ISO 9001:2015 AICTE-CII: GOLD Category Institute NAAC-'A' Grade Institute (CGPA: 3.21)

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506015, TELANGANA, INDIA
काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान, वरंगल - ५०६०१५, तेलंगाना, भारत
కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ - ౫౦౬౦౧౫, తెలంగాణా, భారతదేశము
(An Autonomous Institute under Kakatiya University, Warangal)
(Approved by AICTE, New Delhi; Recognised by UGC under 2(f) & 12(B); Sponsored by EKASILA EDUCATION SOCIETY)
Estd: 1980 KITSW
website: www.kitsw.ac.in E-mail: principal@kitsw.ac.in : +91 9392055211, +91 7382564888

Department of Electronics & Instrumentation Engineering

Welcomes

The Chairman & Members of NAAC Peer Team

(NAAC Peer team visit date: *March 18th - 19th, 2024*)

by

Dr. M. Raghu Ram
HoD-EIE & Programme Head-ECI

Outline of presentation

- **Vision & Mission**
- **Department Profile**
- **Criterion**

I. Curricular Aspects

II. Teaching-Learning and Evaluation

III. Research, Innovations and Extension

IV. Infrastructure and Learning Resources

V. Student Support & Progression

VI. Governance, Leadership and Management

VII. Departmental values and Best Practices

Department of Electronics & Instrumentation Engineering

VISION OF THE DEPARTMENT

V: **To provide quality education in Electronics & Instrumentation Engineering** by nurturing the students with strong technical, analytical, practical skills and ethics to make them engineering professionals who cater to the societal needs with a high degree of integrity and social concern

MISSION OF THE DEPARTMENT

M1: **To provide progressive and quality educational environment** with the help of dedicated faculty and staff by fully utilizing the information technology aiming at continuous teaching and learning process

M2: **To produce engineering graduates fit for employability** with a competence to design, develop, invent and solve instrumentation engineering problems

M3: **To make the students ethically strong** by inculcating sense of brotherhood

M4: **To make the students research oriented** by providing latest technical knowledge and thus cater to the changing needs of industry and commerce

Department Profile

- **Established in the year 1981 and First in the country to start B.Tech. in EIE**
- **Academic Programmes (UG/PG/PhD) offered**
  - **B. Tech (Electronics Communication & Instrumentation Engineering)**
    - **Started in A.Y. 2019-20 with an intake of 60 students**
  - B. Tech (Electronics & Instrumentation Engineering)
    - Started in A.Y.1981-82 with an intake of 40 students & **Withdrawn from A.Y. 2020-21**
  - **M. Tech (Embedded System & VLSI)**
    - **Started in A.Y. 2021-22 with an intake of 12 students**
  - M. Tech (VLSI & Embedded Systems)
    - Started in 2006 with an intake of 18 students & **Withdrawn from A.Y. 2021-22**
  - **Ph. D**
    - **Recognized as E&I Engineering - Research Center (KU, Warangal) in 2009**
    - Maximum 08 Scholars under each Supervisor

Department Profile

PROGRAM EDUCATIONAL OBJECTIVES (PEOs) – B.Tech. (ECI)

PEOs	Within first few years after graduation, the **Electronics Communication and Instrumentation Engineering graduates** will be able to …
PEO1: Technical Expertise	*apply the **knowledge of core courses of electronics communication and instrumentation engineering** for development of effective and innovative solutions to engineering problems*
PEO2: Successful Career	***excel in profession, higher education and entrepreneurship** with updated technologies in communication, signal processing, VLSI, embedded systems, and instrumentation domains*
PEO3: Soft Skills and Life Long Learning	***exhibit professional ethics, effective communication, and teamwork** in solving engineering problems by adapting contemporary research towards sustainable development of society*

PROGRAM SPECIFIC OUTCOMES (PSOs) – B.Tech. (ECI)

PSO1	*Apply the **fundamentals of Electronics, Communication Signal processing, VLSI, Embedded Systems and Instrumentation** in development of hardware and software prototypes and systems for complex engineering problems.*
PSO2	*Apply **appropriate methodology, contemporary hardware and software tools** to solve complex engineering problems related to embedded systems.*

Department Profile

PROGRAM EDUCATIONAL OBJECTIVES (PEOs) – M.Tech. (EV)

PEOs	The postgraduates of EMBEDDED SYSTEM AND VLSI will be able to …
PEO1: Research and Innovation	*apply **appropriate Electronic Design Automation (EDA) tools to analyze & develop new methodologies** to solve the real time problems in the domain of Embedded System & VLSI and contribute significantly in research and teaching*
PEO2: Technical expertise and Successful career	***excel as entrepreneurs and industrial professionals in the domain of Hardware & Software Development** of Embedded Systems, RTOS, Embedded Firmware, ASIC Design & Verification, Advanced SoC and Semiconductor device modeling*
PEO3: Soft skills and Lifelong learning	***exhibit professional ethics, effective communication and teamwork in solving engineering problems** by adapting ancient scientific methodologies for sustainable development of society with an attitude of perpetual learning*

PROGRAM SPECIFIC OUTCOMES (PSOs) – M.Tech. (EV)

PSO1	*apply **knowledge of Embedded System and VLSI for development of effective and innovative solutions to engineering problems** in the broad areas like Embedded System Design, VLSI Technology and applications.*
PSO2	*Utilize **Electronic Design Automation (EDA) tools to solve complex engineering pro**blems in the domain of Embedded System and VLSI*

Department Profile

- ✓ **Accredited Under Tier-1 by National Board of Accreditation (3 Years)**
  Approval letter No. F.No. 11-76/2010/NBA. Dt.17th Feb. 2022.
- ✓ Re Accredited by National Board of Accreditation (1 Years)
  Approval letter No. F.No. 11-76/2010/NBA. Dt.21st Aug. 2020.
- ✓ Re Accredited by National Board of Accreditation (3 Years)
  Approval letter No. F.No. 11-76/2010/NBA. Dt.29th Mar. 2018.
- ✓ Re Accredited by National Board of Accreditation (2 Years)
  Approval letter No. F.No. 11-76/2010/NBA. Dt. 08th July. 2016.
- ✓ Re Accredited by National Board of Accreditation (2 Years)
  Approval letter No. F.No. 11-76/2010/NBA. Dt. 09th oct. 2014.
- ✓ Re-accredited by National Board of Accreditation. (3 Years)
  Approval letter No. F.No. NBA/11-76/2010/NBA, Dt. 22nd Sept.,2011
- ✓ Re-accredited by National Board of Accreditation. (3 Years)
  Approval letter No. F.No. NBA/ACCR-15/2001, Dt. 19th July,2008
- ✓ First accreditation status by NBA (AICTE) to EIE Programme for 3-year w.e.f. 09.11. 2001
  Approval letter No. F.No. NBA/ACCR-190/2003, Dt. 20/05/2003

Department of Electronics & Instrumentation Engineering

Head of the Department (HoD): Dr. M. Raghu Ram

Dept. Academic Coordinator (AC): Dr. K. Srinivas

Department Profile

Teaching and Non-teaching Staff	Number
Professors	03
Associate Professors	03
Assistant Professors	08
Total Teaching Faculty	14
Total Technical & Office Staff	06
Total	20

Faculty	Number
With Ph.D	07
Submitted Thesis	01
Pursuing Ph.D.	06

Grants received	
AICTE- MODROBS (2021)	Rs. 15.0 lakhs
AICTE- STTP (2021)	Rs. 3.0 lakhs
AICTE- RPS (2016)	Rs. 9.9 lakhs
AICTE- MODROBS (2008)	Rs. 8.0 lakhs

Collaborations established:

- Centre of Excellence (CoE): NI LabVIEW Academy in collaboration with National Instruments, Bangalore
- Indo-American Artificial Heart Project (IAAHP): Artificial Heart Project in collaboration with University of Pittsburg, USA

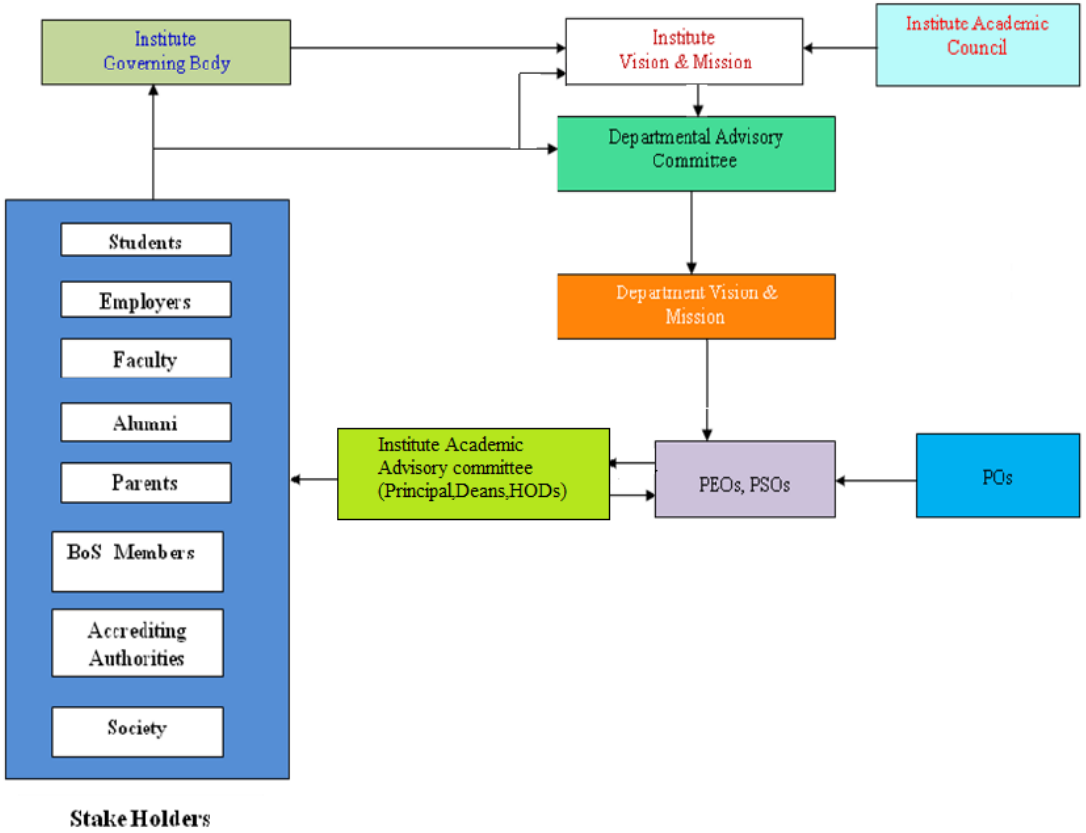
Department ACHIEVEMENTS/RECOGNITIONS *(for last 5 years)*

B.Tech. - ECI/ EIE	2023-24	2022-23	2021-22	2020-21	2019-20	2018-19
Pass percentage of final years	NA	ECI-0.83 EIE-0.88	EIE-0.98	EIE-0.93	EIE-0.83	EIE-0.78
Internships	108	96	67	120	58	64
Placements	14 (27.5%)	30 (50%)	40 (64.5%)	16 (28.6%)	15 (26%)	27 (42%)
Higher Education	NA	03	06	15	11	07
NPTEL Certifications	28	35	20	07	13	08

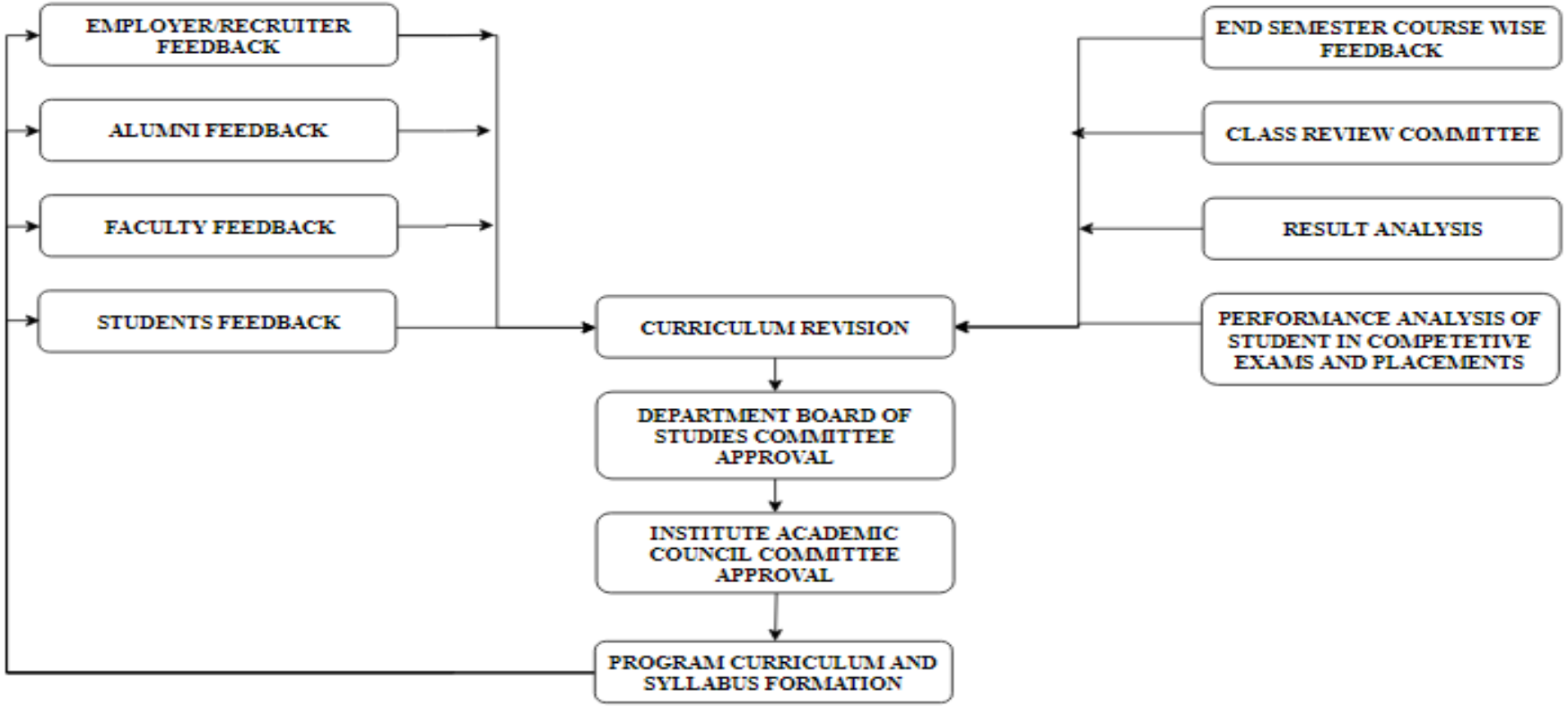
Grants received	
AICTE- MODROBS	Rs. 15.0 lakhs
AICTE- STTP	Rs. 3.0 lakhs

Strengthening of Infrastructure	
New Equipment added	Rs. 78.21 lakhs
New Software added	Rs. 11.83 lakhs

PROCESS FOR DEFINING VISION, MISSION, PEOs & PSOs – Criteria I



PROCESS FOR Curriculum Revision – Criteria I



Curricular gaps identified in URR-18 & Actions taken to meet the gap in URR-18R22 revision – Criteria I

Gaps identified in URR18 Curriculum:

- Programming skills
- Courses exposing students to real world problems
- Skill enhancement courses to make the students globally competitive
- Course content as per industry needs
- Courses for imparting ever changing industry relevant KSQs

Action Taken targeting POs & PSOs:

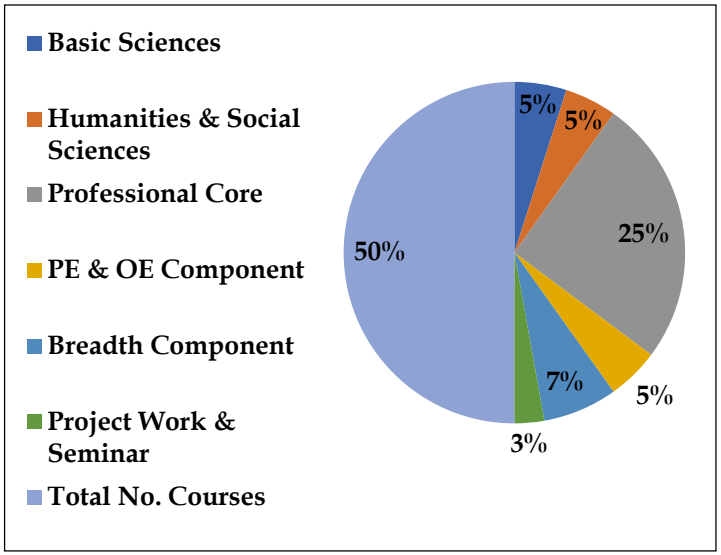
- ✓ **Theory course - Advanced Data Structures (U18CS611) and laboratory course – ADS Lab (U18CS612) are introduced in URR18-R22** to enhance the programming skills of the students and make them competent for software jobs on par with students from computer science background
- ✓ *Identified pre-requisites and content beyond syllabus are included in the outcome based lecture plan of each course*
- ✓ **One of the courses in each V /VI Semester is identified** and the course content is delivered by **Adjunct faculty from industry**
- ✓ **Special laboratory sessions on skill development are arranged** for the II/III/IV year students to enhance the programming and employability skills
- ✓ **Seminars, Expert talks and workshops** are also conducted to fulfil gap requirements
- ✓ The Department has initiated gap analysis and is **arranging Core training programs to improve the employability** of the students in core jobs.

Curricula Summary of URR-18/ URR-18R22 – Criteria I

No. of courses offered : 73

New courses introduced : 10

Value added courses : 09



Salient Features added in URR-18R22:

- **Advanced Data Structures course (Theory & lab)**
- *Programming Skill Development Lab*
- **Honours / Minor in Engg. Provision**
- *Industry relevant courses & MOOCs*
- **Self learning & Acceleration programmes**
- Choice based curriculum structure
- **Mandatory Internships**
- Mandatory Induction Program
- *Mandatory courses: UHV-II, EITK, QALR*

T-L Process & Evaluation – Criteria II

Activities of Teaching & Learning process

- Adherence to Almanac
- Release of Outcome Based Lecture Schedule & Table of Specifications (ToS)
- Continuous Internal Evaluation (CIE) – Minor Exams, Tutorials, Special Assignments on CRP & CP, Programming based Assignments, MSEs are designed with relevant CDLL targeting to map the COs of the course.
- Course Review Committee (CRC) meetings & Students online feedback of Teaching Learning process
- Pedagogical initiatives
- Collaborative learning & Self learning and Peer learning through Programme based Assignments
- Effective Student Mentoring system to help at individual levels in personal & career counselling
- Remedial/ Makeup classes are conducted for the weak learners
- Facilitating students with **Course Web facility** and promote i^2RE culture among students
- Encouraging advanced learners for quality course projects, mini & major projects and converting project into paper
- Encouraging students for self learning, NPTEL certifications, Industry internships & Industrial tours
- Anti-plagiarism check for submitted Assignments, Seminar reports, Mini & Major project reports

T-L Process & Evaluation – Criteria II

Quality of end semester examination (ESE), mid semester examination (MSE) question papers, assignments and evaluation

- Question papers are set in such a way that the COs maps the questions asked
- Assignments are given before MSE-I and before the MSE-II
- The assignments are designed with relevant CDLL targeting to map the COs of the course.
- The assignments are designed to cover both theoretical and numerical portion of the course.

Evidence for COs coverage:

Question papers are set to see that all COs are addressed and questions are mapped to Cognitive Domain Learning Level (CDLL) as per the revised blooms taxonomy. All courses have four COs (CO1,CO2,CO3 & CO4).

- Minor-I : Covers CO1, Assignment - I: CO1 & CO2
- Minor-II : Covers CO3, Assignment - I: CO3 & CO4
- MSE-I: Covers CO1 and CO2
- MSE-II: Covers CO3 and CO4
- ESE: Covers CO1, CO2, CO3 & CO4

T-L Process & Evaluation – Criteria II

Process for ensuring POs & PSOs attainment

The Department Advisory Committee (DAC) will ensure that POs and PSOs are met by continuously monitor the following aspects related to courses such as:

- ✓ Quality of questions in **assignments, mid examinations** and their relevance to COs
- ✓ Continuous evaluation in laboratory classes.
- ✓ Evaluation of assignments and answer scripts of mid examinations.
- ✓ Calculations of Attainments of COs and CDLLs for Minor and MSE exams
- ✓ Planning and action to be taken are recorded as ATTRs and are implemented to achieve COs and hence POs and PSOs.

Industry Institute Interaction

The institute has been encouraging its faculty and students to interact with industry in all possible ways. The modes of interaction are given below:

- ➢ Internships/Industrial training
- ➢ Workshops, conferences and symposia with joint participation of institute and the industry
- ➢ Participation of experts from industry in curriculum development & Guest lectures

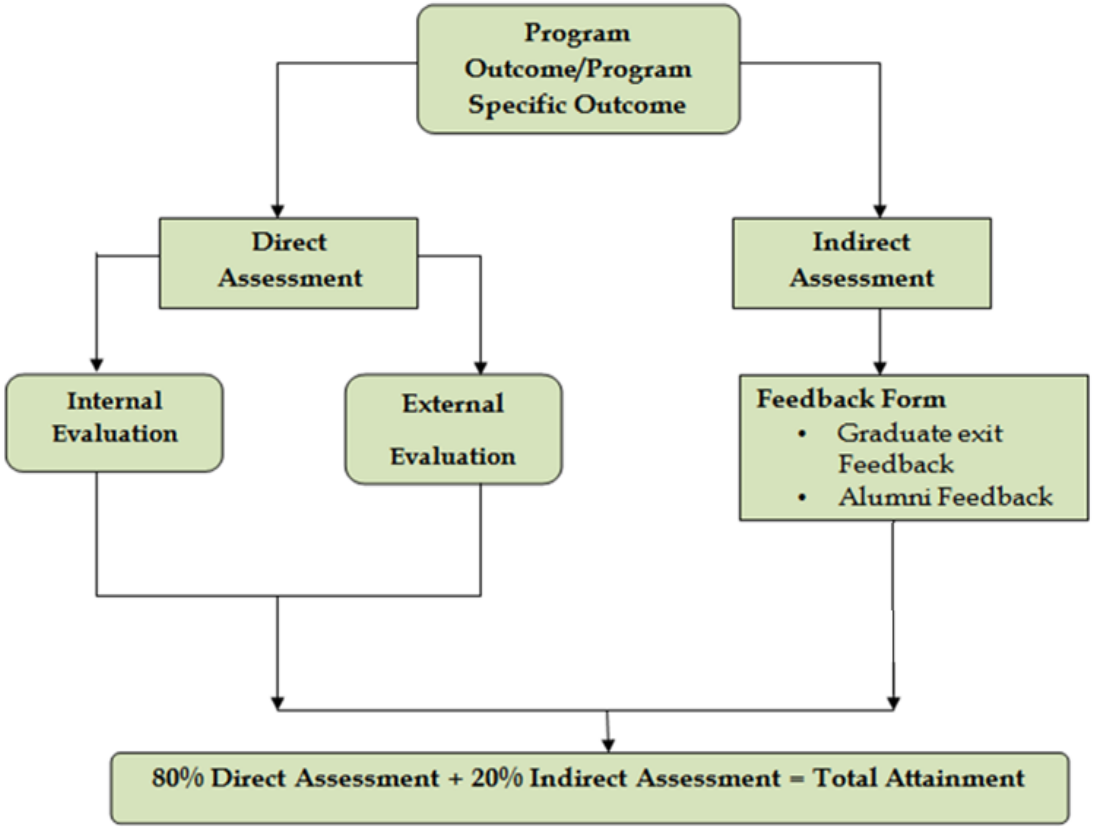
OBE Philosophy – Criteria II

- **Outcome of Engineering education** is to create industry-ready engineers

- Programme outcomes (POs) defined by NBA and PEOs & PSOs are identified by the department, relate to KNOWLEDGE, SKILLS and QUALITIES (KSQs) that the student is expected to acquire through the programme

- **Outcome Based Education (OBE) is student centred learning method**
  - What students need to learn (outcomes… KSQs)
  - What students need to demonstrate to the professional world ?
  - Accordingly design curricula and Teaching-Learning Process (TLP) to build required KSQs
- **Outcome Based Accreditation emphasizes on**
  - Stating what students to be able to do at the end of the program (i.e., POs)
  - Assessing the students whether they are able to do what they are expected to do
  - Orienting teaching and other academic processes to facilitate students to do what they are expected to do

OBE Implementation - PO & PSO Attainment – Criteria II



OBE Implementation – Criteria II

OBE reports – Course level

- After every assessment , the following are evaluated
  - CO Attainment Level (COAL)
  - Cognitive Domain Attainment Level (CDLL)
  - Action To be Taken Reports (ATTR)
  - Action Taken Reports (ATR)
  - CAM attainment Level (Contribution of course in PO attainment)

OBE reports – Programme level

- PO attainment levels of each course
- Overall PO Attainment Level (POAL)
- PSO attainment
- PEO attainment

PO/PSO Attainment Level

$$Direct\ PO/PSO\ attainment = \frac{\sum(^{CO\ attainment * PO/PSO\ target}/_{3})}{True\ number\ of\ courses\ mapped}$$

$$Indirect\ PO/PSO\ attainment = Average\ (Graduate\ Exit\ survey, Alumni\ survey)$$

Course contribution in PO Attainment

PO & PSO Attainment – Criteria II

Total Number of Students	60			
Course outcome	CO1	CO2	CO3	CO4
Maximum Marks	15	15	15	15
Threshold (Th) *(Th=50% of Maximum Marks)*	7.5	7.5	7.5	7.5
No. of Students Count >= Th	55	45	54	41
% of Students Count >= Th	91.6%	75%	90%	68.3%
Course Outcome Attainment Level (COAL)	3	2	3	1
Course Outcome Attainment Level=1	If 60% of Students score >= Th			
Course Outcome Attainment Level=2	If 70% of Students score >= Th			
Course Outcome Attainment Level=3	If 80% of Students score >= Th			

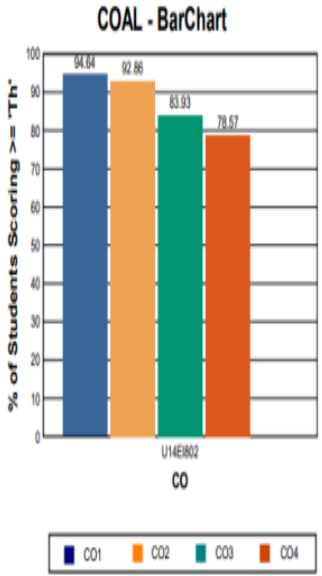
ABSTRACT ON COURSE OUTCOME ATTAINMENT LEVEL

EIE B.TECH. VIII SEMESTER 2017 - 2018 U14EI802 BIO-MEDICAL SIGNAL PROCESSING

Course Name	Faculty Name	Type Of Exam	Date of Exam	Academic Year & Sem
BMSP		ESE		2020 - 2021 VIII SEMESTER

Total Number Of Students	56			
Course Outcome	CO1	CO2	CO3	CO4
Max Marks	15.00	15.00	15.00	15.00
Threshold('Th')('Th'=50% of Maximum Marks)	7.50	7.50	7.50	7.50
No of Students Scoring >= 'Th'	53	52	47	44
% of Students Scoring >= 'Th'	94.64	92.86	83.93	78.57
Course Outcome Attainment Level(COAL)	3	3	3	2

Course Outcome Attainment Level=1	If 60% of Students score >= 'Th'
Course Outcome Attainment Level=2	If 70% of Students score >= 'Th'
Course Outcome Attainment Level=3	If 80% of Students score >= 'Th'

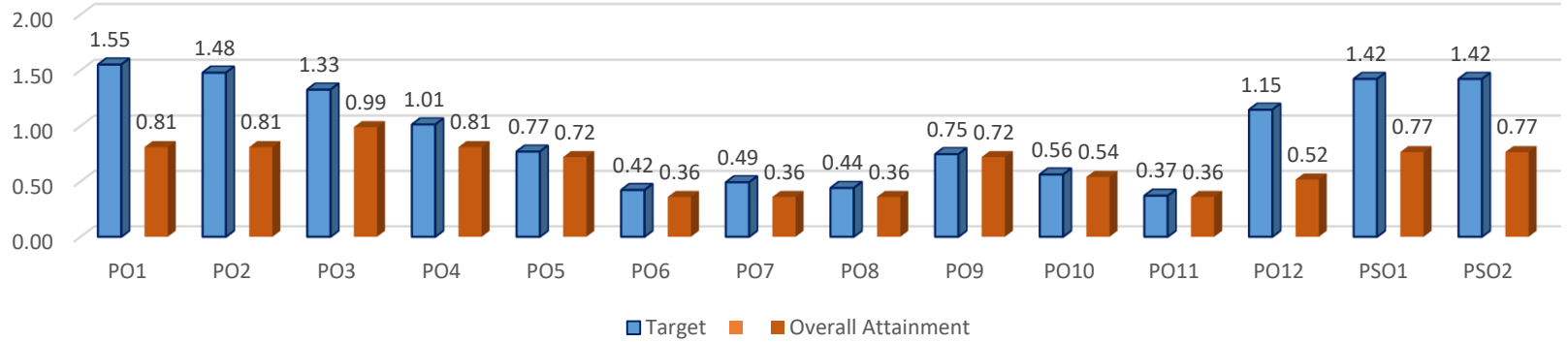


Po attainment calculation for the course U14EI802 Bio-Medical Signal Processing														
Course articulation matrix for U14EI802														
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Co1	2	2	3	2	3	2	1	-	1	-	-	2	2	2
Co2	3	2	2	3	2	2	1	-	1	-	-	2	2	2
Co3	3	2	3	2	3	2	1	-	1	-	-	2	2	2
Co4	2	2	2	3	2	2	1	-	1	-	-	2	2	2
Avg.	2.5	2	2.5	2.5	2.5	2	1		1			2	2	2

Overall CO attainment for the course U14EI802 Bio-Medical Signal Processing : 2.7
PO Attainment = (Target PO level) * (CO attainment/3) = 3*(1.20) /3=1.2

U18EI505 Linear Integrated Circuits And Applications														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
PO Target	1	2	2	1	0	0	0	0	0	0	0	1	2	2
PO Attained (Direct)	0.67	1.33	1.33	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	1.33	1.33

Target vs Overall Attainment for B.Tech ECI (2019-23)



Faculty Achievements & Recognitions *(for last 5 years)* – Criteria III

Ph.D.s awarded – 04 & Submitted thesis - 01

S. No	Name of the faculty	Name of the University	Year of award of Ph.D
1.	**Dr. M. Raghu Ram**	JNTUH, Hyderabad	2020 (PhD awarded)
2 .	**Dr. O. Anjaneyulu**	JNTUH, Hyderabad	2022 (PhD awarded)
3.	**Dr. B. Jeevan**	KU, Warangal	2023 (PhD awarded)
4.	**Dr. M. Sreelatha**	OU, Hyderabad	2024 (PhD awarded)
5.	**Smt. R. Nirmala Devi**	JNTUH, Hyderabad	2023 (submitted thesis)

Ph.D. guidance by faculty - 08

S. No	Name of the Faculty	Name of the Research scholar	Name of the University	Year
1.	**Dr. K. Sivani**	Sri M. Raghu Ram	JNTUH, Hyd.	2020 (PhD awarded)
2 .		Sri E. Hari Krishna	JNTUH, Hyd.	2021 (PhD awarded)
3.		Sri B. Harish	JNTUH, Hyd.	2021 (PhD awarded)
4.		Smt. Ch. Navitha	JNTUH, Hyd.	2022 (PhD awarded)
5.		Sri B. Jeevan	KU, Wgl	2023 (PhD awarded)
6.		Sri Ch. Pavan Kumar	JNTUH, Hyd.	2023 (submitted thesis)
7.		Sri B. Shashikanth	KU, Wgl	2022 (Admitted)
8.		Smt. B. Srilatha	KU, Wgl	2022 (Admitted)

Faculty Achievements & Recognitions *(for last 5 years)* – Criteria III

Avg. Citation Index: 72.21 (Scopus) & 32.64 (WoS)
Avg. h-index: 3.14 (Scopus) & 1.71 (WoS)

Faculty Research / Certifications

Item	2023-24	2022-23	2021-22	2020-21	2019-20	2018-19	Total
Journal Papers - SCI/SCIE	-	06	03	01	-	-	**10**
Journal Papers - Scopus	01	06	-	-	01	03	**11**
Journal Papers – UGC	-	-	01	-	-	-	**01**
Conf. Proc., - International	02	03	04	01	-	02	**12**
Book Chapters	-	-	-	-	-	-	**-**
Patents Filed / Published	-	-	-	-	01	-	**01**
Grants Received	-	-	-	-	01	-	**01**
FDPs/STTPs Organized	-	-	-	03 (online)+ 01 (offline)	-	-	**04**
FDPs/ STTPs attended	23	21	27	33	20	21	**145**
NPTEL Certifications	23	20	15	03	13	08	**82**

Lab Infrastructure details – Criteria IV

Total No. of Systems: 112
(Labs – 107 & Faculty Cabins – 05)

S. No.	Name of the Laboratory	Area (m^2)	Total Cost of Equipment (Rs)
1.	Basic Electronics and Integrated Circuits Laboratory	101.4 Sq.mt.	8,10,587.00
2.	E- CAD Laboratory (*DREC - VLSI*)	62.8 Sq.mt.	58,75,881.00
3.	Virtual Instrumentation & IoT Laboratory	98.2 Sq.mt.	16,71,674.00
4.	Microprocessors & Microcontrollers Laboratory (*DREC – Embedded Systems*)	79.2 Sq.mt.	31,71,862.00
5.	Electronic Measurements and Sensors Laboratory	150.9 Sq.mt.	12, 21,941.00
6.	Industrial Process Control Laboratory (*DREC – Industrial IoT*)	79.2 Sq.mt.	29,22,574.00
7.	PG - Research Laboratory	42.25 Sq.mt.	9,52,800.00
8.	*CoE - NI LabVIEW Academy*	98.2 Sq.mt.	17,70,000.00

Lab Infrastructure – Licensed Software details – Criteria IV

S. No.	Name of the Software	Name of the supplier/ vendor	Cost (Rs)
1.	MATLAB R2012	Academy of Design & Architecture	5,66,936.00
2.	MATLAB Math works Campus wide suite	Capricot Technologies Private Ltd.	1,93,637.00
3.	Xilinx Vivado Design Suite	Corel Technologies	2,00,000.00
4.	MATLAB R2012	Academy of Design & Architecture	5,66,936.00
5.	Microsoft Academic Volume Licensing Software	Planet Solutions, Kishanpura, Hanumakonda	1,33,418.00
6.	Campus Wide Cloud Hosted Smart Online site licensing	Code Tantra Tech Solutions Pvt Ltd	72,200.00
7.	Microsoft 365 License Software	Planet Solutions, Hanumakonda	22,000.00
8.	NI - LabVIEW-2018	NI ACADEMY	17,70,0000.00
9.	MATLAB-2023b Math works Campus wide suite	Capricot Technologies Private Ltd.	1,93,637.00
10.	Keil_ µvision	VVDN Technologies Private Ltd.	2,39,998.00
11.	Turnitin similarity software	TURNITIN INDIA Pvt. Ltd, Uttar Pradesh	84,352.00

Department of Electronics & Instrumentation Engineering

Budget & Expenditure details – Criteria IV

Sl. No.	Financial Year	ECI - Budget Proposed			ECI - Budget Sanctioned			ECI - Actual Spent		
		Non-Recurring	Recurring	Total	Non-Recurring	Recurring	Total	Non-Recurring	Recurring	Total
1.	2023-24	66,03,400	21,78,500	87,81,900	15,79,700	2,40,000	18,19,700	5,21,700	85,500	6,07,200
2.	2022-23	74,32,000	14,18,600	88,50,600	15,55,180	2,85,000	18,40,180	1,80,600	2,31,500	6,49,900

Sl. No.	Financial Year	EIE - Budget Proposed			EIE - Budget Sanctioned			EIE - Actual Spent		
		Non-Recurring	Recurring	Total	Non-Recurring	Recurring	Total	Non-Recurring	Recurring	Total
1	2022-23	7,14,400	7,99,000	15,13,800	2,39,500	2,15,000	4,54,500	1,06,500	1,31,300	1,47,800
2.	2021-22	8,09,939	7,77,760	15,87,699	8,10,000	3,15,750	11,25,750	-	2,33,422	2,33,422
3.	2020-21	20,91,800	5,07,265	25,99,065	-	2,22,459	2,22,459	-	2,22,459	2,22,459
4.	2019-20	48,15,800	5,33,025	53,48,825	16,39,000	3,40,025	19,79,025	9,04,626	3,20,784	12,25, 410
5.	2018-19	42,41,800	9,36,890	51,78,690	8,50,000	3,00,000	11,50,000	4,18,800	1,16,240	5,35,040

Student Achievements & Recognitions *(for last 5 years)* – Criteria V

T&P, HE and EDC Details

S. No.	Batch	Intake	No. of final year students	No. of students placed in campus	Placed %	No. of students joined in Higher Education	No. of student Entrepreneurs
1.	2023-24	ECI – 60	ECI – 51	ECI – 14	27.5%	NA	
2.	2022-23	ECI – 60 EIE – 60	ECI – 60 EIE – 52	ECI – 30 EIE – 12	ECI-50% EIE -23%	ECI-03 EIE-NIL	
3.	2021-22	EIE – 60	EIE – 62	EIE – 40	64.5%	06	
4.	2020-21	EIE – 72	EIE – 56	EIE – 16	28.6%	15	-
5.	2019-20	EIE – 72	EIE – 59	EIE – 15	26%	11	-
6.	2018-19	EIE – 72	EIE – 64	EIE – 27	42%	07	-

Internships & NPTEL certifications

Batch	Internships	NPTEL Certifications
2023-24	ECI - 108	05
2022-23	ECI – 44 EIE – 52	15
2021-22	ECI – 56 EIE – 11	05
2020-21	ECI – 72 EIE – 48	04
2019-20	EIE – 58	-
2018-19	EIE – 64	-

Student Achievements & Recognitions *(for last 5 years)* – Criteria V

Student Activities – EIEA/ SAC Details

S. No.	Academic Year	Student Workshops		Technical Events		Cultural Events/ Co-Curricular Events	
		No. of Workshops Conducted	No. of students participated	No. of events conducted	No. of students participated	No. of events conducted	No. of students participated
1.	2023-24	01	62	07	262	02	06
2 .	2022-23	01	71	10	192	03	08
3.	2021-22	01	26	05	141	02	04
4.	2020-21	01	40	05	173	02	10
5.	2019-20	01	70	08	246	05	08
6.	2018-19	01	105	07	234	04	12

- **Ms. Nagamani (B19EI053)** represented Kakatiya University (KU) in **NSS – National Adventure camp** at Dharmashala during 03-12, Nov. 2022
- **Ms. Divya Joshi (B19EI013)** represented Kakatiya University (KU) in **NSS – National level Integration camp** at Kurukshethra during 12-18, Nov. 2022
- **Mr. Shiva Kapil Teja (B18EI016)** awarded with **Telangana State Cultural Award** in **Perininruthyam**

Major projects (*Sample*) carried out in DRECs by students – **Criteria V**

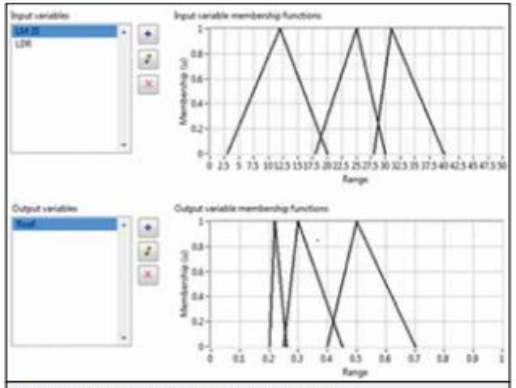


Figure 6. Fuzzy membership functions for rice

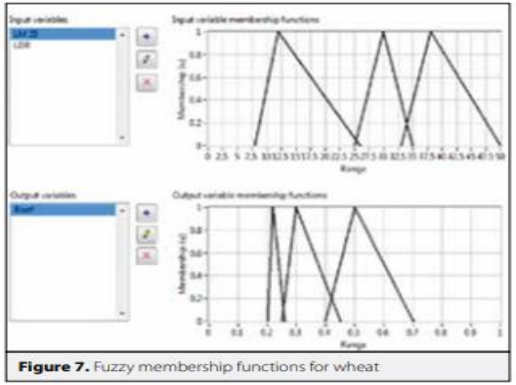


Figure 7. Fuzzy membership functions for wheat

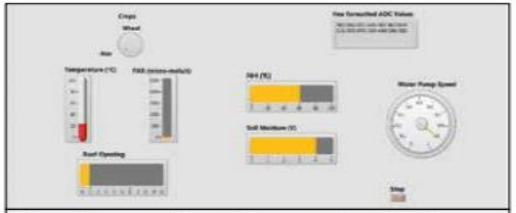
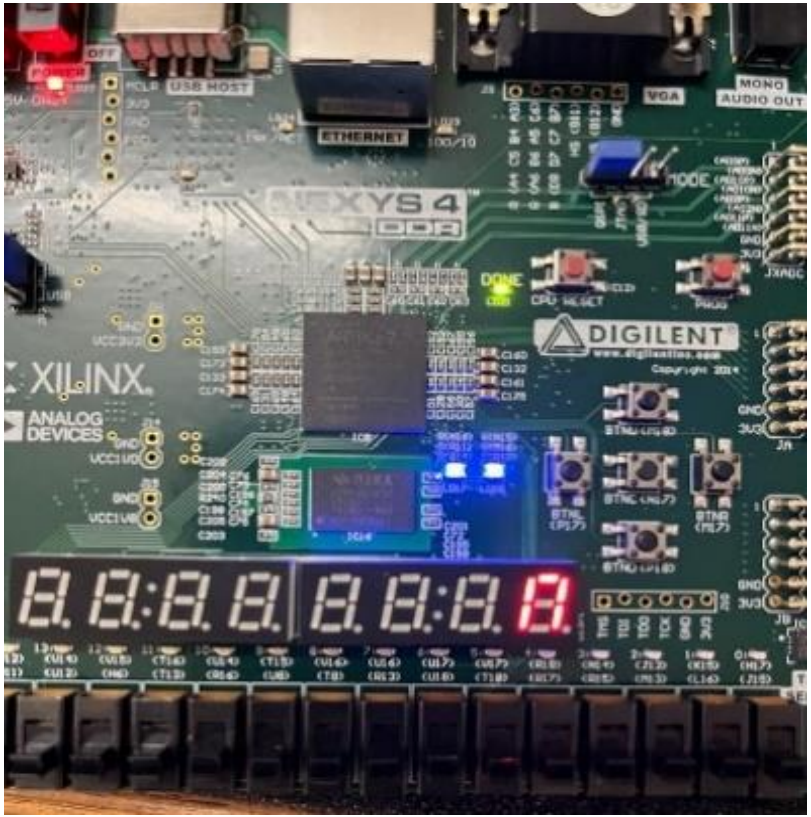


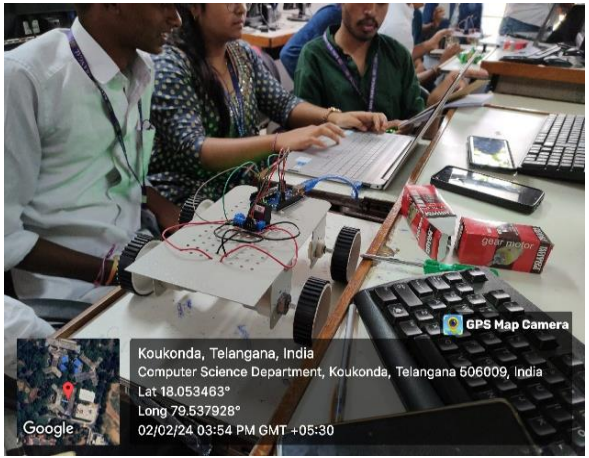
Figure 8. Front panel view of the proposed system interface

Figure 9. Laboratory setup showing closed roof

Figure 10. Model with roof partially opened



Student participation in Technical events – Criteria V



Student participation in Industrial Visits – Criteria V

Student visits to Industries

S. No.	Name of the Industry	Company Sector	Incorporation status	Dates	No. of Students visited
1.	Indian National Centre for Ocean Information Services (INCOIS), Telangana	Ocean information and advisory services to society	*Government*	31st March, 2023	**40**
2.	NACL Industries Limited, Arinam Akkivalasa, Andhra Pradesh	Manufacturing	*Government*	29th April, 2022	**50**
3.	Cyclone Warning Centre, Visakhapatnam, Andhra Pradesh	Ocean information and advisory services to society	*Government*	30th April, 2022	**50**
4.	Srisailam Left Bank Power Plant, Andhra Pradesh	Power Plant	*Government*	23 - 24 March, 2018	**47**
5.	KTPS, Kothagudem, Telangana	Manufacturing	*Private*	27 - 29 January, 2017	**40**

Student participation in Placement trainings – Criteria V

T&P trainings for Student progression - Placements

Sl. No	Academic Year	No. of T&P trainings	No. of Students Attended	Activity
1	2023-24	24	42	▪ Company specific trainings ▪ Power programming training ▪ Advanced technical training ▪ Core training at department
2	2022-23	37	70	
3	2021-22	42	45	
4	2020-21	08	47	
5	2019-20	09	42	
6	2018-19	08	42	

Student participation in HE trainings – Criteria V

Career Awareness & trainings for Student progression – Higher Education

Sl. No	Academic Year	No. of Awareness Programs	Activity	Date	No. of Students Attended
1	2023-24	01	GATE, ESE: A Gateway to Prestigious Government Engineering Positions" by ACHARYA Academy	09-12- 2023	68
2	2022-23	01	Awareness about Abroad Studies/Scholarships by Global Tree Consultancy Warangal	06-04-2023	78
3	2021-22	02	Studying at Abroad: Scope and Opportunities by IMFS	31-03 2022	73
4	2021-22	01	Corporate Life-Ways Of Working Skills In Demand	21-04- 2022	66
5	2020-21	-	-	-	-
6	2019-20	01	Guest Lecture on Career through GATE/PSU & IES	19.09.2019	73

Alumni Support for student progression – Criteria V:

S. No.	Name of the Alumni / Batch	Alumni Support/ Contribution
1.	Sri E Rajaratnam, ALUMNUS (B. Tech-EIE 1983-87), CEO, M/s RVJ Solutions, Hyderabad	Sri Emmadi Laxminarayana & Smt. Ahalya Gold Medal – Excellence in Academic & Co – Curricular Activities
2.	Sri T. Srinivas (B. Tech-EIE 1988-92), CEO, M/s Sumith Electronics, Hyderabad	Member BoS, E & I Engg
3.	Dr. Y. Jagan Mohan Reddy, (B. Tech-EIE 1993-97), Principal Engineer at Air Company, New York, USA	Member BoS, ECI Sponsored DCS Interfacing modules in PC lab
4.	Sri R. Dileep (B. Tech-EIE 2006-10), Senior ASIC Design Engineer, Synopsis, Hyderabad	Member BoS, ECI
5.	Sri R. Divyanand (M. Tech-VE 2008-10), Senior Engineer, Qualcomm, Bangalore	Member BoS, E & I Engg
6.	ALUMNI of 1983-87 Batch	1983-87 KITSW batch Gold Medal- Excellence in Academic, Cultural & Co curricular and Games & Sports Activities
7.	Alumni of 1992 to 1994 Batches	Partial Contribution of Rs. 2,70,000 towards establishment of Project Works Lab
8.	Alumni Faculty of the Department	Contribution of Rs1,60,000 for establishment of KITSW Auditorium

Department of Electronics & Instrumentation Engineering

Faculty involvement in Institutional/ Department administrative activites – Criteria VI

S. No.	Name	Qualification	Designation	Additional Responsibilities	Experience (Years)
1	Prof. M. Sreelatha	Ph.D	*Professor*	Prof. I/c, Library & MHP Prof. I/c- SP RG	30
2	Prof. K. Sivani	Ph.D	*Professor*	Prof. I/c, SMCG & Prof. I/c- VLSI RG, DPGDEC Convenor	32
3	Prof. K. Venu Madhav	Ph.D	*Professor*	Dean AA, Prof. I/c-SES RG, DUGMAJPEC Convenor	24
4	Smt. R. Nirmala Devi	M.Tech,, (Ph.D)	*Assoc. Professor*	IEEE Interim Branch Counselor & Dept. Swayam_MOOCs Coordinator DUGSEC/ DUGMinPEC Convenor	29
5	Dr. O. Anjaneyulu	Ph.D	*Assoc. Professor*	Faculty I/c, AA&ER Cell & DUGMAJPEC Coordinator	24
6	Dr. M. Raghu Ram	Ph.D	*Assoc. Professor*	Head of the Dept.	23
7	Sri B. Shashikanth	M.Tech., (Ph.D)	*Asst. Professor*	Dept. Activities Documentation Coordinator & DUGSEC/DUGMinPEC Coordinator	18
8	Dr. B. Jeevan	Ph.D	*Asst. Professor*	Faculty I/c, R&D Cell & Dept. R&D Coordinator, DPGDEC Coordinator	15
9	Dr. K. Srinivas	Ph.D	*Asst. Professor*	Dept. Academic Coordinator	15
10	Sri B. Venu Maheshwar	M.Tech., (Ph.D)	*Asst. Professor*	Faculty I/c, ECIA & Dept. SAC Coordinator	12
11	Smt. B. Smitha	M.Tech., (Ph.D)	*Asst. Professor*	Dept. TTs/ Exam branch /CMS/ Courseweb Coordinator	16
12	Smt. K. Shailaja	M.Tech., (Ph.D)	*Asst. Professor*	Dept. i2RE/IIC/EDC Coordinator	18
13	Sri G. Raju	M.Tech., (Ph.D)	*Asst. Professor*	Dept. I3C/ Website Coordinator	16
14	Sri B. Krishna Sundeep	M.Tech., (Ph.D)	*Asst. Professor*	Dept. T&P/ HE Coordinator	10

SWOC of the Department – Criteria VII

Strengths

- **Department has a "Research Center" recognized by the Kakatiya University, Warangal**
- **Research Scholars are working in various diversified fields of Electronics and Instrumentation Engineering**, such as Virtual Instrumentation, Biomedical instrumentation, Signal Processing, VLSI and Embedded Systems, etc.
- **Department has state of the art laboratories** such as Virtual and Bio medical Instrumentation Lab, Electronic-CAD Lab, Process Control Lab, Microprocessors and Microcontrollers Lab, etc.
- **B.Tech. program is accredited** by the National Board of Accreditation (NBA), New Delhi.
- **Department has strong support from Alumni**, working in various premier institutes and top class industries. EIE alumni have funded Project works laboratory of the department for a worth of 8 lakhs. Prominent Alumni include:
  - ✓ **Dr. V. Ramgopal Rao (Batch 1982-86), *Former Director*, IITD**
  - ✓ **Sri Ashuthosh Rana (Batch 1981-85), *Founder & CEO*, ACTIFIO. Inc, Hyderabad**
  - ✓ **Dr. T. K. Sai (Batch 1982-86), *Principal Scientific Officer*, NITW**
- **Department has highly qualified, committed & experienced faculty and dedicated technical & supporting staff**
- **Faculty of the department has expertise in various diversified fields** like Biomedical Instrumentation, Signal Processing, Embedded Systems and VLSI.
- Faculty members are actively involved in research activities and have good number of research publications to their credit.
- **Department has a center of excellence "NI LabVIEW Academy "**which is training the students to acquire the skills required **for CLAD certification**

SWOC of the Department – Criteria VII

Weaknesses

- Majority of the students admitted into the UG program are from rural background with less exposure and poor communication skills

Opportunities

- Students have opportunities in Industries related to Power, Textiles, Cement, Petrochemicals, Pharmaceuticals, Chemical, Food processing, VLSI, Signal processing, Optical & Laser based communications, Wireless communications and Embedded Systems etc.
- Department faculty has wide scope for carrying research projects.

Challenges

- Core placements and Higher Education in Electronics specialization are the two major challenges faced by the department

Short term and Long term goals – Criteria VII

Short Term Goals

- **To strengthen research activity** in the area of **Bio-medical signal processing and Embedded Systems** in collaboration with renowned educational institutes and specialized hospitals

- **To strengthen research activity** in the area of **VLSI** in collaboration with renowned industries

Long Term Goals

- **To focus on more number of Research projects** in collaboration with industries and Consultancy services

Distinctiveness of the department – Criteria VII

- ✓ **Department of Electronics & Instrumentation Engineering (EIE) was established in the year 1981**
- ✓ Department is distinct being **first in the country to offer a B.Tech. program in Electronics & Instrumentation** stream.
- ✓ **B.Tech. (EIE) program has been accredited by the National Board of Accreditation (NBA)** of AICTE, New Delhi for four times and latest re-accredited under Tier-I w.e.f. 2021-22 to 2023-24.
- ✓ **Department is recognized as a Research centre for Electronics and Instrumentation Engineering** stream under Kakatiya University and offers state of the art research facilities to the Ph.D. scholars registered in the specified areas of Electronics, Communication, Embedded systems, VLSI and Signal Processing.
- ✓ Department of Electronics and Instrumentation Engineering has a **fine blend of experienced, young, dynamic and committed faculty**
- ✓ Department is **privileged to have many distinguished alumni** who are settled across the globe in distinct positions. **Prof V. Ram Gopal Rao garu**, *Former director of the IIT Delhi & Shanthi Swaroop Bhatnagar awardee*, is one of the prominent alumni of the department.
- ✓ Department is **offering Honours & Minor programmes titled Honours in ECI (HECI) and Minor in Engg. in ECI (MECI)** as per the AICTE regulations.

Distinctiveness of the department – Criteria VII

- ✓ Department hosts a **Centre of Excellence (CoE) named "NI LabView Academy"**, which works with an objective to train the UG students of EIE, ECI, EEE & ECE on utilization of LabVIEW software tool for Embedded & IoT applications
- ✓ Department is having **Major Research Groups (MRGs) with faculty expertise in the domains** of Signal processing, VLSI, Embedded systems & Instrumentation.
- ✓ With kind support of management & administration, **department faculty is doing research in the research areas identified under MRGs**, involving both faculty and UG & PG students of the department.
- ✓ **Research areas identified under MRGs** to be considered **as research opportunities for B.Tech.(ECI) & M. Tech. (EV)** students to work in the research domains.
- ✓ **UG & PG programmes offered** under the department **gives students an opportunity to make a successful career in the fast-growing industry 4.0 technologies**, where students get a decent career in Embedded systems, IoT, Industrial IoT, Signal processing & VLSI domains
- ✓ **Faculty visited abroad** with UGC- International travel grant (ITG) & I2MTC conference grant, for presentation of research work in flagship IEEE conferences at Malaysia, China, Austria, Hungary and Singapore.

Best Practices of the department – Criteria VII

- Course Web facility to inculcate i^2RE culture among students
- Antiplagiarism policy to inculcate ethics among students to write quality reports

- Student internships in the area of Industry 4.0 technologies
- Students are encouraged to take up Major/ Mini projects (related to social concern) in the area of IoT, AIML, VLSI & BMSP

- Intensive student counseling system
- College Management System (CMS) to monitor student attendance and performance

- Frequent alumni interactions and expert lectures are arranged
- Certification courses are offered under centre of excellence-NI LabVIEW Academy
- Regular industrial visits are arranged every year for B.Tech. VI semester students

Prominent Alumni:

S. No.	Name of the Alumnus	Designation
1.	Sri A. Ashutosh, 1985	Founder, President & CEO, Actifio, Greater Boston Area, USA
2.	Prof. V. Ramgopal Rao, 1986	Vice-Chancellor, Group of BITS campuses & Former Director-IIT Delhi
3.	Dr. T. K. Sai, 1986	Addl. G. M, NTPC Limted, Ramagundam
4.	Sri E. Raja Rathnam, 1987	Founder Director RVJ Techno solutions, Hyderabad
5.	Sri V. Nagabhaskar, 1987	Dy General Manager at Dept of Atomic Energy
6.	Sri A. Chandrasekhar, 1989	Operations Manager, Oil, Gas & Chemicals at ABB Global Industries and Service Pvt. Ltd, Bangalore
7.	Sri R. Venu Madhav, 1989	Program Manager , Emerson Automation Solutions, Texas, USA
8.	Sri G. Srinivas Reddy1990	Sr. Director, ECI Telecom India Pvt. Ltd, Bangalore
9.	Sri G. Raja Rao, 1991	G.M, Vasavadatta Cement ,Karnataka
10.	Sri G. Rajashekar, 1991	Senior Manager, Indian Oil Corporations Ltd, Panipat, Haryana
11.	Sri T. Srinivas, 1992	Sumith Electronics, Hyderabad
12.	Sri G. D. Vasu, 1992	Chief Manager (Instrumentation) , GAIL Pvt. Ltd.
13.	Sri B. Dayanand, 1997	Expert Technologist, Hewlett Packard Enterprise, Bangalore
14.	Dr. Y. Jaganmohan Reddy, 1997	Principal Engineer at Air Company, New York, USA

With Warm regards
&
Heartfelt Thanks
to
NAAC –Peer team members