67		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CPL16/26	1	3.00	2.82	2.93	97.60	2.93	97.60
	2	3.00	2.82	2.93	97.60		
	3	3.00	2.82	2.93	97.60		

	4	3.00	2.82	2.93	97.60		
	5	3.00	2.82	2.93	97.60		
SUBJECT	CO	CIE	SEE	Total	Individual CO Attainment %	Final Attainment	% of Attainment
15CHEL17/27	1	2.93	2.93	2.93	97.83	2.93	97.83
	2	2.93	2.93	2.93	97.83		
	3	2.93	2.93	2.93	97.83		

Attainment percentage for all first year courses is tabulated

CAY (2017-18)

Physics Cycle			
Course	**Target Attainment(CIE+SEE)**	**Attainment Level(CIE+SEE)**	**Remarks**
17MAT11	70	71	Attainment Reached
17PHY12/22	70	77	Attainment Reached
17CIV13/23	70	70	Attainment Reached
17EME14/24	70	68	Attainment Not Reached
17ELE15/25	70	66	Attainment Reached
17WSL16/26	70	86	Attainment Reached
17PHYL17/27	70	87	Attainment Reached
Chemistry Cycle			
17MAT22	70	66	Attainment Not Reached
17CHE12/22	70	80	Attainment Reached
17PCD13/23	70	70	Attainment Reached
17CED14/24	70	73	Attainment Reached
17ELN15/25	70	87	Attainment Reached
17CPL16/26	70	94	Attainment Reached
17CHEL17/27	70	97	Attainment Reached

CAYm1 (2016-17)

Physics Cycle			
Course	**Target Attainment(CIE+SEE)**	**Attainment Level(CIE+SEE)**	**Remarks**
17MAT11	65	71	Attainment Reached
17PHY12/22	65	77	Attainment Reached
17CIV13/23	65	70	Attainment Reached
17EME14/24	65	68	Attainment Reached
17ELE15/25	65	66	Attainment Reached
17WSL16/26	65	86	Attainment Reached
17PHYL17/27	65	87	Attainment Reached
Chemistry Cycle			
17MAT22	65	66	Attainment Reached

17CHE12/22	65	80	Attainment Reached
17PCD13/23	65	70	Attainment Reached
17CED14/24	65	73	Attainment Reached
17ELN15/25	65	87	Attainment Reached
17CPL16/26	65	94	Attainment Reached
17CHEL17/27	65	97	Attainment Reached

CAYm2 (2015-16)

Physics Cycle			
Course	**Target Attainment(CIE+SEE)**	**Attainment Level(CIE+SEE)**	**Remarks**
15MAT11	**60**	61	Attainment Reached
15PHY12/22	60	60	Attainment Reached
15CIV13/23	60	72	Attainment Reached
15EME14/24	60	52	Attainment Not Reached
15ELE15/25	60	64	Attainment Reached
15WSL16/26	60	89	Attainment Reached
15PHYL17/27	60	64	Attainment Reached
Chemistry Cycle			
15MAT22	60	63	Attainment Reached
15CHE12/22	60	60	Attainment Reached
15PCD13/23	60	74	Attainment Reached
15CED14/24	60	82	Attainment Reached
15ELN15/25	60	59	Attainment Not Reached
15CPL16/26	60	98	Attainment Reached
15CHEL17/27	60	98	Attainment Reached

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

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

The relevant program outcomes that are to be addressed at first year need to be identified by the institution.Program Outcome attainment levels shall be set for all relevant POs.The Program Outcomes (POs) as presented in criteria 3 and defined by NBA are reproduced below for referencing in this section.

PO#	Program Outcomes
PO 1	Engineering knowledge
PO 2	Problem analysis
PO 3	Design/development of solutions
PO 4	Conduct investigations of complex problems
PO 5	Modern tool usage
PO 6	The engineer and society

PO 7	Environment and sustainability
PO 8	Ethics
PO 9	Individual and team work
PO 10	Communication
PO 11	Project management and finance
PO 12	Life-long learning

POs ADDRESSED	TARGET LEVEL		
	2017-18	2016-17	2015-16
1	2.3	2.2	2.1
2	2.3	2.2	2.1
6	2.3	2.2	2.1

7	2.3	2.2	2.1
12	2.2	2.1	2.0

The first-year courses for all the UG engineering branches are handled by various departments, viz., Mathematics, Physics, Chemistry, ECE, EEE, Mechanical,CSE,and Civil. These departments define the CO-PO correlation matrices for the corresponding subjects/ courses handled by them for all the branches of engineering i.e., the definition are at the Institution level. The entries in the CO-PO correlation matrix are the correlation levels as defined in Criteria 3 & reproduced below.

Correlation Level Assignment				
Assignment Level	1	2	3	'-'or no entry/blank
Description	Slightly correlated (Low)	Moderately correlate (Medium)	Substantially correlated (High)	Implies no correlation

PO attainment of all first year

courses is tabulated below CAY

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P010	PO11	PO12
17MAT11/22	2.13	2.13										
17PHY12/22	2.39	2.18										2.41
17CIV13/23	2.00	2.00				2.10						
17EME14/24	2.56	1.50					2.30					1.90
17ELE15/25	1.98	1.85										1.97
17WSL16/26	2.58	2.58				2.58						2.58
17PHYL17/27	2.64	2.64										
17CHE12/22	2.41	2.45				2.45	2.45					
17PCD13/23	2.11	2.03										2.11
17CED14/24	2.19	2.19										2.19
17ELN15/25	2.60	2.60										
17CPL16/26	2.81	2.81										
17CHEL17/27	2.90	2.90				2.90	2.90					2.90
Direct Attainment*	2.24	2.13				2.51	2.55					2.29

Table B.8.5.1.1

*Direct attainment level of PO is determined by taking average across all courses addressing that PO.

CAYm1 (2016-17)

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P010	PO11	PO12
15MAT11/21	2.30	2.30										
15PHY12/22	2.23	2.17										1.73
15CIV13/23	1.91	1.91				1.86						

15EME14/24	1.71	1.20					1.90					1.55
15ELE15/25	1.92	1.95										1.98
15WSL16/26	2.67	2.67				2.67						2.67
15PHYL17/27	2.38											
15CHE12/22	2.22	2.04				2.19	2.19					
15PCD13/23	1.73	1.95										
15CED14/24	1.96	1.96										1.96
15ELN15/25	1.47	2.27										
15CPL16/26	2.85	2.85										
15CHEL17/27	1.62	2.85				2.85	2.85					2.85
Direct Attainment*	1.93	1.87				2.39	2.31					2.12

Table B.8.5.1.2

*Direct attainment level of PO is determined by taking average across all courses addressing that PO.

CAYm2 (2015-16)

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P010	PO11	PO12
15MAT11/21	1.83	1.83										
15PHY12/22	1.90	1.60										2.31
15CIV13/23	2.12	2.12				2.41						
15EME14/24	1.77	1.18					1.96					1.57
15ELE15/25	1.91	1.95										1.99
15WSL16/26	2.67	2.67				2.67						
15PHYL17/27	1.84	1.92										1.85
15CHE12/22	1.59	2.11				2.09	2.08					
15PCD13/23	2.32	2.31										
15CED14/24	2.48	2.48										2.48
15ELN15/25	1.76	1.76										
15CPL16/26	2.93	2.93										
15CHEL17/27	2.93	2.93				2.48	2.48					2.93
Direct Attainment*	2.00	1.98				2.41	2.18					2.19

Table B.8.5.1.3

*Direct attainment level of PO is determined by taking average across all courses addressing that PO.

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

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

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

CAY (2017-18)

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge			
PO1	**2.3**	**2.24**	Attainment not reached Fall short by 2.7%

Observations:

1. Students rarely have set carrier goals, so need orientation towards possible carrier options.
2. Faculty expressed disparity between the course content and the allotted number of lecture hours by university.

Actions:

1. One extra hour per week than the university prescribed number of hours is allotted to conduct tutorials to motivate students to improve their understanding in basic engineering subjects
2. Seminars and invited talks are arranged on need of basic concepts of first year topics in higher semester courses
3. Branch specific seminars by industry experts to give over view of latest technology

PO2: : Problem analysis

PO2	2.3	2.13	**Attainment not reached Fall short by 7.8%**

Observations:

1. Students lacking in problem analyzing skills.
2. Faculty expressed students lack in understanding of basic concepts required for first year engineering subjects.
3. Student needed motivation to connect first year subjects to their chosen branch of engineering.

Actions:

To Improve analytical thinking skills in first year engineering subjects following steps were taken

1. Group Activities to be conducted to enhance presentation skills & thinking skill etc.
2. Special classes to be conducted to revise prerequisite required for first year subjects.
3. Additional programs are solved in class hours and hands on to be conducted.
4. Encouraged to solve Additional problems to enhance the performance in solving the complex engineering Problems.
5. Video lectures, Animated PPTs and models were used by faculty for deeper understanding applications of concepts.

PO3:Design/development of solutions

PO3			**NO MAPPING**

PO4: Conduct investigations of complex problems

PO4			**NO MAPPING**

PO 5: Modern tool usage

PO5			**NO MAPPING**

PO6 : The engineer and society

PO6	2.3	2.51	**Attainment Reached**

PO7:Environment and sustainability

PO7	2.3	2.55	**Attainment Reached**

PO8: Ethics

PO8			**NO MAPPING**

PO9 : Individual and team work

PO9			**NO MAPPING**
PO10 : Communication			
PO10			**NO MAPPING**
PO11 : Project management and finance			

PO11			**NO MAPPING**
PO12 :Life-long learning			
PO12	**2.2**	**2.29**	**Attainment Reached**

TableB.8.5.2.1

CAYm2(2016-17)

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge			
PO1	**2.2**	**1.93**	**Attainment Not Reached** **Fall short by 12.3%**

Observations:

1. Some students expressed use of audio video clippings in regular classes will give them better understanding of concepts.
2. Reduction in Results of problematic courses of first year engineering.
3. Students requested for industrial/museum visit for practical exposure of theoretical concepts.

Actions planned:

1. Use of innovative teaching methods (ITC tools) by all faculties in regular classes if needed.
2. Remedial classes shall be conducted to improve results.
3. Practical exposure of theoretical concepts by arranging industrial/museum visits.
4. In house Faculty development Programme on innovative teaching skills shall be organized to make newly added faculty to implement better TLP.
5. Students were motivated for engineering exam structure and study techniques required for semester pattern

PO2: : Problem analysis			
PO2	**2.2**	**1.87**	**Attainment Not Reached** **Fall short by 15%**

Observations.

1. Faculty expressed that the knowledge of fundamental in Physics Chemistry &Mathematics is insufficient to cope for the first year engineering syllabus.
2. Students requested for type of university exam questions and some set of practice questions for developing confidence for external exams.

Actions planned.

1. Diagnostic test in Physics, Chemistry and Mathematics to analyze students entry level problem solving capacity
2. One week induction Programme on teaching basic concepts of Engineering Physics, Engineering Chemistry& Engineering Mathematics.
3. Practice problems were given to solve in class under teacher supervision for all subjects.

PO3:Design/development of solutions			
PO3			**NO MAPPING**
PO4: Conduct investigations of complex problems			
PO4			**NO MAPPING**

PO 5: Modern tool usage			
PO5			**NO MAPPING**
PO6 : The engineer and society			
PO6	**2.2**	**2.39**	**Attainment Reached**
PO7:Environment and sustainability			
PO7	**2.2**	**2.31**	**Attainment Reached**
PO8: Ethics			
PO8			**NO MAPPING**
PO9 : Individual and team work			
PO9			**NO MAPPING**
PO10 : Communication			
PO10			**NO MAPPING**
PO11 : Project management and finance			
PO11			**NO MAPPING**
PO12 :Life-long learning			
PO12	**2.1**	**2.12**	**Attainment Reached**

TableB.8.5.2.2

CAYm2 (2015-16)

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge			
PO1	**2.1**	**2.0**	**Attainment Not Reached** **Fall short by 5%**

Observations

1.Newly joined faculty expressed need for training in teaching methodology

2.Students finding difficult to adjust for engineering course pattern

3.Faculty couldn't complete syllabus due to heterogeneity of class which includes students from various states and countries

Actions planned

1. In house Faculty development Programme on innovative teaching skills to make faculty to Implement better TLP.
2. Students were motivated for engineering exam structure and study techniques required for semester pattern.
3. Extra classes to be conducted if faculty requires to complete syllabus following the TLP

PO2: : Problem analysis			
PO2	**2.1**	**1.98**	**Attainment Not Reached** **Fall short by 5.8%**

Observations

1. Some students who have not learnt basics of programming up to 12th standard need extra support in Programming courses.
2. Students had no exposure about applications of basic science in engineering
3. Majority of Students up to 12th standard are used to teacher supported learning process.

Actions Planned

1. Additional programs are solved in class hours and hands on conducted in labs.
2. Handouts covering problems and applications of various concepts were distributed
3. Question bank including previous University exams and some challenging questions to be given after completion of every module.

PO3:Design/development of solutions			
PO3			**NO MAPPING**
PO4: Conduct investigations of complex problems			
PO4			**NO MAPPING**
PO 5: Modern tool usage			
PO5			**NO MAPPING**
PO6 : The engineer and society			
PO6	**2.1**	**2.41**	**Attainment Reached**
PO7:Environment and sustainability			
PO7	**2.1**	**2.18**	**Attainment Reached**
PO8: Ethics			
PO8			**NO MAPPING**
PO9 : Individual and team work			
PO9			**NO MAPPING**
PO10 : Communication			
PO10			**NO MAPPING**
PO11 : Project management and finance			
PO11			**NO MAPPING**
PO12 :Life-long learning			
PO12	**2.0**	**2.19**	**Attainment Reached**

TableB.8.5.2.3

CRITERION 9	STUDENT SUPPORT SYSTEMS (50)

9. STUDENT SUPPORT SYSTEMS (50)

9.1 Mentoring system to help at individual level (5)

Acharya Institute of Technology has a very strong system of mentoring to provide students a sense of security, bonhomie, guidance for academic and personal needs. A mentor or proctor, a member of the faculty, so entrusted with the responsibility, pays personal attention to and monitors students' academic progress in institution hours and behavioral attitude outside the campus.

A mentor records personal data of each student including parent contact details, regular attendance, academic and communication to parents into ERP portal of the institute. The Chief Proctor, Head of the Department and the Principal has access to ERP data of the students and intervene if necessary. This process helps to closely monitor student's progress in terms of his/her attendance, academic performance, behavior and learning capabilities. Also it helps to identify, outside the curricular requirements, the student's habitual deviations and attitudinal aberrations, utilization of facilities and associative growth of personal attributes.

The system provides an early warning through the mentor's feedback on a periodic basis to the parents/guardians, heads of departments, class teacher, course instructor, Principal. The mentors, counselors, conduct psycho-social counseling.

The process of mentoring consists of

1) A student after admission to the programme is allotted a mentor by the department and communicated through the chief proctor.
2) The students meet the mentor and his/her record is created in ERP.
3) Mentor and the students meet fortnightly as per schedules.
4) Mentor reviews the academic and all round progress of the mentees and

makes the record of observations.

5) An SMS/ email are used to communicate the progress/observations to the parents/guardians.
6) In case of nonperformance, the mentor speaks to the parents and briefs them the possible measures to improve the students' performance.
7) Parents are also encouraged to contact the mentor to keep track of the ward.
8) All communications with parents/guardians are recorded electronically in https://www.acharyainstitutes.in/
9) The placement cell briefs the need of training for soft skills, analytical skills and life skills to aspire for the career goal.
10) The training to the placements is planned for all the four years integrating the training into the academic calendar.
11) Profiling of the student is carried out at the beginning of the first year to understand his/her learning abilities and suggest the way of learning.
12) A three-week induction programme in line with the AICTE guide lines is carried out from the academic year 2018-19 emphasizing on professional ethics and values.

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

(Feedback collected for all courses: YES/NO; Specify the feedback collection process; Average Percentage of students who participate; Specify the feedback analysis process; Basis of reward/ corrective measures, if any; Indices used for measuring quality of teaching & learning and summary of the index values for all courses/teachers; Number of corrective actions taken).

YES, the feedback is collected on teaching learning process, support for curricular and extracurricular activities, the hostilities give feedback on living and food thorough online system.

Student feedback is analyzed by HOD, warden and administrative heads. Any grievances are addressed by bringing into the notice of the principal and all concerned.

9.3. Feedback on facilities (5)

Assessment is based on student feedback collection, analysis and corrective action taken.

Feedback is taken on teaching, infrastructure for learning, the learning environment, and learning resources. In case of difficulty in learning from a faculty discussions are held with the concerned faculty and supported to overcome the grievances. Any infrastructure requirements are assessed and procurement / provisions of the facility is provided. The library provides all learning resources required by procuring all subscribing. In hostels the grievances are addressed by the chief warden and the wardens for any shortcomings

The grievances are also considered through the feedback given by the parents during the parents-teachers meeting conducted every semester. These grievances are addressed and actions taken accordingly.

9.4. Self-Learning (5)

- Learning at Acharya Institute of Technology is student-centric encouraging students self-learning. The assignments and exercises are provided to learn individually and team.
- Projects are encouraged to implement the concepts learnt.
- Encouraged to use e-learning resources of NPTEL, UDACITY, MIT-OCW, EDX and KHAN academy which can be accessed on local area network by the students.

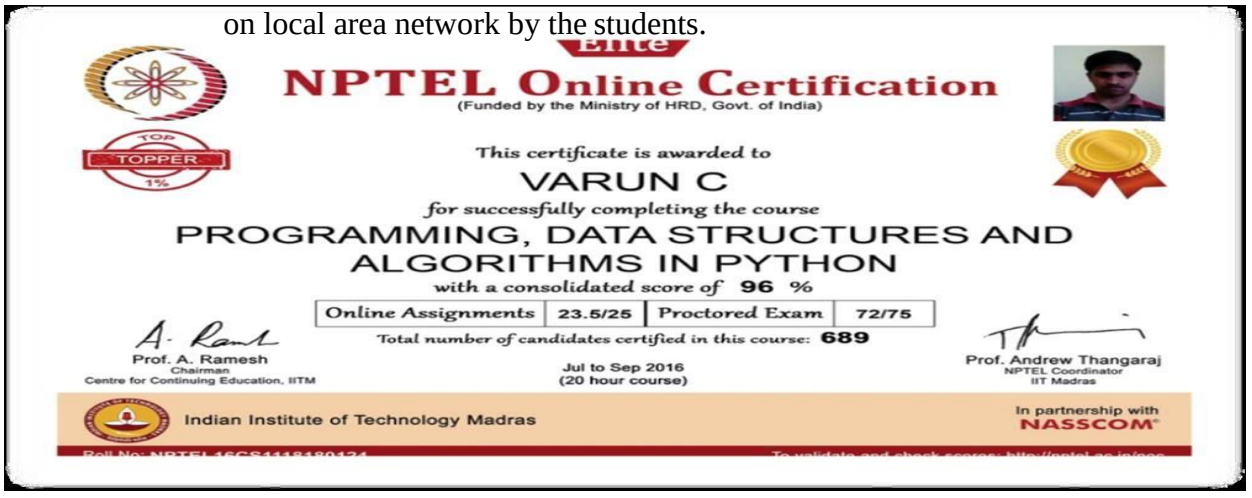


Figure 9.4a NPTEL certificate by student

- 24x7 Wi-Fi network of 1Gbps is a back bone of learning through e-resources.
- Industrial training/Internships help in enhancing learning capability.
- The department's forums and technical clubs activities exposing the students to newer technologies, process and products.

Table 9.4a Department forums

Name of the department	**Forum Name**
Aeronautical Engineering	Udaan
Automobile Engineering	Cruze
Bio Technology	Bio-Infinity
Civil Engineering	Srujan
Computer Science and Engineering	Lakshya
Construction Technology and Management	Tecton
Electronics and Communication Engineering	Spectra
Electrical and Electronics Engineering	Elexso
Information Science and Engineering	Stigen
Mechanical Engineering and Manufacturing Science and Engineering	Fame
Mechatronics	Renaissance
Mining Engineering	Magnum
Master of Business Administration	Pragma
Master of Computer Applications	e-Disha

- The student chapters such as ISTE, ASME, IEEE, IEI, CSI, ASAE support self-learning by conducting technical activities.
- Departments organize alumni expert series, which gives platform for students to interact and learn from their seniors.

- Institute supports students to take up projects by funding and showcasing in workshops, conferences and exhibitions.
- Experts from reputed Industries/R and D organization are invited to the campus to deliver their expertise provide a platform for student interaction.
- A common English and language laboratory helps to improve the communication.
- Field trips, survey camps and industrial visits are arranged.
- Seminars and presentations are held on regular basis.

9.5. Career Guidance, Training, Placement (10)

The institution has a structured and organized training and placement cell. Domain specific training and skill based trainings through outsourced agencies and in house training is conducted during four years of programme. In the last three years

Career guidance

All the students of Acharya Institute of Technology are provided with intense and multidimensional career guidance throughout the course duration. Professional organizations and consultants/experts in higher education conduct seminars and counselling sessions, group wise. Special emphasize is given to induce students to undertake higher education in forms of master degree, doctoral degrees in India and abroad.

Training and placement facility

Acharya Institute of Technology has an exclusive training department which takes care of the training needs of all its departments. The training imparted includes aptitude, communication, analytical reasoning, problem solving along with the basic etiquettes. In addition domain training for the respective departments is provided both by the centralized training department as well as from the departments themselves.

The placement at Acharya campus is a dynamic, real-time process which is inclusive,

proactive, ambitious and wholesome. The placement process is constantly tuned based on industry need and feedback. The placement cell monitors the employment opportunities and arranges campus recruitment process interviews for the final year students and provides internship opportunities for pre-final year students. A dedicated training and placement cell works round the year to provide efficient, effective training and employment opportunities for all the students.

Industrial Visits

Industrial visits are organized by all the departments to ensure practical and industrial exposure to students. The students acquire ample knowledge on current trends in technology through real time learning based on the actual industrial standards and practices.

GATE, GRE, TOEFEL Training

Each department has a GATE coordinator who coordinates GATE training to students of the respective department with the support of all faculty in the department. The English Language Lab provides necessary support required by students for GRE and TOEFEL. The students are also given the opportunity to learn foreign languages required for jobs and higher studies in countries like Germany, France and Japan.

Workshops and Seminars

Workshops, Seminars and Guest lectures are organised in respective departments where industrial experts are invited to deliver lectures and conduct workshops in order to create awareness among the students about the latest trends in industry and research. The students

also acquire hands on experience during the sessions.

Figure 9.5a: Guest Lectures by industrial experts.

Figure 9.5b: Industrial Visit and Students at Krishi Mela

9.6. Entrepreneurship Cell (5)

Acharya Institute of Technology has incubation cell to convert innovative ideas into products. To encourage entrepreneurial skills, institute has started Technology Business Incubator (TBI), to nurture and leverage innovative minds in embracing on sustainable business.

Objectives

1) To foster innovative ideas and support sustainable growth
2) To create a viable entrepreneurial ecosystem

Impact of the efforts

A good number of student projects have been undertaken under the SASKEN innovation laboratory

Some of the noteworthy ones are mentioned below.

1) 4KUHD- Modify the existing H.265 codec to make it efficient in terms of Power and resolution for UHD TV's

2) Audio analysis- to extract the information and meaning from audio signals for analysis, classification, storage in the development of new audio-related products and services.

3) I See You- a Java based GUI that can be used to locate persons

4) RFID-range extender by developing RF repeaters

5) Master hub- a low cost universal master hub device that can be used for multiple applications

6) Mobile hearing Aid-Mobile phone based body ware digital hearing aid (MBW) device

7) ANNOVIL- Vehicle to vehicle communication through light

8) Object locator- a low cost object locator device that can be used for multiple applications

9) Mobile Glass- android application that can be used as reading glass/ magnifying glass

10) Lane departure detecting system in highway

11) Students and faculty mentors have participated in Smart India Hackathon and Chattra Vishwakarma Projects Award competition for the consecutive last two years.

Some of the successful enterprises incubated under the IBM Acharya Incubation Centre are:

1) INFOBOUTIQUE - Fully incubated and product launched in the market

2) TECHNOCRAT - Incubation done at Acharya incubation center

3) CODE PIP - Incubation done at Acharya incubation center

4) ATOM ROBOTICS - Incubated by Mechatronics Engineering students and robot called Jarvis sent for Patenting

5) SKY IMAGINATIONS - one developed by Mechatronics Engineering student and one being used commercially

6) MAVITRONICS –Student's from Mechatronics who successfully developed a 3D printer and for which they have won several national prizes

Some of the projects have been taken for commercialization with various industries are as follows:

1) 3D Printer(Machine)

2) Automated coir-plyer

3) Multipurpose wheelchair for Neurologically Disabled People

4) Development of noise contour for Bangalore city

5) *In vitro* Anti Diabetic Study by Glucose uptake assay on Skeletal Muscle cell line and Glut4gene expression studies

6) Auto irrigation based on IOT

7) Floating solar panel

8) Prototype of UAV for agricultural applications

9) MUD concrete block using C and D waste

Collaboration with Foreign Universities to Enhance and Encourage Entrepreneurship

Acharya Institutes has MOU's with the following universities in the areas of student and faculty exchange, research collaboration, internships, joint programs etc. to enhance Entrepreneurship among the students. Under these MOU's our students are engaged in Research Projects under the mentorship of the Foreign University and the same is completed in a period of about 8-10 months and finally the best students are selected to do an internship at the respective University. We have MoUs with Universities and with Industries

Last year 13 students went to ODU, 14 students went to Carleton University and 15 went to Lubbock, Germany for internship. This year also, 13 students at ODU and 30 students at Northern Illinois University are expected to do internship.

Few of these students are continuing their work with the mentors from the ODU.

Alumni network

Acharya Institute of Technology has a well-established alumni network comprising of about more than 15000 students who have graduated from our institution of which over 100 students have become entrepreneurs.

Network with various industries and industrial associations

Acharya Institute of Technology has understandings with various industries and industrial

associations. Some of these are as mentioned below:-

National Aeronautics Ltd, Sasken Communication Technologies Limited, Moog India Tech. Centre, IBM India Pvt. Ltd., UTL Tech. Pvt. Ltd., SAP India Pvt. Ltd., Dynamatic Technologies Ltd, Prasiddi Engineers, Trinity Institute of NDT Technology, Mahindra and Mahindra Ltd., Infosys Campus Connect Program, Edall Systems, TIME.

Network with foreign institutions

Acharya Institute of Technology has a very good network with several foreign institutions. Some of these are 1)Illinois Institute of Technology, Chicago, USA 2)Florida International University, Florida, USA 3)Northern Illinois University, Dekalb, Illinois, USA, 4)Harrisburg University, PA, USA, 5)Carleton University, Ottawa, Canada, 6)TrinityWestern University, Canada, 7)Old Dominion University, Norfolk, USA, 8)University of Illinois, Rockford, USA, 9)The University Institute of the Coast, Cameron, 10) Waljat Institution of Applied Sciences, Muscat, Sultanate of Oman,11)University of Applied Sciences, Lubeck, Germany

Evidence of success

Details on entrepreneurship orientation for faculty/and proposed AITBI team.

Acharya Institutes TBI has entered into a MoU with Entrepreneurship Development Institute of India (EDII), Ahmedabad, and a pioneer institution in the field of entrepreneurship education. To ensure that all the AI-TBI members have a common understanding of entrepreneurship and management of an Incubation Centre, EDII designed a bespoke training program.

A 20 member team underwent the training workshop that was spread over four days residential program at EDII, Ahmadabad. The program was delivered by resource persons from various segments of the startup ecosystem and included Incubation.

The program also involved interaction with the CIIE, IIM-Ahmadabad. The core team is also

interacting with NSRCEL, the Incubator at IIM, Bangalore. AI-TBI members are already exposed to entrepreneurship.

Problems encountered and resources required

Since BOX-AITBI is at its inception and yet to convert an idea in to incubation. Till now it is more of discussions and sharing of ideas and handholding. No specific difficulties have been noticed. Table shows a few prominent startups by AIT alumni.

Table 9.6a Startups by AIT alumni

Name of the Alumni	Organization/Company	Website
Hirpararavi	Nixapp technologies	http://www.nixapp.com
Sauravchoudhary	Shree Balajee industries	http://www.shreebalajiindustries.org
Parsanavipul	Swat Info system	http://www.swatinfosystem. com
Manoranjanjena	Jena informaticspvt. Ltd.	http://www.jenainformatics. com
Revathy K	Finsol	http://finsolconsultancy.com
Nisha G and Mahanthesha H	Keenkite It Solutions Pvt. Ltd.	http://www.keenkite.com/
Ashwin B N	THT Technologies	http://www.thttechnologies.com
Lakshmikanth	Quals Technologies Pvt Ltd.	http://www.qualstech.com
Bhojrajsahu	Jena informaticspvt. Ltd.	http://www.jenainformatics.com
Luitjyoti and kanhaiyalal	Signoryle solutions	http://www.signoryle.com
Balajij, website:	Shoot bob	http://www.shootbob.com/
Jasmeetsingh	Softlogique it solutions (p) ltd	http://www.softlogique.com
Ketanjaiswal	Director, hsrk foods and beverages pvt. Ltd	http://wwwaurnate.com
Aravind G.	DOGMA GLOBAL	http://dogmaglobal.com/
Naveen P	Npn-12 Service Network, Bangalore	http://npn12.com/
Parthsharma	Knight srobocorp, Bangalore	http://knightsrobocorp.com

Prakash Ranjan	Asperify Technologies	http://aspirify.in

9.7. Co-curricular and Extra-Curricular Activities (10)

The institution has the policy to identify and nurture the talents among the students. At the beginning of every academic year during induction program students are appraised about facilities and opportunities to exhibit their talent by participating in extracurricular and co-curricular activities.

Also scheduling the events are sent through circulars and campus network e-news. Strategies for scouting and nurturing the talents in sports, cultural activities and debates/discussions and quiz/competition are by holding institutional level competitions and also by participating in other institution program Following are some of the strategies adopted to promote students participation in extracurricular and co-curricular activities.

1) Students are allowed to participate in various intra and inter institution competitions like, Technical quiz/symposiums to develop their competition skills.

2) Various sports activities are well published on the notice board and campus News e- network. The interested students are subjected to selection process, talented and eligible students are encouraged to improve the skills and participate in different events. Students after getting medals are honored/acknowledged through institution website and news Acharya

3) Every department on campus has a forum and here technical skills, technical competitions like Robo soccer, technical seminar, debits, paper presentation, guest lecture etc. are organized.

4) Cultural events are regularly planned within the university level and inter institution.

After proper rehearsal different groups are identified to participate and represent at the inter institution and university level youth festivals.

5) The Department of Physical Education and Sports has six dedicated sports teachers for different kinds of games and organize many sports events.

6) Tennis court, Basketball court, cricket stadium, Volley Ball, Badminton, Table Tennis, Kabaddi, Kho-Kho, Shuttle Badminton, Weight Lifting and Power Lifting, Softball, Archery and indoor games facilities are available on campus. Horse riding training is given for the interested students. College has multipurpose stadium with a capacity of 20,000, which caters to events like Cricket, Foot Ball, Hockey, Softball, Handball and Athletics.

7) The Department faculty and student representatives from Cultural committees. This committee will identify students having interest in cultural activities and encourage/support them to participate in the institution day function/other institution.

8) Seminar halls & auditorium are available for performing events.

Additional academic support

1) Students represented state/nation at junior level is given scholarships during admissions.

2) Attendance benefit is given to students as and when they represent the Institution, University or National level sports as well as Cultural events.

3) Special classes and Makeup Internal assessment tests are conducted for those students who tend to miss their regular academic classes on account of extracurricular and co- curricular activities.

Special dietary requirements, sports uniform and materials

Special dietary requirements, sports uniform and materials are provided, during practice and match sessions.

1) Uniforms and ID cards are provided to all sports teams representing the institution.

2) Sports materials and kits are provided whenever necessary.

3) During matches, TA and DA are given as per the norms fixed by Sports

Committee of the Institution.

Any other

1) Every year, for first year students' science department conducts activities under "Science Forum" in which students are allowed to participate in events like Quiz, Poster presentation, Fun with Maths, Mathematical modeling.

2) Each Department has an association namely Forum, Lakshya, Spectra etc which conduct various programs like Technical quiz, collage etc. This helps students to gain confidence in communication, organizing capability, budgeting, leadership, fund management, and team building.

3) Every year Kreeda habba is celebrated as a part of Acharya Habba, where maximum students participate in Athletics and in games like volleyball, basketball, chess etc.

4) To encourage Cricket interest among the students, Acharya Premier League (APL) is conducted by the institution with cash prize of Rs.7 0,000 for winning team.

5) Acharya Institute of Technology also has horse riding training and facility.

6) The institute also has Archery training facility.

7) The institute also has a nature club to create environment and societal importance.

Figure 9.7a: Acharya Premier League

Figure 9.7b: Graduation Day Celebration at AIT

Figure 9.7c: Kannada Rajyotsava Celebration at AIT

Figure 9.7d: Outbound Training Program for First Year BE studentsebrations

Figure 9.7e: Onam Celebrations

Figure 9.7f: Acharya received cash prize of 1,00,000.

Figure 9.7f1 Acharya Football League

Figure 9.7g: SAEINDIA REEV Virtuals

Figure 9.7h: Horse Riding Facility

Table 9.7a: Sports and Cultural Achievers

Year	Name of the award/ medal	National/ International	Sports/ Cultural	Name of the student
2015-16	Inter University	South Zone	Sports	Charan V P
2015-16	Inter University	South Zone	Sports	Manjunath Swamy
2015-16	Inter University	South Zone	Sports	Kruthi j Rao
2015-16	Inter University	South Zone	Sports	Lahari Shree Y
2015-16	Inter University	All India	Sports	Harsha M V
2015-16	1 Bronze	All India	Sports	Shirisha K
2015-16	Inter University	South –Zone	Sports	Harshitha S J
2015-16	Inter University	South –Zone	Sports	Jai Kiran
2015-16	Inter University	South –Zone	Sports	Srushti K
2015-16	Inter University	All India	Sports	Mahalakshmi
2015-16	Inter University	All India	Sports	Surekha hiroli
2015-16	Inter University	All India	Sports	Disha Niranjan
2015-16	Inter University	All India	Sports	Adithya K E
2015-16	Inter University	All India	Sports	Swathi K H
2015-16	Inter University	All India	Sports	Monish M
2015-16	Inter University	All India	Sports	Prajwal S
2015-16	Inter University	All India	Sports	Rohith Sriranga K S
2016-17	Inter University	South Zone	Sports	Aishwarya Basker

2016-17	Inter University	South Zone	Sports	Neetu Kadam
2016-17	Inter University	South Zone	Sports	Adarsh M S
2016-17	Inter University	South Zone	Sports	Sushma Bhat
2016-17	Inter University	All India	Sports	Bharath M C
2016-17	Inter University	All India	Sports	Thevadas Visvajith
2016-17	Inter University	All India	Sports	Lakshmisree M O
2016-17	Inter University	All India	Sports	Adithya K E
2016-17	Inter University	All India	Sports	Swathi K H
2016-17	Inter University	All India	Sports	Rakshith S
2016-17	Inter University	All India	Sports	Surekha hiroli
2016-17	Inter University	All India	Sports	Neetu Kadam
2016-17	Inter University	All India	Sports	Aishwarya Yadav S
2017-18	Inter University	South Zone	Sports	Sushma Bhat
2017-18	1 Bronze	South Zone	Sports	Madhan Kumar S
2017-18	1 Bronze	South Zone	Sports	Charan V P
2017-18	Inter University	South Zone	Sports	Raghavendra M D
2017-18	Inter University	All India	Sports	Khushnaaz Soni
2017-18	Inter University	All India	Sports	Mohammed parvez R S
2017-18	Inter University	All India	Sports	Sumeeth B S
2017-18	Inter University	All India	Sports	Prashanth M
2017-18	Inter University	All India	Sports	Shrigouri Jumnalkar
2017-18	Inter University	All India	Sports	Disha B S

2017-18	Inter University	All India	Sports	Adithya K E
2017-18	Inter University	All India	Sports	Shrigouri Jumnalkar
2017-18	Inter University	All India	Sports	Likitha S
2017-18	Inter University	All India	Sports	Charan V P
2017-18	Inter University	All India	Sports	Madhan Kumar S
2017-18	Inter University	South Zone	Sports	Sharath G S
2017-18	Inter University	South Zone	Sports	Roshan I M
2017-18	Inter University	Federation Cup	Sports	Mohammed parvez R S
2017-18	Inter University	Senior Nationals	Sports	Likitha S
2017-18	Inter University	Senior Nationals	Sports	Madhan Kumar S
2017-18	Inter University	Senior Nationals	Sports	Charan V P
2017-18	Inter University	Senior Nationals	Sports	Supriya M
2017-18	Inter University	Senior Nationals	Sports	Aishwarya Yadav S
2017-18	Inter University	Senior Nationals	Sports	Prashanth M
2017-18	Inter University	Senior Nationals	Sports	Mohammed parvez R S
2017-18	Inter University	Senior Nationals	Sports	Lakshmisree M O
2017-18	Inter University	Senior Nationals	Sports	D Srinivas
2017-18	Inter University	Senior Nationals	Sports	Adithya K E
2017-18	Represented India	International	Sports	Vishnu K K
2015-16	1st Place	National	Cultural	Arya V
2016-17	3rd Prize	University	Cultural	Chinmay Bhat & Soumya G Bhat

ACHARYA HABBA

Every year Acharya Habba a techno-cultural festival is celebrated in the month of March. The extravaganza is considered as the most happening event among all engineering colleges in Bangalore.

The event witnesses' variety of events both technical and cultural events. A due recognition is given to all foreign nationals to exhibit their tradition and culture in terms of International Habba.

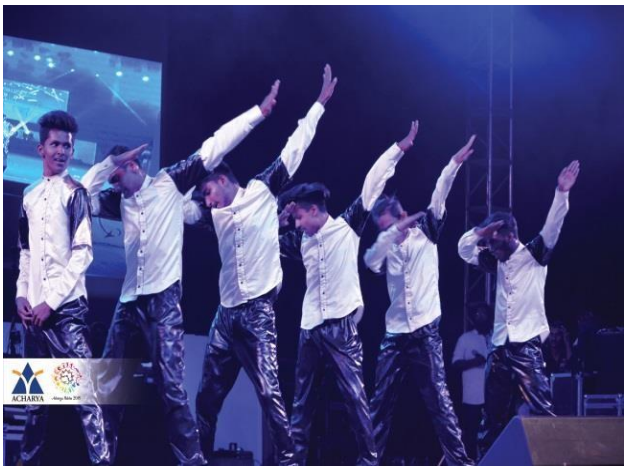


Figure 9.7i: Acharya Habba

(*The institution may specify the co-curricular and extra-curricular activities*) *(Quantify activities such as NCC, NSS etc.)*

NSS Unit of the college

National Service Scheme is a student centered programme and it is complementary to education. It is a noble experiment in academic extension. It inculcates the spirit of voluntary work among students and teachers through sustained community interaction. It brings our academic institutions closer to the society.

It is a link between the campus and community, the college and village, knowledge and action. The overall aim of NSS is the Personality Development of students through community service. It gives an extension dimension to Higher Education system and orients the student youth to community service.

Objectives

The broad objectives of NSS are to: -

- Understand the community in which they work and in relation to other community
- Identify the needs and problems of the community and involve them in problem solving process;
- Develop among themselves a sense of social and civic responsibility;
- Develop capacity to meet emergencies and natural disaster and Practice national integration and social harmony.

Table 9.7b: Composition of the NSS Cell:

Sl. No.	**Name**	**Designation**	**Role**
1.	Dr. Prakash M R	Principal	Chairperson
2.	Dr. S M Gopinath	Prof and HOD, BT	Chief Program Officer
3.	Dr. Aruna M	Asst. Prof., EEE	Coordinator
4.	Mr. Praveen B B	Asst. Prof., ME	Coordinator
5.	Mr. Narasimhamurthy	Asst. Prof., MI	Coordinator
6.	Ms. Thriveni	Asst. Prof., BT	Member
7.	Mr. Mahanthayya	Asst. Prof., AE	Member
8.	Mr. Mallikarjun	Asst. Prof., Phy	Member
9.	Mr. Satish K B	Asst. Prof., Chem	Member
10.	Ms. Bhagirathi	Asst. Prof., MT	Member
11.	Mr. Chetan	Asst. Prof., Maths	Member
12.	Mr. Dhananjaya	Asst. Prof., CV	Member
13.	Mr. Swamy M R	Asst. Prof., MCA	Member
14.	Mr. Avinash	Asst. Prof., CSE	Member
15.	Mr. Arun Kenchapur	Asst. Prof., ISE	Member
16.	Ms. Nagapushpa	Asst. Prof., ECE	Member

17.	Mr. Prajwal	Asst. Prof., AU	Member
18.	Mr. Lohit	Asst. Prof., MS	Member
19.	Mr.Suhas Patil	Asst. Prof., MBA	Member

Number of activities were held under the guidance of NSS cell and are shown in the following table

Sl. No.	Name of the activity	Organizing unit/ agency/ collaborating agency	Year of the activity	Number of teachers participated	Number of students participated in such activities
1	Blood Donation Camp	Acharya Institute of Technology	2018	18	200
2	Digital Banking and Related mobile Application uses	Seven days NSS Special Camp at Hoskere, GubbiTaluk, Tumkur District	2017	14	100
3.	International Earth Day and Seed Bomb Program	NSS and Acharya Institute of Technology	2018	18	250
4.	Blood donation camp organized by INDIAN RED CROSS SOCIETY	Indian red cross society, Karnataka state Branch	2018	25	100
5.	Blood Donation Camp	NSS and Lions Blood Bank	2018	15	519
6.	National service scheme (NSS) Special camp	Acharya institute of Technology with National Service Scheme (NSS) and VTU Hoskere Gubbi Taluk, Tumakuru(Dist)	2017	10	60

7.	Blood Donation Camp	Lions Blood Bank	2017	20	88

Figure 9.7j: Celebration of Earth Day and Seed Bomb Program under NSS

Figure 9.7k: NSS Camp at Hoskere Gubbi Taluk, Tumakuru(Dist)-Plantation, Yoga and Cultural

Figure 9.7l: NSS Camp at Hoskere Gubbi Taluk, Tumakuru(Dist)-Swachh Bharath

Figure 9.7m: NSS Camp at Hoskere Gubbi Taluk, Tumakuru(Dist)-Health Camp


INDIAN RED CROSS SOCIE
Karnataka State Branch
"Blood Connects us all
oluntary Blood Donation will cost nothing but it
Pledge to Donate Blood - Save Precious

Figure 9.7n: Blood Donation Camp

Figure 9.7o: Guinness World of Records

NCC at AIT

A NCC COY (9 KAR BATTALION) is also available in the campus where students of AIT are a part.

Motto of NCC: "Unity and discipline". Aims and Objectives of NCC

To create a human resource of organized, trained and motivated youth, to provide leadership in all walks of life and be always available for the service of the nation.

To provide a suitable environment to motivate the youth to take up a career in the Armed Forces.

To develop character, comradeship, discipline, leadership, secular outlook, spirit of adventure, and ideals of selfless service amongst the youth of the country.

Figure 9.7p: NCC Parade on Independence Day

Figure 9.7q: Guard of Honor to Chief Guest by NCC students on Independence Day

CRITERION 10	GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES(120)

10.1 Organization, Governance and Transparency (40)

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

Vision:

"Acharya Institute of Technology, committed to the cause of sustainable value-based education in all disciplines, envisions itself as a global fountainhead of innovative human enterprise, with inspirational initiatives for Academic Excellence."

Mission:

"Acharya Institute of Technology strives to provide excellent academic ambience to the students for achieving global standards of technical education, foster intellectual and personal development, meaningful research, ethical, and sustainable service to societal needs."

The vision and mission statements are communicated to all the staff, students and parents and stake holders through the institute website, prospectus, and induction programme, back cover page of blue books, departmental newsletter, and institute magazine. These statements are also displayed at prominent places of the institute.

Values: Pursuit of Excellence

Integrity and Transparency

Leadership

Motto "Nurturing Aspiration and supporting Growth"

10.1.2 Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies (10)

List the governing, senate and all other academic and administrative bodies; their

memberships, functions, and responsibilities; frequency of the meetings; and attendance there in, in a tabular form. A few sample minutes of the meetings and action-taken reports should be annexed. The published rules including service rules, policies and procedures; year of publication shall be listed. Also state the extent of awareness among the employees/students.

Acharya Institute of Technology is having well defined Governing Structure under the aegis of JMJ Education Society Governed by the Secretary of the Society Shri B.Premnath Reddy.The Governing Council of Acharya Institute of Technology is constituted as per the norms of the AICTE/affiliating university. The structure of the Governing Council is as shown in Fig: 10.1.

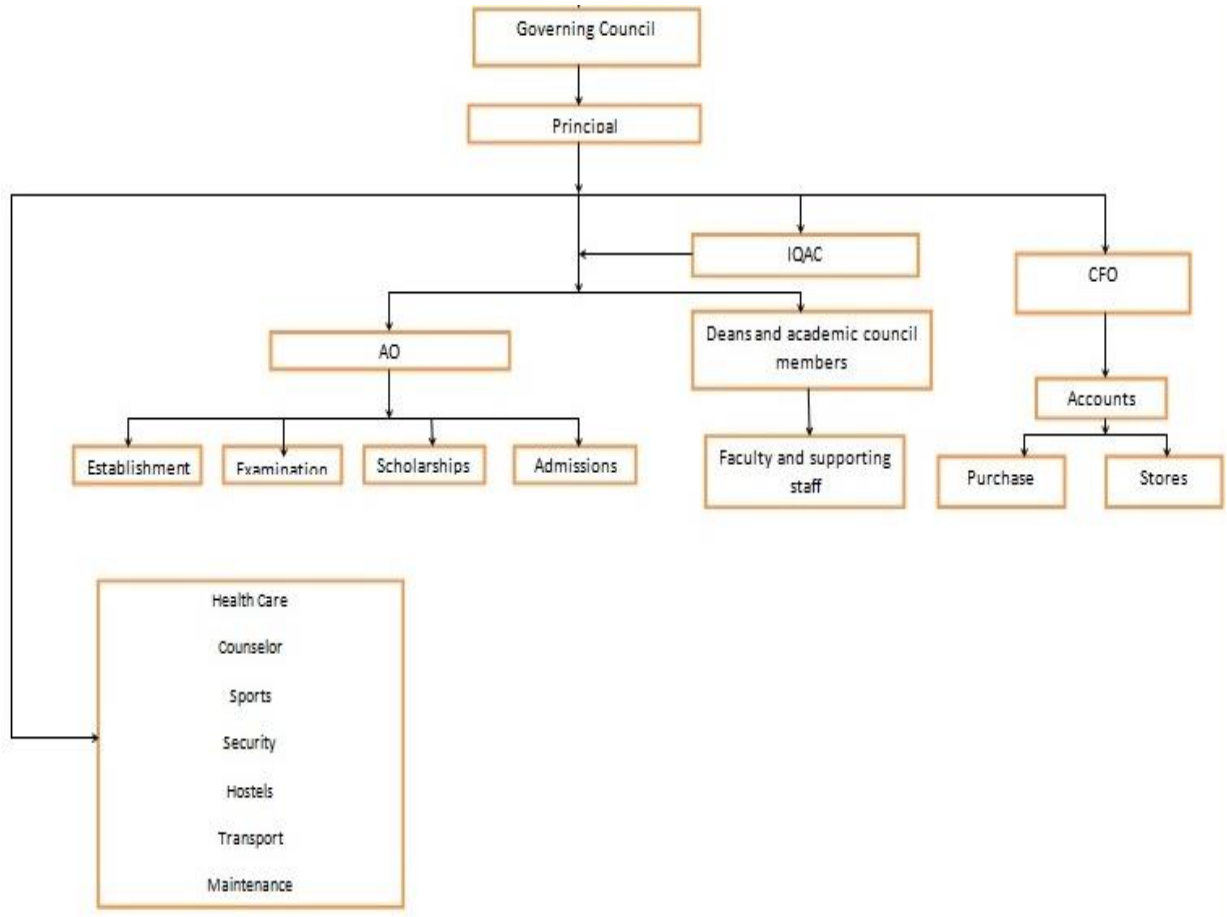


Fig: 10.1: Organization structure of the Institute

The current members in the Governing Council is shown in Table 10.1a:

composition, roles, responsibilities, functions and frequency of meeting of each defined functionalities are as follows:

Table 10.1a: Composition of the Governing Council

Sl no.	Name	Designation
1	Mr. B. PREMNATH REDDY, Founder Chairman, Acharya Institute of Technology	Chairman
2	Dr. K. RAMACHANDRA , Former Director, GTRE, Bangalore	Member
3	Mr. GEORGE PUNNOOSE ,Chief Operations Officer, Kalkitech	Member
4	Dr. H. N.SHIVA SHANKAR, Director, RNSIT, Bangalore	Member

Sl no.	Name	Designation
5	Dr. D.K. SUBRAMANYAM, RETD. Prof. IISc, Govt. Nominee	Member
6	Dr. R. NATARAJAN , Former AICTE Chairman	Member
7	Director of Technical Education, Govt. of Karnataka, Bangalore.	Member
8	Mr. VENKAT SATHISH, VTU Nominee	Member
9	Dr. RAJESWARI, Prof. &HOD-E&CE, Representative of faculty	Member
10	Dr. Y. VENKATARAMI REDDY, Former, Vice-Chancellor, JNTU	Member
11	Dr. PRAKASH M R, Principal, Acharya Institute of Technology	Member secretary

Roles, Responsibilities and functions of the Governing Council

The function of the Governing council is to plan strategically the development of the institution, approve the budgets, purchases and recruitment of human resources.

To review the progress of the student progression, the research activities, staff development periodically and guide the Principal for functioning of the institution to achieve the vision and mission envisaged.

COLLEGE ACADEMIC COUNCIL:

This is the academic body of the institute with all the deans and heads of the department as its members with Principal being the chairman. The Academic Council meets regularly, plans the academic calendar and monitors its implementation. The agenda of the meeting is contributed by its members for deliberations.

COMMITEES

The Institute has a host of committees for its functioning. The committees are

1. Internal Quality Assurance Cell (IQAC)
2. Anti Ragging
3. Anti sexual Harassment
4. Women's Cell
5. Equal opportunity Cell
6. Library
7. Hostel Committee
8. Student welfare
9. Examination Cell
10. Research & Development
11. Innovation Cell
12. Sports & Cultural
13. Training & Placement Cell
14. Grievance Cell

INTERNAL QUALITY ASSURANCE CELL (IQAC)

The IQAC committee monitors the quality assurance of academic delivery. It consists of a Coordinator and fifteen members with Principal being the Chairperson. The composition as per the UGC guidelines is shown in Table 10.1b

It monitors the performance appraisal of academic performance and the implementation of academic calendar.

Table 10.1b: IQAC composition

Sl. No.	Name	Designation	Role
1.	Dr. Prakash M R	Principal	Chairperson
2.	Dr. Kiran Reddy	Member	Management representative
3.	Dr. Gopinath S M	HOD, BT	Co-ordinator
4.	Dr. Gaddagimath	Dean, Learning Resources	Member
5.	Dr. Ganesh Rao	Dean, Circuit Branches	Member
6.	Dr. Prakash R	HOD, EEE	Member
7.	Dr. GururajUrs	Professor, MBA	Member
8.	Dr. Ramesh Hegde	HOD, MCA	Member
9.	Dr. Renuka Devi	Administrative Officer	Member
10.	Dr. B Manjunath	Associate Professor	Member
11.	Mr. Gangadhar	Gram Panchayath Member, Alur	Member from Local Society
12.	Mr. K H Chandrashekar	Kennametal	Member from Industry
13.	Dr. Gurunath Rao Vaidya	Parent	Member from Stakeholders
14.	Mr. AbhinavTiwari	6th Sem. ISE	Student Member
15.	Mr. Naveen	Alumni, CSE	Alumni Member

16.	Mr. Shreyas Karnick	Asst. Professor	Member Secretary

Roles, responsibilities and functions:

1. Development and application of quality parameters for performance appraisal.
2. Facilitating the creation of a learner-centric environment conducive to quality education and faculty development program to adopt the required knowledge and technology for participatory teaching and learning process.
3. Arrangement for feedback response from students, parents and other stakeholders on quality-related institutional processes.
4. Dissemination of information on various quality parameters of higher education.
5. Organization of inter and intra institutional workshops, seminars on quality related themes and promotion of quality circles.
6. Development and maintenance of institutional database through MIS for the purpose of maintaining/enhancing the institutional quality.
7. Preparation of the Annual Quality Assurance Report (AQAR) as per guidelines and parameters of NAAC, to be submitted to NAAC.
8. The Cell audits the academic records (course file, personal file, performance file and Mentor file). Suggests any changes to be incorporated time to time and continuously monitor its progress.
9. IQAC meets once on every mid of semester to present the TLP audit.

Anti-Ragging Committee

The Anti-Ragging Committee is constituted as per the guidelines prescribed by the UGC hosted on http://www.antiragging.in/Site/Infopack.aspx.

The committee constitution is shown in Table 10.1c

Table 10.1c: Composition of Anti-ragging committee

Composition	Role
Principal	Chairman
Management representative	Member
HODs – 16	Members
Students representative	14 members

Police inspector	Member
General administrator	Member
Dean Student Affairs	Member
Medical Officer	Member
Hostel Warden / Chief warden	Members

Anti-ragging squad committee constituted with the composition of Faculty representative as members from every department to monitor the students on academic campus, hostels and residential premises in general.

Anti-sexual Harassment committee

This committee is constituted as per the norms of the statutory bodies for Prevention of Sexual Harassment (POSH)

Table 10.1d: Composition of Anti sexual harassment

Sl. No.	Name	Designation	Role
1.	Dr. Prakash M R	Principal	Chairperson
2.	Dr. Uma Warrier	NGO	Member
3.	Ms. Varalakshmi B D	Asst. Prof., CSE	Presiding Officer
4.	Mr. Hanumanthe Gowda	Asst. Prof., Humanities	Member
5.	Dr. Gopinath	HOD, BT	Member
6.	Dr. Renuka Devi	AO	Member
7.	Ms. Ayushi Sharan G	Student, ECE	Member
8.	Ms. Nikita Murgud	Student, MCA	Member
9.	Mr. Shreyas Karnick	Assistant Professor	Member
10.	Ms. Nagapushpa	Asst. Prof. ECE	Member Secretary

The composition in the committee will be re-constituted once in every Two years.

Women's Cell

Women cell is working with the main aim of Gender equality, Prevention of sexual harassment and to protect women safely.

This cell is to ensure the equal opportunity to women faculty and girl students monitoring the gender equality on campus.

Equal opportunity cell

The Institute has constituted the equal opportunity cell with the objective of creating the awareness and optimal benefits extended by the Government and other bodies for the students' welfare.

Library Committee

Library committee consists of Chief Librarian, Librarian, faculty and student representatives headed by the Principal. The procurement of reading resources is generalized by this committee which recommends the procurement of books, journals and e-resources. The composition is shown as in the table 10.1e.

Table 10.1e: Composition of Library committee

Chairman	Head of the Institution
Members from the Teaching Faculty	Head of the Departments or their nominees
Members from Students	One student from each of the departments
Member from Accounts	Accounts Officer
Member-Secretary	Chief Librarian

Term of the Committee is for 2 years. After its tenure, fresh committee is formed.

Hostel Committee

Hostel committee headed by the chief warden, wardens both men and women supervise the living of the students and their welfare in the hostels on the campus. Composition of the hostel committee is shown in table 10.1f.

Table 10.1f: Hostel Committee

Sl. No.	Name	Designation	Role
1.	Dr. Prakash M R	Principal	Chairperson
2.	Mr. R Shadakshari	Asst. Prof, Mechanical and Chief Warden	Member Secretary
3.	Dr. A R K Swamy	Professor, Mechanical and Warden	Member
4.	Mr. Vijay Hashia	Hostel Manager	Member
5.	Mrs. Ramashree	Manager Ops	Member
5.	Mrs.Asha Pulli	Facility Manager	Member
6.	Mr. Ramakrishna Gowda	General Admin	Member
7.	Mr. Dinesh	Head, Security	Member
8	Students representatives - 10 No.	Girl students / Boy students	Members

STUDENT AFFAIRS /WELFARE COMMITTEE.

The committee is headed by Dean Students Affairs along Assistant deans, one faculty member from each department is nominated by respective Head of the Departments acts as its mentor coordinator. They meet once in a month to discuss academic progress of the students and any other issues related to students. The committee looks after academic issues, co-curricular activities.

Examination Committee

The committee under the Principal who is the Chief Superintendent, functions for smooth and effective conduct of university examinations and liaison with the university in examination related matters of the college.

They meet regularly two times in a semester and whenever situation arises. The term of the committee is two years and shall continue until further reconstitution.

Research and Development Cell

Acharya Institute of Technology has established R & D cell in 2015 with objective to promote and disseminate the research on campus. It plays an active role in institutional ethos, intellectual culture and educational experience conducive to critical discourse, intellectual curiosity, tolerance and a diversity of views. The committee also reviews the project and funding proposals.

Innovation Cell

Acharya Institute of Technology has established Institute Innovation Council (IIC) as per the norms of the HRD Ministry, Government of India. The cell conducts activities in line with the MHRD initiated activities, grass root innovation sessions for the students and faculty members. The students are encouraged to come up with their innovative ideas in all disciplines, which are curated by the Acharya Technology Incubator on campus for further product/ service development. The cell also encourages the students and faculty to participate in the national and international level competitions for innovations. The cell consists of the chairperson, staff and student members including alumni.

Sports & Cultural Committee

This committee is constituted with Principal as its chairman, physical education director as its member secretary and seven teaching faculty as its members.

They meet once in the beginning of every semester and prepare a plan of action along with the calendar of events of VTU and our institution.

Roles, responsibilities and functions

The committee frames the policies and its implementation. The Committee co- ordinates for organizing the sports events at intra and inter level comprises regional, state level, national and

international level for faculty and the students regularly. The cell identifies new talents by selection trails/auditions that will be conducted at the start of academic year for all sports.

The committee co-ordinates for selection process done by professional experts from respective sports.

In case of cultural activities the cultural committees conduct auditions to select teams and individual participations for various cultural events.

This activity encourage students to develop their physical and mental health and enhance their skills.

Sports facilities at Acharya Institute of Technology

Outdoor: Football, Cricket, Basketball, Volley ball, Kabaddi, Softball, Archery, Ball Badminton, Handball, Tennis, Kho-Kho and Athletics.

Indoor: Table Tennis, Chess and Carom, Multi Gym, Power Lifting, Weight Lifting.

Placement and Training Cell

The Cell is having well defined policy and works within the frame work with the main objectives of training of:

- To have a positive impact on educational outcomes by advancing training and job placement for students, establishing a model for Placement Oriented Training for the students.
- Develop the physical and mental potential and the problem-solving capacity of individuals
- To develop and enrich students; inquisitive ability and raise their creativity and interest.
- To make education, training and research appropriately integrated with development by focusing on research.

The cell comprises of the staff as members from department of training and placement, faculty representatives from each department of the institute as coordinators headed by the Director Training and placement. The composition of the cell is as follows in the Table 10.1g

Table 10.1gThe composition of the Placement & Training cell

Sl.No.	Name	Designation
1.	Mr. C.B.M Bhooshan	Director Training and Placements
2.	Prof. Iqbal Ahmed	Dy Director Training
3.	Dr. Ismail Shareef	Training and Placement Officer
4.	Mr. Vijay.T.Nayak.	Executive Placements
5.	Ms. Rashmi.N.Mahesh	Sr. Executive Placements
6.	Mr. Irshad Ahmed S	Assistant Director Placements
7.	Mr. Basavaraju M	Assistant for Training
8.	Ms.Sirisha Reddy	Asst. Director/ Asst. Professor, Dept. of Civil Engg.
9.	Faculty representatives - from every department	Asst Professors as coordinators

The cell prepares the students for placement, is responsible for inviting tenders and selection of training team, preparation of time table for training in coordinating with the HODs, arrangement for training, pre and post evaluation of the training.

The cell has students modules, client modules, placement staff co-ordinator module for organizing and coordinating in recruitment and selection process where internal and external students will participate in the recruitment process, pool events, internship events and off campus events. Placement department also maintain database of clients, and selected candidates, their offer letters/ appointment letters.

The cell meets every month formally otherwise meets regularly whenever the clients visit the institution.

10.1.3 Decentralization in working and grievance redressal mechanism (10)

(List the names of the faculty members who have been delegated powers for taking administrative decisions. Mention details in respect of decentralization in working. Specify the mechanism and composition of grievance Redressal cell including)

The management has delegated its authority to the Principal to administer the institute. The principal in-turn has delegated the powers to Professors under Acharya Institute of Technology as follows.

Table 10.1h: Decentralization in working

Sl. No.	Faculty name	Department and Designation	Roles and Responsibility
1.	Dr. Devarajaiah R M	Dean Academics-Professor and HOD,Mechatronics	Academic planning and implementation
2.	Dr. Rajeswari	Dean R&D, Professor and HOD Electronics and Communication Engineering,	Foster R & D culture in faculty and students. Proposals submissions and consultancy activity.
3.	Dr. Prakash R	Convener-Anti Ragging Committee. Professor and HOD, Electrical and Electronics	Prevention of ragging menace in the campus.
4.	Dr. Gopinath S M	IQAC Coordinator Professor and HOD, Biotechnology	Quality monitoring in academic activities. NSS coordinator- Creating social responsibility among students and faculty.
5.	Dr. Gaddagimath	Dean, Learning Resource Centre	Develop Digital resources and create awareness about the facilities in the library for students and faculty members
6.	Dr. Balasubramanya	Dean Faculty welfare & development, Professor, Department of Civil Engineering	To facilitate and create sound working environment for faculty. To support Faculty development activities to all the departments.
7.	Dr. Indrani Pramod Khelkar	Dean Student Affairs, Professor, Department of Mathematics	Facilitate overall development of the student community.
9.	Mr. Gangadhar	Physical Director,	Maintain and procure sports items required. Organize sports and cultural activity along with members of the committee.

10.	Mr. Iqbal Ahemed	Deputy Director Training	Planning Soft skill and Domain Training programmes. Facilitate Industry-Institute interaction.
11.	Mr Marigowda	Deputy director Collaborations Alumni coordinator	Establish contacts with foreign universities and initiate student Exchange programmes. Uphold alumni network throughout the world.
12.	Dr. Ismail Shareef	Placement Officer	Establish industry contact and ensure placements.
13.	Dr. Mahesh SS	Deputy Chief Superintendent, Examinations, Professor and Head, Physics	Ensure smooth conduction of internal tests, VTU examinations and valuation centre works.
14.	Heads of the Departments		To administer the department under the Principal's guidance.

Grievance Redressal Committee

The grievance redressal committee is formed and functions as per the regulations given by the UGC (https://www.ugc.ac.in/pdfnews/1406982_Public-Notice-on-Grievance-redressal.pdf). It is headed by the principal. Senior faculty members and hostel wardens are its members. They meet once in a semester and address the grievances and take measures to overcome such issues in future. Composition of grievance cell is as shown in table 10.1p

Table 10.1i: Grievance Redressal committee

Sl. No.	Name	Designation	Role
1	Dr Prakash M R	Principal, AIT	Chairman
2	Dr. R. Prakash	Prof & Head, EEE	Member
3	Dr. Devarajaiah	Prof & Head, MT Dean- Academic	Member
4	Dr. Rajeswari	Prof & Head, ECE,	Member

5	Dr. Indrani Pramod Khelkar	Prof & Dean Student Affairs	Member
6	Prof R. Shadakshari	Asst Prof. Mech& Chief Warden, AIT	Member
7	Dr. Ramesh Hegde	HOD of MCA, AIT	Convener
8	Sri Ramakrishne Gowda	General Administrations, Acharya institutes	Member
9	Dr ARK Swamy	Prof.Mech& Hostel Warden	Member
10	Mr. Vijay Hasya	Hostel Manager, Acharya Institutes	Member

Roles, responsibilities and functions

The committee has to publicize the document consisting of what all can be considered as grievance to all stake holders. Receive the grievance upon existence, validate by consulting parties involved in it and resolve the case within two weeks. Also record minutes of such instances and file it for future references. The grievance mechanisms are also made online as per UGC guidelines from this academic year so as to make it transparent and hassle free exercise.

Service rules, procedures, recruitment and promotional policies: HR policies for AIT is in place. The following are the contents of the same:

CONTENTS

- Human Resources – Acharya Distinction
- Institutional Statements

1) JMJ EDUCATION SOCIETY AND INSTITUTIONS
   - Constitution of the J M J Education Society
   - List of Acharya Institutes run by J.M.J. Education Society
2) MANAGEMENT, GOVERNANCE AND ADMINSITRATION
3) POLICY FRAMEWORK OF HUMAN RESOURCE CENTRE
   - Policy framework of the Human Resources Centre
   - Categories of Human Resources
4) RECRUITMENT POLICY
   - Recruitment to teaching faculty positions
   - Composition of selection committee to recruit faculty members
   - The teaching faculty positions and designations at Acharya institutes

- Salary Scales for Faculty under the umbrella of AICTE
- Salary Scales of Faculty under the Umbrella of State Government
- Recruitment to executive and managerial positions
- Mode of selection to managerial and administrative positions
- Recruitment to support staff – technical
- Recruitment to support staff – administrative [includes accounts]
- Saving clause

5) APPOINTMENT / INVITATIONS FOR GUEST FACULTY / VISITING PROFESSORS / ADJUNCT FACULTY
6) ROLE AND RESPONSIBILITIES AND SERVICE CONDITIONS FOR FACULTY EMPLOYEES OF JMJ EDUCATION SOCIETY
    - Service conditions
    - Probation
    - Process of confirmation of service – purpose
    - Promotion policy
    - Retirement – Resignation - Termination
    - Retirement
    - Resignation
    - Termination of services of an employee
7) CODE OF CONDUCT AND ETHICS
    - Misconduct
    - Disciplinary proceedings (As detailed below)
    - Disciplinary punishments and appeals
8) WORKING SCHEDULES
9) LEAVE RULES
    - Casual leave
    - Restricted holiday (RH)
    - Permissions
    - Vacation leave
    - Marriage leave
    - Earned leave [EL]
    - Maternity leave

- Paternity leave
- Research Leaves
- General rules

10) CAREER ADVANCEMENT
11) FACULTY DEVELOPMENT
    - Higher studies
    - Policy for doctoral studies
    - Seminars / Workshops / Conferences
    - Promotion of research
    - Staff development and training: support staff (Administrative)
    - Staff development and training: support staff (Technical)
12) WELFARE SCHEMES FOR FACULTY & SUPPORTING STAFF
    - Grievances Redressal Cell
    - Women's cell
    - Objectives
    - Activities
    - Advisory committee
13) PERFORMANCE BASED APPRAISAL SYSTEM FOR EMPLOYEES
14) ZERO TOLERANCE POLICY
15) EQUAL OPPORTUNITY CELL AND PROVISIONS THEREOF
16) WARDENS / OTHER WORK TO BE PERFORMED
17) NON-DISCLOSURE AGREEMENT

10.1.4 Delegation of financial powers (10)

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

Financial powers are delegated to the Principal and the Head of the department. Annual budget is prepared by the Head of the department in consultation with departmental faculty members. This is further scrutinized by principal and recommends the budget for approval to the Management. The financial account is periodically reviewed by the Principal and Accounts Department. The Principal of the Institution has been granted the power to utilize an imprest

amount of Rs. Fifteen Thousand only (Rs 15,000) on suitable institutional expenses, at any given point of time. The HoD of the Department has been granted the power to utilize an imprest amount of Rs. Five Thousand only (Rs 5,000) on suitable departmental expenses, at any given point of time.

At any point, Rupees Fifteen Thousand and Rupees Five Thousand (provided to Principal and HoD) will be maintained and is reimbursed as a top-up based on usage. Subsequently Principal is at Liberty to procure the required equipment during the Financial Year as against the proposed budget, by presenting the same in the Purchase Committee. Further, Special powers have been delegated to the Principal, if the amount exceeds the proposed budget to the extent of 10 to 20% as against the proposed budget.

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

The college website and the Enterprise Resource Planning (ERP) software ensures that all information's pertaining to students, staff in the ERP to ensure that all stake holders are adequately informed about the policies and procedures along with the developments taking place that could affect them.

All the information pertaining to the admissions, faculty and supporting staff details, student attendance, internal marks, infrastructural facilities, details of programs, information related to ongoing student training programs, faculty development programs, symposiums etc., are made available in the college internet based ERP. All Minutes of Meetings like Academic Council and other information are mailed to all HODs for further information to all the faculty members. The relevant details are available in the departmental files which are readily accessible to all faculties in the departmental file racks.

10.2 Budget allocation, Utilization and public accounting at Institute level(30)

The yearly budget is prepared according to the needs & requirements of the departments taking into consideration of annual intake of students, laboratory &infrastructure developments, Students, faculty& staff requirements and promotions and latest technologies etc.

Various departments submit the annual budget to principal. On receipt of such proposals, principal, in consultation with departmental HODs, prepares a consolidated proposal. After deliberations formal budget made altered in departments and forwarded to Principal for preparing final budget at college level and submits it to the Governing Body for approval and sanction.

The Management is approving almost 100% which was proposed by the institute. The budget allocation and utilization for the last three years is adequate.

All the expenditure needs prior approval from the competent authority. Funds would be spent only from the approved budget. If funds are required for expenses not mentioned in the proposal, management's approval is a must. Management ensures the adequacy of the funds from various sources like, fee accrual, donation and bank loans.

Table 10.2a: Recurring Budget Expenditure

Acharya Institute of Technology							
	Income in Lakhs					Expenditure in lakhs	
	Fee	Govt.	Grants	Other Sources (Interest on Fixed Deposits & Others)	Total Income (Fees +Interest)	Recurring including Salaries	Total Expenses
2018-19 - 01/04/18 to 04/02/2019	6054.91		0.28	7.49	6065	4514.43	5241.4
2017-18	6985.08	--	0.2	18.95	7004.04	5112.92	9796.82
2016-17	6506.93	--	9.31	2.78	6509.71	4205.4	6341.45

2015-16	5909.44	--	1.17		5909.44	4524.89	6286.07

Table 10.2b: Non Recurring Budget Expenditure

	Income from Fee	Govt.	Grants	Other Sources (Interest on Fixed Deposits & Others)	Total Income (Fees +Interest)	Non-recurring
01/04/18 to 04/02/2019	6054.91		2.867	7.490	6065.27	726.97
2017-18	6985.08	0	0.020	18.95	7004.03	4683.89
2016-17	6506.93	0	9.311	2.786	6509.71	2136.05
2015-16	5909.44	0	0.354	0	5909.44	1761.17

Allocation of budget for different categories

Table 10.2c Allocation of budget in lakhs

Items	Budgeted in CFY	Actual expenses in 01/04/18 to	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

		04/02/19*						
CAPEX								
Infrastructure Built-Up	150	418.27	3800	3763.35	900	856.54	170	1619.86
Library	3.5	1.32	3.5	3.55	1.5	1.37	28	28.63
Laboratory equipment	25	11.39	65	67.68	90	88.36	1.45	1.44
Others:								
Electrical Fitting &Equipments	350	184.18	300	298.05	465	464.42	55	54.34
Furniture & Fixtures	55	50.8	50	49.60	16	15.89	3.5	3.48
Computer & Software	70	58.85	470	469.69	480	481.21	45	43.20
Vehicles				18.50	220	220.65	10	9.62
Office Equipment	5	2.136	50	50.49	7.5	7.62	0.6	0.60
Total CAPEX	658.5	726.97	4738.5	4683.90	2180	2136.05	313.55	1761.17
OPEX								
Laboratory Consumables	5	1.32	4	3.76	30	30.24	25	23.14
Teaching and non-teaching staff salary	2800	2064.87	2520	2519.24	2350	2351.18	2480	2460.97
Maintenance and spares	350	285.72	335	334.47	280	278.42	505	507.40
R&D	5	2.867	0.2	0.20	10	9.31	0.4	0.35
Training and Travel	70	48.95	65	65.03	48	47.19	62	61.29
Miscellaneous expenses*								
Advertisement	120	85.11	150	153.63	70	71.09	64	63.26

Bank Charges	1	0.3038	6	5.86	0.9	0.87	1	0.97
Books & Periodicals	0.3	0.25	0.18	0.18	0.2	0.19	0.2	0.25
Cleaning & Maintenance	30	14.59	36	36.01	20	19.04	17	17.26
Donation	0.5	0	0.2	0.20	0.15	0.11	1.75	1.75
Electricity & Water	100	49.74	120	119.92	110	110.62	90	90.74
Membership & Subscription	12	12.25	10	10.81	5	5.19	9	8.71
Miscellaneous Expenses	5	3.236	5	4.38	5	5.30	5	4.98
Loss on Sale of Car				5.19				
Postage & Telephone	60	48.25	58	58.21	32	32.71	28	28.90
Printing & Stationery	60	42.61	90	90.09	100	98.28	86	87.12
Professional Charges	115	84.74	100	102.97	125	125.16	100	98.61
Rate & Taxes	30	28.13	28	28.23	34	34.00	28	28.13
Registration & Renewals	220	177.93	210	208.45	120	117.56	105	104.52
Sponsorship & Seminar Expenses	20	11.51	20	21.63	8	7.90	12	12.53
Staff Welfare	55	23.03	52	51.61	55	53.68	65	66.31
Student Development Expenses	450	261.87	430	428.28	540	535.73	570	572.44
Interest on Term Loan	1200	1087.89	900	864.56	280	271.66	290	285.28
TOTAL OPEX	5708.8	4514.4	5139.58	5112.93	4223.25	4205.4	4544.35	4524.9
TOTAL EXP - CAPEX+OPEX	6367.3	5024.14	9878.08	9796.83	6403.25	6341.45	4857.9	6286.07

10.2.1 Adequacy of budget allocation (10)

(The institution needs to justify that the budget allocated during assessment years was adequate)

Since the department is in growing phase, college management has made it a point that funds should not be a hindrance factor for the healthy rate of growth. Adequate budget is allocated and expenditure is monitored. In no circumstances, teaching learning process is made to suffer because of fund shortage.

Table 10.2d: Adequacy of budget allocation

Sl. No.	Assessment Year	Budget Allocated in Lakhs	Actual Expenditure in Lakhs	Adequate / Non Adequate
1	2018-2019	5708.8	4514.4	Adequate
2	2017-2018	6367.3	5024.14	Adequate
3	2016-2017	9878.08	9796.83	Adequate
4	2015-2016	6403.25	6341.45	Adequate

10.2.2 Utilization of allocated funds (15)

(The institution needs to state how the budget was utilized during assessment years)

During last three years budget allocation and utilization is in order and no deficiency was observed

Table 10.2e: Utilization of funds

Sl. No.	Assessment Year	Budget Allocated in Lakhs (Rs.)	Actual Expenditure in Lakhs (Rs.)	Percentage of Utilization
1	2018-2019	5708.8	4514.4	79.08

2	2017-2018	6367.3	5024.14	78.91
3	2016-2017	9878.08	9796.83	99.18
4	2015-2016	6403.25	6341.45	99.03

10.2.3 Availability of the audited statements on the institute's website(5)

(The institution needs to make audited statements available on its website)

Institutional audit statements are available on the institute's website

10.3. Program Specific Budget Allocation, Utilization (30)

Total Budget at program level: For CFY, CFYm1, CFYm2 &CFYm3

Table 10.3a: Program Specific Budget Allocation, Utilization

Computer Science and Engineering								
Items	**Budgeted in 2018-2019**	**Actual Expenses in 2018-2019 till date**	**Budgeted in 2017-2018**	**Actual Expenses**	**Budgeted in 2016-2017**	**Actual Expenses**	**Budgeted in 2015-2016**	**Actual Expenses**
Laboratory Equipment	8.00	5.72	0.00	0.00	1.00	0.99	0.00	0.00
Computers/Printers	0.00	0.00	0.15	0.15	20.00	18.36	0.00	0.00
Softwares	0.20	0.12	0.00	0.00	0.00	0.00	0.00	0.00
Projectors	0.00	0.00	1.10	1.12	0.00	0.00	0.00	0.00
Furniture& Fixtures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lab Consumables	0.20	0.13	0.30	0.31	0.50	0.47	0.00	0.00
Library	0.25	0.22	0.50	0.53	0.20	0.19	1.90	1.81
Salaries	160.50	119.22	160.66	155.16	171.91	160.68	202.80	196.89
R & D and Paper Publications &	0.30	0.06	0.30	0.28	0.40	0.38	0.90	0.82

participation in workshop								
Training	2.00	1.83	2.89	2.79	3.15	3.08	2.75	2.70
Project Expo	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
General Expenses	136.33	98.00	134.94	135.16	122.86	121.81	135.55	135.81
Total	307.58	225.33	300.63	295.33	319.72	305.68	344.01	338.13

Civil Engineering Department Budget

Items	Budgeted in 2018-2019	Actual Expenses in 2018-2019 till date	Budgeted in 2017-2018	Actual Expenses	Budgeted in 2016-2017	Actual Expenses	Budgeted in 2015-2016	Actual Expenses
Laboratory Equipment	7.00	0.00	0.00	0.00	34.00	34.02	0.00	0.00
Computers/Printers	0.00	0.00	0.30	0.30	9.00	8.50	0.00	0.00
Softwares	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Projectors	0.00	0.00	1.10	1.12	0.40	0.35	0.00	0.00
Furniture& Fixtures	0.00	0.00	0.00	0.00	15.00	14.51	0.00	0.00
Lab Consumables	3.00	0.00	0.50	0.51	0.00	0.00	0.40	0.38
Library	0.25	0.20	0.15	0.14	0.00	0.00	0.90	0.89
Salaries	102.08	77.03	104.05	102.41	105.00	103.54	108.00	107.87
R & D and Paper Publications & participation in workshop	0.28	0.04	0.08	0.08	0.02	0.02	0.15	0.15
Training	1.50	1.07	1.80	1.75	2.50	2.56	2.00	2.05
Project Expo	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

General Expenses	136.33	98.00	134.94	135.16	122.86	121.81	135.55	135.81
Total	250.26	176.40	243.02	241.58	288.88	285.41	247.10	247.25

Electronics and Communication Engineering

Items	Budgeted in 2018-2019	Actual Expenses in 2018-2019 till date	Budgeted in 2017-2018	Actual Expenses	Budgeted in 2016-2017	Actual Expenses	Budgeted in 2015-2016	Actual Expenses
Laboratory Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.89
Computers/Printers	0.00	0.00	0.30	0.30	0.00	0.00	24.00	23.54
Softwares	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Projectors	0.00	0.00	1.10	1.12	0.00	0.00	0.00	0.00
Furniture & Fixtures	0.00	0.00	1.60	1.59	0.00	0.00	2.50	2.51
Lab Consumables	0.00	0.00	0.20	0.21	0.00	0.00	0.35	0.32
Library	0.15	0.12	0.50	0.53	0.25	0.25	0.50	0.52
Salaries	196.00	165.34	195.00	191.25	180.00	178.82	185.00	183.49
R & D and Paper Publications & participation in workshop	0.40	0.05	0.15	0.14	9.00	8.45	0.00	0.00
Training	1.50	1.23	2.30	2.26	2.20	2.19	4.25	4.15
Project Expo	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
General Expenses	136.33	98.00	134.94	135.16	122.86	121.81	135.55	135.81
Total	314.45	264.83	336.18	332.60	314.41	311.61	353.15	351.33

Mechanical Engineering department								
Items	Budgeted in 2018-2019	Actual Expenses in 2018-2019 till date	Budgeted in 2017-2018	Actual Expenses	Budgeted in 2016-2017	Actual Expenses	Budgeted in 2015-2016	Actual Expenses
Laboratory Equipment	1.00	0.85	11.00	10.75	2.50	2.33	0.00	0.00
Computers/Printers	0.00	0.00	20.00	19.30	0.00	0.00	0.00	0.00
Softwares	5.00	4.80	0.00	0.00	0.00	0.00	0.00	0.00
Projectors	0.00	0.00	1.50	1.49	0.00	0.00	0.00	0.00
Furniture& Fixtures	0.00	0.00	0.60	0.64	0.00	0.00	0.00	0.00
Lab Consumables	1.00	0.84	0.70	0.72	0.60	0.58	3.50	3.28
Library	0.50	0.35	0.15	0.15	0.25	0.22	0.40	0.37
Salaries	216.00	213.15	265.00	260.84	250.00	240.24	260.00	257.15
R & D and Paper Publications & participation in workshop	0.25	0.21	0.30	0.28	0.10	0.09	0.10	0.11
Training	1.20	1.17	2.00	2.04	2.10	2.07	4.35	4.33
Project Expo	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
General Expenses	136.33	98.00	134.94	135.16	122.86	121.81	135.55	135.81
Total	361.13	319.26	436.29	431.47	378.51	367.44	404.00	401.15

Mechatronics Engineering Department

Items	Budgeted in 2018-2019	Actual Expenses in 2018-2019 till date	Budgeted in 2017-2018	Actual Expenses	Budgeted in 2016-2017	Actual Expenses	Budgeted in 2015-2016	Actual Expenses
Laboratory Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computers/Printers	0.00	0.00	9.00	8.14	1.50	1.41	0.00	0.00
Softwares	0.00	0.00	24.00	23.58	0.00	0.00	0.00	0.00
Projectors	0.00	0.00	0.40	0.37	0.00	0.00	0.00	0.00
Furniture& Fixtures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lab Consumables	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.03	0.02	0.00	0.00	0.55	0.52
Salaries	60.00	42.69	55.00	51.57	52.00	50.18	62.00	60.77
R & D and Paper Publications & participation in workshop	0.50	0.05	0.10	0.10	0.00	0.00	0.03	0.03
Training	1.00	0.60	0.85	0.84	1.00	1.01	2.30	2.27
Project Expo	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
General Expenses	68.17	49.00	67.47	67.58	61.43	60.90	67.78	67.91
Total	129.27	92.39	156.96	152.33	116.03	113.61	132.76	131.60

10.3.1 Adequacy of budget allocation(10)

(Program needs to state how the budget was utilized during the last three assessment years) During last three years budget allocation and utilization is in order and no

deficiency was observed

Table 10.3b: Program Specific Adequacy of Budget Allocation

Computer Science and Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Adequate / Non Adequate**
1	2018-2019	307.58	225.33	Adequate
2	2017-2018	300.63	295.33	Adequate
3	2016-2017	319.72	305.68	Adequate
4	2015-2016	344.01	338.13	Adequate

Civil Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Adequate / Non Adequate**
1	2018-2019	250.26	176.40	Adequate
2	2017-2018	243.02	241.58	Adequate
3	2016-2017	288.88	285.41	Adequate
4	2015-2016	247.10	247.25	Adequate

Electronics and Communication Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Adequate / Non Adequate**
1	2018-2019	314.45	264.83	Adequate
2	2017-2018	336.18	332.60	Adequate
3	2016-2017	314.41	311.61	Adequate
4	2015-2016	353.15	351.33	Adequate

Mechanical Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Adequate / Non Adequate**
1	2018-2019	361.13	319.26	Adequate
2	2017-2018	436.29	431.47	Adequate
3	2016-2017	378.51	367.44	Adequate
4	2015-2016	404.00	401.15	Adequate

Mechatronics Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Adequate / Non Adequate**
1	2018-2019	129.27	92.39	Adequate

2	2017-2018	156.96	152.33	Adequate
3	2016-2017	116.03	113.61	Adequate
4	2015-2016	132.76	131.60	Adequate

10.3.2 Utilization of allocated funds(20)

Table 10.3c: Program Specific Utilization of allocated funds

Computer Science and Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Percentage of Utilization**
1	2018-2019	307.58	225.33	73.26
2	2017-2018	300.63	295.33	98.24
3	2016-2017	319.72	305.68	95.61

4	2015-2016	344.01	338.13	98.29

Civil Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Percentage of Utilization**
1	2018-2019	250.26	176.40	70.49
2	2017-2018	243.02	241.58	99.41
3	2016-2017	288.88	285.41	98.80
4	2015-2016	247.10	247.25	100.06

Electronics and Communication Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Percentage of Utilisation**
1	2018-2019	314.45	264.83	84.22
2	2017-2018	336.18	332.60	98.94
3	2016-2017	314.41	311.61	99.11
4	2015-2016	353.15	351.33	99.48

Mechanical Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Percentage of Utilization**
1	2018-2019	361.13	319.26	88.41
2	2017-2018	436.29	431.47	98.90
3	2016-2017	378.51	367.44	97.07
4	2015-2016	404.00	401.15	99.29

Mechatronics Engineering Department				
Sl.No.	**Assessment Year**	**Budget Allocated in Lakhs**	**Actual Expenditure in Lakhs**	**Percentage of Utilization**
1	2018-2019	129.27	92.39	71.47
2	2017-2018	156.96	152.33	97.05
3	2016-2017	116.03	113.61	97.91
4	2015-2016	132.76	131.60	99.13

10.4 Library and Internet (20)

(Indicate whether zero deficiency report was received by the Institution for all the

assessment years. Effective availability/purchase records and utilization of facilities/equipment etc. to be documented and demonstrated)

The Learning Resource Center, the Central Library of Acharya Institute of Technology with its state-of-the-art facilities and excellent resources plays a more proactive role in providing excellent user services, optimal use of resources and support quality and enhancement in teaching, learning, research and extension. The Library at the heart of the Campus is an intellectual laboratory that provides a leap into the information age and continues to keep pace with the developments in the ICTs and adopt new modes information delivery. The Learning Resource Center, a fully digitized Knowledge Center for accessibility with print and e-resources provides an ideal environment for intellectual inquiry and provides user focused services to obtain and evaluate scholarly information and knowledge available in main formats and strives to create new knowledge to increase understanding and develop wisdom.

The Library has significant collection of books, journals, e-books, e-journals, secondary sources, databases, digital data archival and manuscript collections, digital primary sources to support the curricular and research needs of all the Departments and also to support the teaching and research mission of the Institute. KOHA – the Library Management software on Cloud computing is used for automation and in-house information management.

Qualified and experienced staff provides easily accessible and cost-effective information services and access to a broad, varied and deep range of information resources and services within all subject areas and at all levels. Access to high quality print and digital books and Journals, e-resources, case studies, Connect2 learning resources, range of study spaces, specialists' advice and assistance in teaching, learning and research with inspirational environments for study and research are provided. Aim of the Library has been to a proactive role in meeting information needs of the users.

Access to information resources under VTU, INDEST, INFLIBNET, DELNET, HELINET consortia are provided in addition to many subscribed national and international databases. Also international network linkages have been established to access learning resources of MIT, Stanford University, University of Illinois, Cambridge University, Oxford University, Tufts University, OCLC, Ohio, USA, National Medical Library, USA, National Agriculture Library, ODI, USA, IDS and other universities and organizations. E-resources

of the Library are accessible 24x7 anywhere on campus network (Wi-Fi) and also off campus (remote access through EzProxy).

Extensive user instruction programs and sensitization/awareness programs on information literacy, information management skills are organized regularly. Assistance to access variety of resources directly and through the learning management system are extended. The staff works with students to answer their questions and also to improve their information search skills. Individualized research assistance is provided through a variety of formats including one-on-one consultation, Research librarians, Research Hub drop-in help, email, chat, and text messaging.

The Library extends support to the research and publications process of Faculty and Researchers. Library offers smart, professional and sustainable solutions to the Institute's existing and future research environments, to position itself at cutting edge of technological development and contribute to the increased visibility, dissemination, conservation and evaluation of scholarly production.

The Library offers the users a route for self directed learning and discovery through digital and technological means. The Maker spaces/Fab Labs encourage the users to regain control of technology and design to create new ideas. Digital lending; renting and reference; Bibliotherapy; the Reading Cure; resource sharing, MOOCs, Academic Commons/Learning Commons, FedGate and other Resource Discovery Tools provide new services to enhance student learning and facilitates better collaboration among students, faculty and Professional staff. Question point service "Ask a Librarian" is a unique online service where queries and reference questions are responded within 24 hours to support excellence in Teaching and Learning.

Important Facilities and Services

- Ask-A-Librarian - Question Point Online Reference Service.
- Videoconferencing.
- Wi-Fi accessible across the Library.
- Library e-resources Remote Access (off-campus access) through EzProxy.

- Research Skills and support in Research assignments/projects, consultations, online course guidance, digital class projects etc.,
- User Training, Sensitization and Information Literacy programs.
- Info skills – Identifying, finding, evaluating, referencing and metadata applications.
- Research Data Management, Publishing support, Style Manuals.
- Workshops/Programs on Citations, Citation Management Tools.
- Plagiarism Check tools (Turn-it-In) and services.
- Institutional Repository (Repository of research output, publications, thesis and dissertations and other useful academic archival material).
- SCOPUS - Abstract and Citation database subscribed.
- Research Data Repository (Preserving data generated by the Faculty Members, Research Scholars for in-house use).
- Scientific Productivity and research impact.
- Print, Copy, Scan Services.

10.4.1 Quality of learning Resources (hard/soft) (10)

Library space, ambience, timings and usage, availability of a qualified Librarian and other staff, Library automation, online access, networking are shown in the table.

Table 10.4a: Information on library resources

Carpet area of Library (in m2)	5574 Sqm
Reading Space (in sqm)	1800 Sqm
Number of Seats in reading space(in sqm)	600 Sqm
Number of Users (Issue book) per day	400 per day
Number of Users (reading space) per day	650 per day
Timings: During working day Weekend/Public Holiday Vacation	 8.00 am - 10.00 pm 9.00 am - 5.00 pm

	8.00 am – 10.00 pm
Number of Library Staff	27
No. of Library Staff with Degree in Library Science	16
Computerization for search, indexing and issue/return records	KOHA Integrated Library Management Software
Bar-coding used	Bar-coding and RFID
Library services on internet / intranet	Both
INDEST or other similar membership specify	VTU Consortium, DELNET, HELINET, N-LIST
Archives	Institutional Repositories (IRs) and Hall of Fame to Preserve History, Honor Excellence and Connect Generation

Titles and Volumes per title

Number of Titles**: 17265** Number of Volumes: **77487**

Year	**No. of New Titles added**	**No. of New Editions added**	**No. of New Volumes added**
2018-19	648	626	1093
2017-18	169	93	563
2016-17	80	49	237
2015-16	924	484	6782

Scholarly Journals Subscription

Year	No. of Technical Magazines/Periodicals	No. of Total Technical Journals Subscribed		Scholarly Journal Titles (in original reprints)
		In Hard Copy	In Soft Copy	
2018-19	20	210	8366	4975
2017-18	18	184	8611	5050
2016-17	Nil	Nil	8611	5050
2015-16	18	Nil	540	350

Digital Library

Availability of Digital Library Contents: • Number of Courses • Number of E-Books • Number of E-Journals • Number of Project Reports	 13 12895 8366 1099
Availability of an exclusive Server:	Amazon Cloud Server
Availability over Intranet/Internet:	Both
Availability of Exclusive Space/Room:	Virtual Learning Resource Lab with 72 Apple Computers
Number of Users per day:	200

Awards received by library

LibTech Award 2019' Best Technology Enabled Library presented at Cochin University of Science and Technology, Cochin on 25th January 2019.

"Innovative Use of Technology in Higher Education Award (South)" during India's leading educational technology event 'EdTechReview Summit and Expo' held on 14th and 15th February 2019. Presented by TCSiON**.**

Figure: Inauguration of Library by AICTE Chairman and Awards received by the Library

10.4.2 Internet (10)

Name of the Internet provider	BSNL, Regitel online
Available band width	1Gbps
Wi-Fi availability	150Mbps
Internet access in labs, classrooms, library and offices of all Departments	Yes
Security arrangements	Yes

DECLARATION

I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concern 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.

11/03/2019

Signature of Principal

Dr. Prakash MR

PRINCIPAL
ACHARYA INSTITUTE OF TECHNOLOGY
SOLADEVANAHALLI, BENGALURU - 560107

Date: 11/03/2019

Place: Bengaluru

ANNEXURE-1

Program Outcomes (POs)

Engineering Graduates shall be able to:
PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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.
PO 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.
PO 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.
PO 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.
PO 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.
PO 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.
PO 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

PSO 1: Have a thorough knowledge of design, analysis and modeling of mechanical components, concepts of fluid and thermal engineering, conventional and advanced manufacturing technology in engineering applications.
PSO 2: Be able to analyze, design and prototyping of electronics, communication and embedded systems.
PSO 3: Be able to apply domain knowledge and demonstrate technical competency in virtual instrumentation, PLC, SCADA, smart systems, artificial intelligence to integrate and interface electro-mechanical systems.

Acharya Institute of Technology
Soldevanahalli, Bangalore -560107

Minutes of the Grievance Redressal Committee held on 08/09/2018

Agenda

Sl.No	Agenda
	Review of the earlier Meeting Minutes
2018/09/I	Any issues /grievence with respect to staff and students to be discusssed

Members Present:

Sl NO.	Name	Address	Designation	Contact number & email address
1	Dr Prakash M R	Principal, AIT	Chairman	9448864740 principalait@acharya.ac.in
2	Dr Prakash R	Prof & Head, EEE	Member	9448694645 Hod-eee@acharya.ac.in
3	Dr Devarajaiah	Prof & Head, MT Dean- Academic	Member	9449680516 @acharya.ac.in
4	Dr. Rajeshwari	Prof & Head, ECE	Member	9449827287 Hod-ece@acharya.ac.in
5	Dr Indrani Pramod Khelkar	Prof Maths Dean Students affair	Member	9164685067 indranipramodk@acharya.ac.in
6	Dr. A R K Swamy	Prof , ME, Warden	Member	9035997163 Hod-mt@acharya.ac.in
7	Prof R. Shadakshari	Asst Prof. & Chief Warden, AIT	Member	9481242128 shadaksharir@acharya.ac.in
8	Dr. Ramesh Hegde	HOD of MCA & Chief Proctor, AIT	Convener	9900545520 rameshhegde@acharya.ac.in
9	Sri Ramakrishne Gowda	General Administrations, Acharya institutes	Member	9900197317 ramakrishnagowda@acharya.ac.in
10	Mr. Balagi	Hostel Manager, Acharya Institutes	Member	7618775959 hostelmanager@acharya.ac.in

Members Absent: Nill

Minutes of the meeting:

2019-3-11 17:54

Chairman welcomed all the members for the meeting

ACHARYA INSTITUTE OF TECHNOLOGY, SOLADEVANAHALLI, BANGALORE-560107

Grievance Redressal Committee Meeting held on 08/09/2018 in the Principal's Chamber at 11.30AM

Sl NO.	Name	Address	Designation	Signature
1	Dr M R Prakash	Principal, AIT	Chairman	8/9/18
2	Dr Prakash R	Prof & Head, EEE Dean- Student affairs	Member	8/9/18
3	Dr. Indrani Khelkar	Prof in Maths Dean- Student Affairs	Member	8/9/18
4	Dr. Rajeshwari	Prof & Head, ECE	Member	8/9/18
5	Dr. Devarajaiah Dean Academics	Prof & Head, MT	Member	8.9.18
6	Prof R. Shadakshari	Asst Prof. Mech & Chief Warden, AIT	Member	8/9/18
7	Dr. Ramesh Hegde	HOD of MCA	Convener	8/9/18
8	Sri Ramakrishne Gowda	General Administrations, Acharya institutes	Member	AB.
9	Dr ARK Swamy	Prof Mechanical Engg. Warden	Member	8/9/18
10	Mr. Balagi 7618775959	Hostel Manager, Acharya Institutes	Member	

Acharya Institutes email

nagapushpa K.P. <nagapushpa@acharya.ac.in>

Regarding Women Cell meeting

1 message

nagapushpa K.P. <nagapushpa@acharya.ac.in> Sat, Mar 26, 2016 at 10:22 AM
To: uma warrier <warrier.uma@gmail.com>, hanumanthegowda@acharya.ac.in, varalakshmi@acharya.ac.in, gopinath@acharya.ac.in, renuka devi <renukadevi@acharya.ac.in>, darshini.becs.12@acharya.ac.in, pushpalatha.amca.14@acharya.ac.in
Cc: principalait acharya <principalait@acharya.ac.in>

Dear Members,

Warm Wishes to all .

Executive members are informed to attend the executive committee meeting scheduled at 2pm on Monday, 28th March 2016 at the principal Office

List of revised executive members is attached for your reference.

Agenda:

1 Review of previous meeting

2 Any Complaints received and action Taken

3 To plan the events for this academic semester

All are requested to the meeting .

Best Wishes and Regards,

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Assistant Professor
Dept of ECE
Acharya institute of Technology, Bangalore
Mobile Number:9880850112

Hard work has no substitute, Work hard and achieve success"

Anti-Sexual Harrasment committee.xlsx
61K

ACHARYA INSTITUTE OF TECHNOLOGY

Acharya Dr. SarvepalliRadhakrishnan Road, Bangalore-560107

Women Cell

MINUTES OF MEETING

Date: 28- 03-2016 Time: 2 pm

Agenda of the meeting:

1 Review of previous meeting

2 Any Complaints received and action Taken

3 To plan the events for this academic semester

Members Present:

1. Dr H D Maheshappa, Principal AIT- CHAIRMAN
2. Dr Uma Warrier, NGO Consultant - Counselor
3. Prof Nagapushpa K.P, Department of ECE, AIT- Member Secretary
4. Prof HanumantheGowda, Legal Adviser
5. Prof Varalakshmi, Department of CSE, AIT, Presiding officer
6 Ms Darshini, Student Representative

Members Absent:

1 Dr. S. M. Gopinath, HOD, Department of Biotechnology, Member

2. Renuka Devi, Administration Officer, AIT- Member

3. Ms Pushpalatha, Student Representative.

Proceedings of the meeting:

The Chairman welcomed all the Executive members for the Women Cell meeting and reviewed on previous discussions. Chairman briefed about the resolutions of women cell held on 27/2/15 to all the Executive members which includes the following:

It was decided to conduct three activities per semester covering scope and objectives of the women cell and only poster presentation activity was conducted. The Poster Competition was held on 14-3-15 and the theme was EMPOWERED WOMEN FROM INDIA from the field of Politics, Government or Private Corporations, Sports, Arts, Media, Medicine, Science, Literature, Ordinary Women Doing Extraordinary things to make small positive differences, Social Workers and any other field. There was a good response from the students as well as faculty members. He also brought to the notice of the members that some of the works are pending and expected to be conducted as per the schedule. Following are the points discussed/ brought out in this meeting

Dr Uma Warrier, Chief counselor gave the following suggestions:

- Strengthen the work force of women cell
- To conduct documentary shows on issues concerning women
- To Tie up with NGOs, and carry out activities for women strengthening.
- To tie up with the nearby hospitals and to organize workshops that are concerned with the women related issues.
- Identify the women cell by having separate logo ,name and e- brochure for better visibility and publicity
- To Constitute two wings of women cell each of them having separate committee members
    - Regulatory and statutory body – To Look after Grievances
    - Women Association- To Conducts activities
- To conduct Guest lectures for students
- A Template for reporting the complaints to be made available for the members
- To organize a walkathon for the social cause of the women

Nagapushpa

Signature of Member Secretary

Signature of Chairman

ACHARYA INSTITUTE OF TECHNOLOGY

Acharya Dr. SarvepalliRadhakrishnan Road, Bangalore-560107

Date: 28/3/2016

Attendance of AIT Women cell meeting held on 28-3-16 in the principal office

Sl No	Name	Designation	Signature
1	Dr .H.D.MAHESHAPPA	Chairman	
2	Dr.UMA WARRIER	NGO Consultant Chief Counsellor Jain University	
3	Ms.NAGAPUSHPA.K.P	Member Secretary	
4	Mr.HANUMANTHEGOWDA.N.A	Legal Advisor	
5	Mrs.VARALAKSHMI.B.D	Presiding officer	
6	Dr. S.M.GOPINATH	Member	ABSENT
7	Mrs RENUKADEVI	Member	ABSENT
8	Ms.DARSHINI.N	Member	
9	Ms.PUSHPALATHA.M	Member	ABSENT

Nagapushpa

Signature of chairman