# VIDYA JYOTHI
## Institute of Technology
AN AUTONOMOUS INSTITUTION


Presentation by

**Dr. A. Srujana**

**Head of the Department**

**Electrical and Electronics Engineering**


# WELCOME

## To

# NBA Expert Committee

***25th-27th February, 2022***

# Introduction

## Programs Offered by the Department

| Programs | Course | Year | Intake |
|---|---|---|---|
| Electrical and Electronics Engineering | B.Tech. (EEE) | 1999 | 40 |
| | | 2002 | 60 |
| | | 2005 | 90 |
| | | 2006 | 120 |
| Electrical Power Systems | M.Tech. (EPS) | 2013 | 24 |

# Department Achievements

## Department Level

- NBA has accreditated UG Program
  - First Cycle in the A.Y 2011-12 valid for three years
  - Second Cycle in the A.Y 2018-19 valid for three years

- Received fund (Rs.2,70,867/-) from AICTE to conduct STTP under AQIS (2019-20)

- 13 active MoUs with industries

- Three active student chapters
  - IEEE Power and Energy Society
  - Institute of Engineers India
  - Indian Society for Technical Education

- Developed an Electric Vehicle for in campus transportation with a loading capacity of 500 Kgs

# Department Achievements

VIDYA JYOTHI Institute of Technology
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## Faculty Level

- Dr. A. Srujana, Professor, Dr. C. N. Ravi, Professor, Mr. B. Sudhakar Reddy, Mr.B.Rajesh and Mr. M.Vijaykumar, Assistant Professors, **Granted** International patent on IFAC-Driver Less Vehicle Autonomous Control

- Dr. A. Srujana, Professor, **published** Indian patent on DSPV-Digital Electric Meter: Design, Implementation and Simulation of Prepaid , Post Paid Digital Electric Meter, Theft Monitoring System With SMS Voice Alert.

- Dr. C. N. Ravi, Professor, **published** Indian patent on Automatic Over Voltage Under Voltage Load Protection and Distribution

- Dr. G. Madhusudan Rao, Professor was awarded "BHARATH VIDYA SHIROMANI AWARD" by Mr. Indrapal Singh Minister of Rural Development – Government of UP on 27th February 2020.

- Thirteen faculty members registered for Ph.D. program in different universities.

- Mrs. K. Haritha, Assistant Professor, completed a course with Distinction on "Online Teaching", July to September 2020 conducted by IUCEE Faculty Team

# Department Achievements

VIDYA JYOTHI Institute of Technology
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## Student Level

- Achieved Unique Placements of 70 in 2021-22 , 79 in 2020-21, 59 in 2019-20, 63 in 2018-19
- Mr. V. Sai Ganesh presented paper in International conference organized by Asia World Model UN II, Bangkok, Thailand from 30th Jan to 2nd Feb 2019
- K. Sohail Ahmed and team - 1st position (App development) "MINEKEE HACKS", Torrento, USA in 2021
- Anirudh Soni, and team - 5th place (Gglove) "Hackathon Santri", Indonesia in 2021
- K. Pavan kumar and team - 6th position (App development) "EXCITE -2020", (J-hub), JNTUH
- K. S. Keshava Rao and team - 1st prize (Product development) "J-HUB Hackathon league", BVRIT, Hyderabad 2019
- K. Sohail Ahmed and team -1st prize (Product development) "Coronathon-2020", CMR Engineering College, Hyderabad
- K. Adarsh, and team - 1st prize in J-HUB HACKATHON, JNTUH, 2019.
- Anirudh and team - 2nd position (Paper Presentation) at "PRAGNYA 2020" at JNTUH.
- J. Madhulatha and team - 2nd prize (Technical Quiz), "PRAGNYA 2019" JNTUH.
- Mr. Farasuddin Hamza - certificate of excellence (pre-hackathon), "NASA International Space Challenge 2018"
- E.L.S. Pravallika and team 2nd prize (App development) "National level NASA – Space apps Hackathon, 2018"

# Criterion 1 – Vision, Mission & PEOs

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

## Vision

To become a reputed department in impartation of professional and technical expertise in the field of Electrical and Electronics Engineering.

## Mission

**M1**: Imparting Quality Technical Education by provision of state-of-the-art learning facilities.

**M2**: Preparing the students to think innovatively and find effective solutions to address engineering and societal problems with a multi-disciplinary approach maintaining continuous industry interaction.

**M3**: Encouraging team work and preparing the students for lifelong learning with ethical responsibility for a successful professional career.

## Program Educational Objectives (PEOs)

**PEO1:** Equip graduates with a sound foundation in mathematics, science and engineering fundamentals, necessary to build a prospective career.

**PEO2:** Graduates will excel in giving solutions to real-time problems through technical expertise and operational skill set in the field of Electrical Engineering.

**PEO3**: Graduates will act with integrity in catering the need-based requirements blended with ethics and professionalism.

# Criterion – 2 Program Curriculum

VIDYA JYOTHI Institute of Technology
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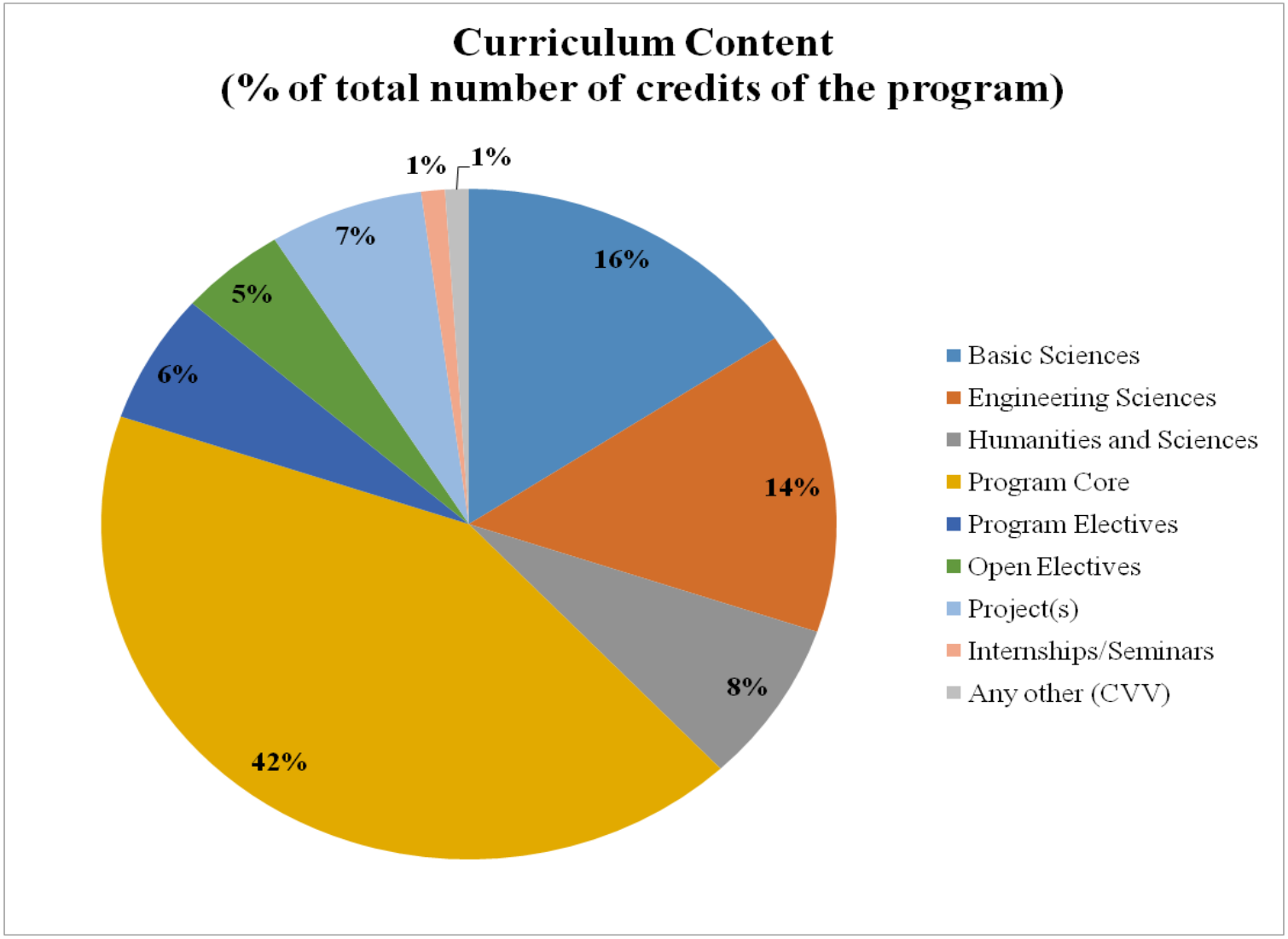
## R15 Curriculum



# Program Curriculum

VIDYA JYOTHI Institute of Technology
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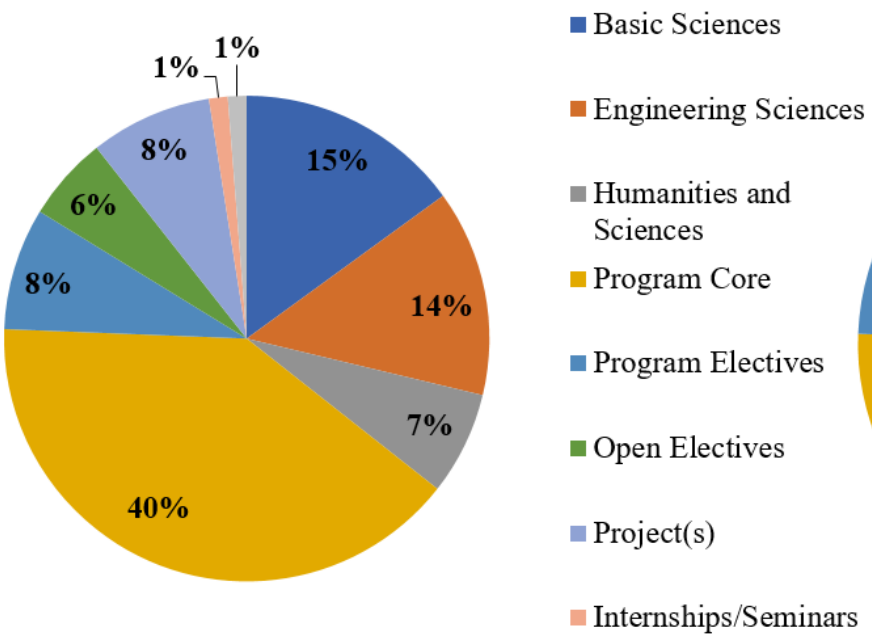
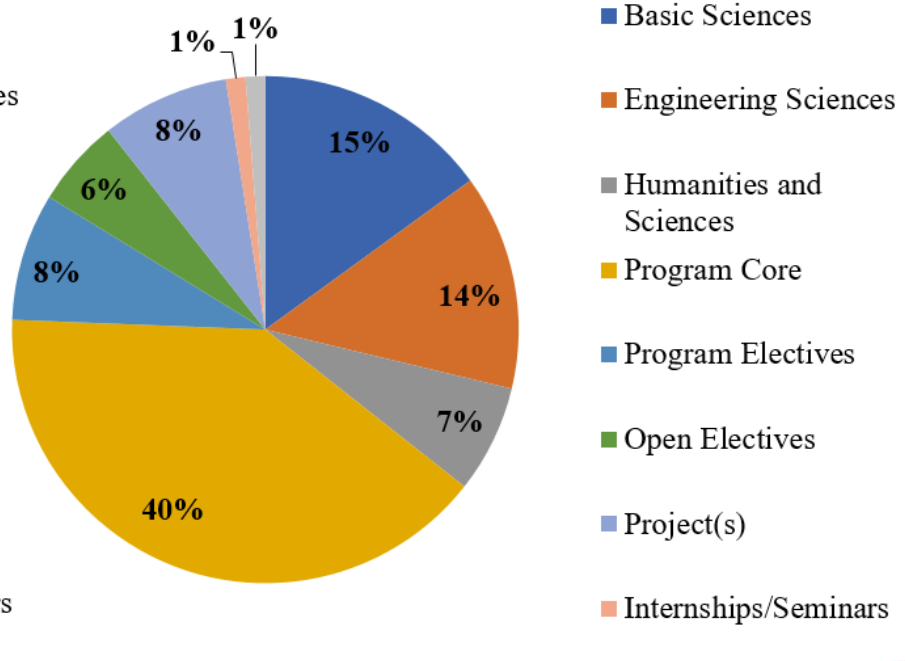
## R18 Curriculum

### Curriculum Content
( % of total number of credits of the program)

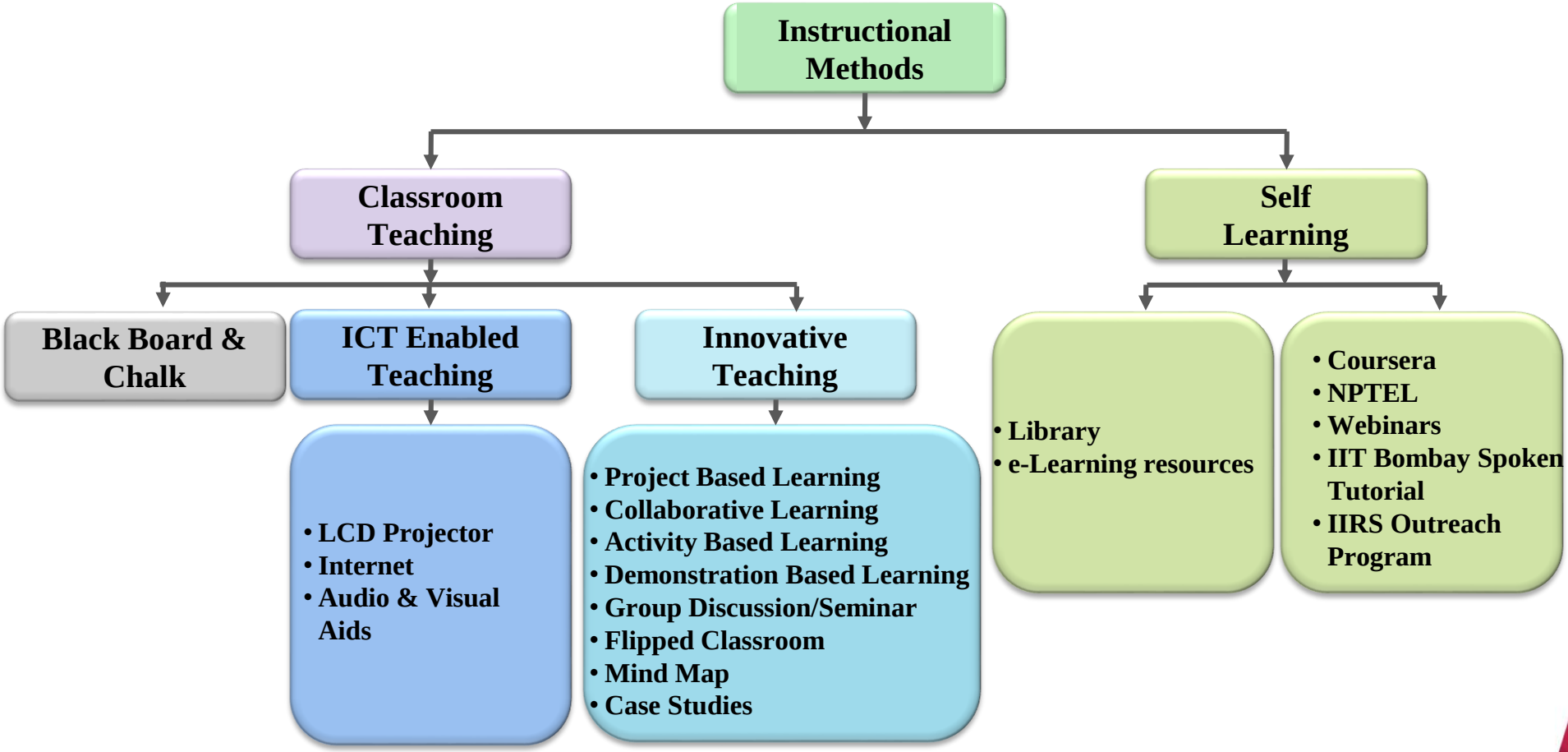



## R20 Curriculum

### Curriculum Content
( % of total number of credits of the program)



# Teaching Learning Process



# Teaching Learning Process

## Course Evaluation (Theory)

| | | | |
|---|---|---|---|
| CIE | Mid Avg. (20M) | 25M | 100M |
| | Assignment Avg. (5M) | | |
| SEE | Part – A (25 M) | 75M | |
| | Part – B (50 M) | | |

**ASSIGNMENT – I (AY – 2019-2020)**

**COURSE NAME: POWER ELECTRONICS** **Year & Semester: III YEAR I SEM**

| S.No. | Questions | COs | POs | B.L |
|---|---|---|---|---|
| 1 | Explain the conditions required to turn on an SCR? Discuss why they are required. | 1 | 1 | 2 |
| 2 | Derive the equations and explain two transistor analogy of SCR and conclude when the SCR can conduct. | 1 | 1,2,3 | 3 |
| 3 | Explain the operation of Single Phase fully controlled converter with R L Load and explain why negative voltage is observed for increased firing angles? | 2 | 1,2,,3 | 3 |
| 4 | A single phase full converter is connected to 230 V, 50Hz supply. The load current I is assumed to be continuous and turns ratio is unity. Find Edc, Erms and power factor of delay angle 60 degrees. | 2 | 1,2,3 | 3 |
| 5 | Explain the operation of Single Phase semi controlled converter for R load at firing angle 90 degrees. | 2 | 1,2 | 2 |

**COURSE NAME: POWER ELECTRONICS** **Year & Semester: III YEAR I SEM**

| S.No. | Questions | COs | POs | B.L |
|---|---|---|---|---|
| 1 | Explain the operation of Mid point type cycloconverter for 4(fs) output frequency. | 3 | 1,2 | 2 |
| 2 | Explain the operation of chopper which works in I and II quadrant. Derive the output Voltage of I quadrant chopper. | 4 | 1,2,3 | 3 |
| 3 | Draw and explain the formation of output waveforms of Class A and Class B choppers. | 4 | 1,2 | 3 |
| 4 | Explain the operation of Series Inverter and explain the voltage waveforms across load and capacitor | 5 | 1,2,3 | 3 |
| 5 | Explain the operation of 120 degrees mode Three Phase Inverter with neat output waveforms. | 5 | 1,2,3 | 3 |

## Internal Exam question papers

**Vidya Jyothi Institute of Technology (Autonomous)**

(Accredited by NAAC & NBA, Approved By A.I.C.T.E., New Delhi, Permanently Affiliated to JNTU, Hyderabad)
(Aziz Nagar, C.B.Post, Hyderabad -500075)

III Year B.Tech I Semester II Mid Examination

Branch: EEE Duration: 90Min

Sub: Power Electronics Marks: 20

Date:29-10-2019 Session: AN

**Bloom's Level:**

| | |
|---|---|
| Remember | I |
| Understand | II |
| Apply | III |
| Analyze | IV |
| Evaluate | V |
| Create | VI |

| | PART-A (3Q×2M =6Marks) | Course Outcomes | | Bloom Levels | Marks |
|---|---|---|---|---|---|
| | **ANSWER ALL THE QUESTIONS** | **CO** | **PO** | | |
| 1.i) | What is the function of Step Up cycloconverter | 3 | 1 | II | 2 |
| | **[OR]** | | | | |
| ii) | State any two applications of Cycloconverters | 3 | 1 | I | 2 |
| 2.i) | Explain Time Ratio Control of choppers. | 4 | 1 | II | 2 |
| | **[OR]** | | | | |
| ii) | What is a step up chopper? Draw its circuit and briefly explain its operation | 4 | 1,2 | II | 2 |
| 3.i) | Mention the applications of Inverters? | 5 | 1 | I | 2 |
| | **[OR]** | | | | |
| ii) | Discuss the Pulse Width Modulation techniques used in Inverters. | 5 | 1 | I | 2 |
| | **PART-B (4+5+5= 14 Marks)** | | | | |
| | **ANSWER ALL THE QUESTIONS** | | | | |
| 4.i.a) | Explain the operation of Mid point type cycloconverter for **3(fs)** output frequency. | 3 | 1,2,3 | III | 2 |
| b) | Draw the respective output waveforms and explain them for Mid point type cycloconverter for **3(fs)** output frequency. | 3 | 1,2,3 | III | 2 |
| | **[OR]** | | | | |
| ii.a) | Explain the operation of Bridge type cyclonverter for **fs/3** output frequency. | 3 | 1,2,3 | III | 2 |
| b) | Draw the respective output waveforms and explain them for Bridge type cyclonverter for **fs/3** output frequency. | 3 | 1,2,3 | III | 2 |
| 5. i.a) | Explain the operation of Two Quadrant chopper | 4 | 1,2 | II | 3 |
| b) | Draw the respective output waveforms of Two Quadrant Chopper. | 4 | 1,2 | II | 2 |
| | **[OR]** | | | | |
| ii.a) | Explain the operation of Step Down chopper. | 4 | 1,2 | II | 3 |
| b) | Discuss any two applications of Choppers. | 4 | 1,2 | I | 2 |
| 6.i.a) | Discuss diferent types of Inverters. | 5 | 1,2 | II | 3 |
| b) | Explain the operation of Series Inverter | 5 | 1,2 | II | 2 |
| | **[OR]** | | | | |
| ii.a) | Explain the operation of 120 degress mode Three Phase Inverter | 5 | 1,2,3 | III | 3 |
| b) | Draw the corresponding output voltages 120 degress mode Three Phase Inverter. | 5 | 1,2,3 | III | 2 |

***VJIT(A)***

# Criterion – 2 Teaching Learning Process

## External Exam question papers

**Vidya Jyothi Institute of Technology (Autonomous)**
(Accredited by NAAC & NBA, Approved By A.I.C.T.E., New Delhi, Permanently Affiliated to JNTU, Hyderabad)
(Aziz Nagar, C.B.Post, Hyderabad -500075)
**Subject Code: A24210**

**R18**

B.Tech II Year II Semester Regular Examination, OCTOBER/NOVEMBER-2020

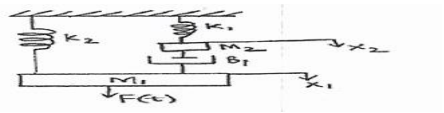
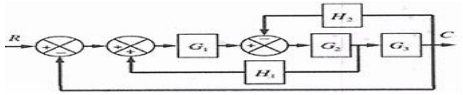
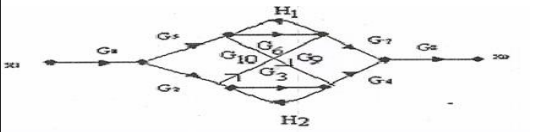
**SUBJECT**: Control Systems — **BRANCH**: EEE

**Time**: 2 Hours — **Max. Marks**: 75

Note: This question paper contains EIGHT questions and answer any FIVe questions. Each question carries 15 marks

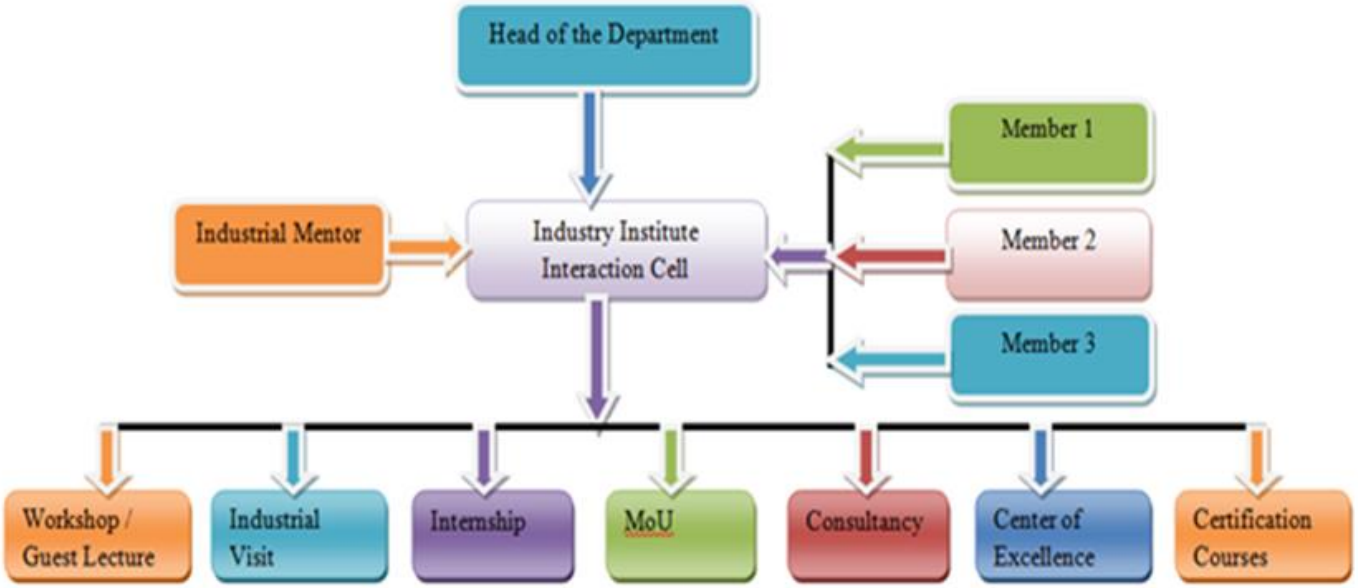
**Bloom's Level:**

| | | | | | |
|---|---|---|---|---|---|
| Remember | L1 | Apply | L3 | Evaluate | L5 |
| Understand | L2 | Analyze | L4 | Create | L6 |

| **ANSWER ANY FIVE QUESTIONS** 5QX15M = 75M | | **Course Outcomes** | | **Bloom's Level** | **Marks** |
|---|---|---|---|---|---|
| | | **CO** | **PO** | | |
| 1.a) | Explain open loop and closed loop control systems. | 1 | 1,3,12 | L2 | 5 |
| b) | Develop the differential equations governing the mechanical system shown in the fig. and determine the transfer function X1(S)/F(S).  | 1 | 1,2.3 | L3 | 10 |
| 2.a) | Explain the classification of control systems. | 1 | 1,4 | L2 | 10 |
| b) | Write the effects of feed back on control systems. | 1 | 1,4 | L2 | 5 |
| 3 | For the system represented by the block diagram, deduce the transfer function C(S)/R(S).  | 2 | 1,2,5 | L4 | 15 |
| 4 | Using Mason's gain formulae compute the gain $X_0/X_1$ for the signal flow graph shown below  | 2 | 1,2,5 | L4 | 15 |
| 5 | Define root locus and elloborate the analysis of stability of a system using root locus. | 3 | 1,2.3 | L3 | L15 |
| 6 | State the Routh's stability criterion and determine the stability of the system whose characteristic equation is $S^6+2S^5+8S^4+12S^3+20S^2+16S+16=0$ | 3 | 1,2.3 | L4 | 15 |
| 7 | For a second order system with unity feedback G(S)= 200/S(S+8) assess various frequency domain specifications. | 4 | 1,4 | L4 | 15 |
| 8.a) | Compute the state transition matrix of the system represented by state equation. $\begin{bmatrix}\dot{x}_1\\ \dot{x}_2\end{bmatrix}=\begin{bmatrix}1 & 0\\ 1 & 1\end{bmatrix}\begin{bmatrix}x_1\\ x_2\end{bmatrix}+\begin{bmatrix}0\\ 1\end{bmatrix}u$ | 5 | 1,2,4 | L4 | 10 |
| b) | Develop the stepwise procedure to obtain the transfer function from a state model of a control system | 5 | 1,2,5 | L3 | 5 |

***VJIT(A)***

# Industry Institute Interaction Cell




| S.No | Name of the MOU Partner |
|---|---|
| 1 | KG MECH Electro –Mechanical Pvt.Ltd |
| 2 | HIIT-Power Transformer manufacturing |
| 3 | Link Buffer Studios |
| 4 | Profuse Energy & Infrastructure (p) LTD. |
| 5 | Sapient systems. |
| 6 | Hyderabad Institute of Electrical Engineers (HIEE). |
| 7 | Metro nix. |
| 8 | ECI Engineering and Construction. |
| 9 | Balaji Electrical and Engineering works. |
| 10 | VEGA Solar Energy Private Ltd |
| 11 | AVGHNI Renewable Energy Indian Pvt. Ltd. |
| 12 | Vasavi Electricals. |
| 13 | CYME Automation Systems Pvt. Ltd |

MoU with HIEE

# Criterion-3 Program Outcomes and Course Outcomes

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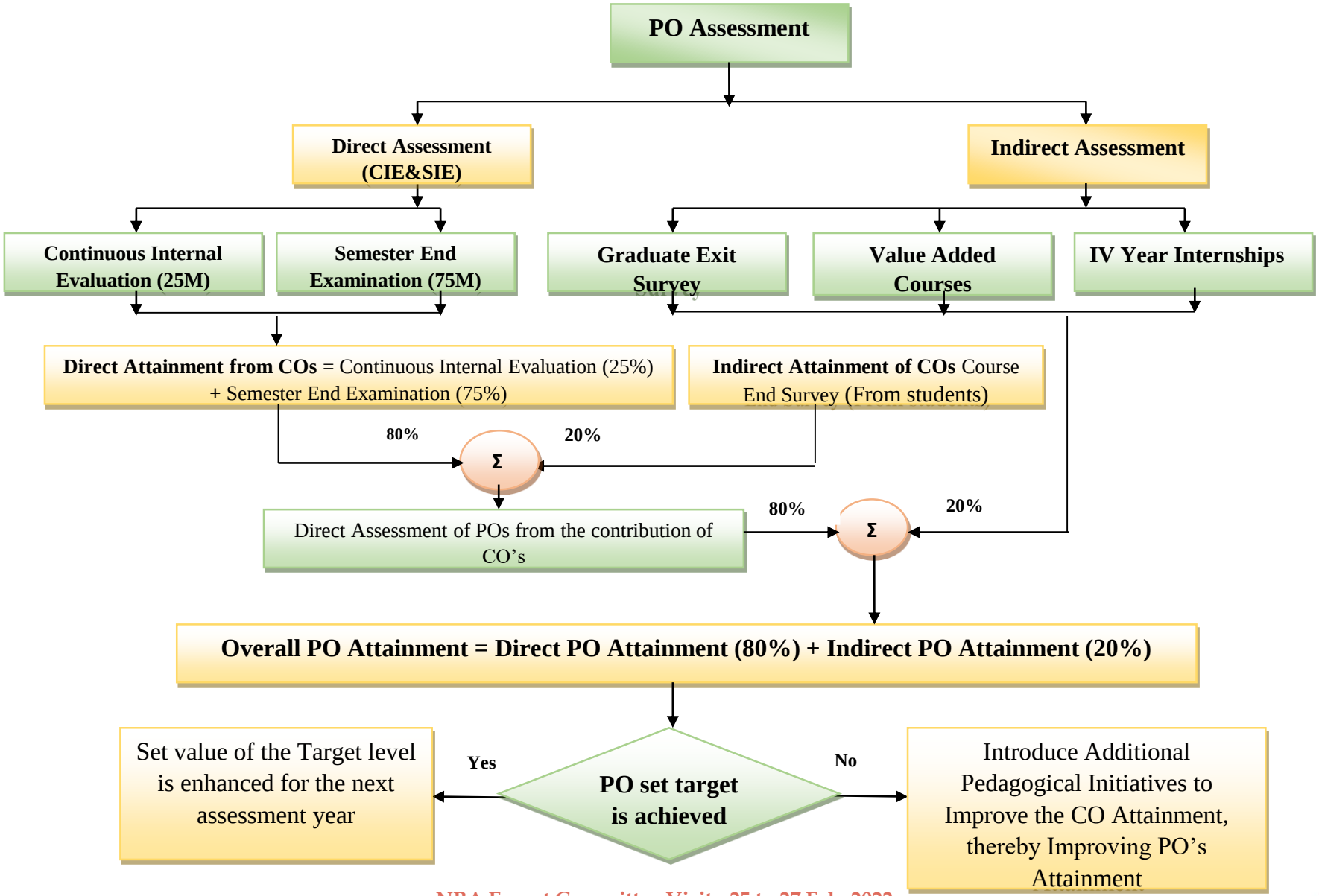
## Assessment process flow chart for the attainment of Program Outcomes



# CO Attainment

## Direct Assessment Tools

| Direct Assessment Tools | Threshold level (%) | Attainment level Criteria | Attainment level |
|---|---|---|---|
| 1. **Continuous Internal Evaluation (CIE)**<br>2. **Semester End Examinations (SEE)**<br>3. **Laboratory Evaluation**<br>4. **Industry Oriented Mini Project**<br>5. **Technical Seminar**<br>6. **Comprehensive Viva Voce**<br>7. **Major Project** | 60% | 60% of marks are obtained by more than or equal to 70% of students attempted. | 3 |
| | | 60% of marks are obtained by more than 60% and less than 70% of students attempted. | 2 |
| | | 60% of marks are obtained by more than 50% and less than 60% of students attempted | 1 |

## CO- Indirect Assessment Tools

CO Indirect Assessment is done from Course Ed Survey obtained from students at the end of every semester

## Overall CO Attainment

| Course outcome | Course outcome attainment level from Continuous Internal Evaluation | Course outcome attainment level from Semester End Examinations | CO Direct Attainment $c_1$ | CO Indirect Attainment $d_1$ | Overall CO Attainment |
|---|---|---|---|---|---|
| CO Attainment | $a_1$ | $b_1$ | 0.25 ($a_1$) + 0.75 ($b_1$) | Course End Survey | $0.8c_1+0.2d_1$ |

# PO and PSO Assessment Tools

VIDYA JYOTHI Institute of Technology
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| Assessment Tools | Assessment Frequency | Assessed by | Reviewed by | Assessing PO'S |
|---|---|---|---|---|
| Direct Assessment Tools | | | | |
| Mid Examination (Theory & Lab) | Twice in Semester | Course coordinator & Course Faculty | Program Assessment Committee(PAC) | PO1 – PO12 & PSO2 |
| Laboratory Examination | Twice in Semester | Course coordinator & Course Faculty | PAC | PO1 – PO12 PSO1 & PSO2 |
| Semester End Examination | Once in Semester | External Evaluators | External Evaluators | PO1 – PO12 PSO1 & PSO2 |
| Seminar & Comprehensive Viva Voce | Once | Department Review Committee(DRC) | PAC | PO1 – PO12 PSO1 & PSO2 |
| Mini Project | Once | DRC | PAC | PO1 – PO12 PSO1 & PSO2 |
| Major Project | Four times in a semester | DRC | PAC | PO1 – PO12 PSO1 & PSO2 |
| Indirect Assessment Tools | | | | |
| Graduate Exit Survey | At the end of the Program | Program Coordinator & PAC | PAC | PO1 – PO12 PSO1 & PSO2 |
| Value Added Courses | At the end of the Program | Program Coordinator & PAC | PAC | PO1 – PO12 PSO1 & PSO2 |
| IV Year Internships | At the end of the Program | Program Coordinator & PAC | PAC | PO1 – PO12 PSO1 & PSO2 |

# Criterion-4: Students Performance

VIDYA JYOTHI Institute of Technology
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## Admission Details

| Item | 2020-21 | 2019-20 | 2018-19 |
|---|---|---|---|
| Total number of students admitted in first year | 59 | 74 | 105 |
| Number of students admitted in 2nd year in the same batch via lateral entry | 30 | 25 | 27 |
| Total number of students admitted in the Program | 89 | 99 | 132 |
| Enrollment Ratio | 49.17 | 61.67 | 87.5 |

**Average of last 3 A.Ys = 66.12%**

# Students Performance contd….

## Success rate without backlogs in any semester/year of study

| Number of Students | LYG 2016-17 | LYGm1 2015-16 | LYGm2 2014-15 |
|---|---|---|---|
| Admitted (First Year+ Lateral Entry) | 129 | 139 | 121 |
| Graduatedwithout backlogs | 79 | 82 | 70 |
| Success Index (SI) | **0.61** | **0.59** | **0.58** |
| ***Average SI*** | **(0.61+0.59+0.58)/3=0.59** | | |

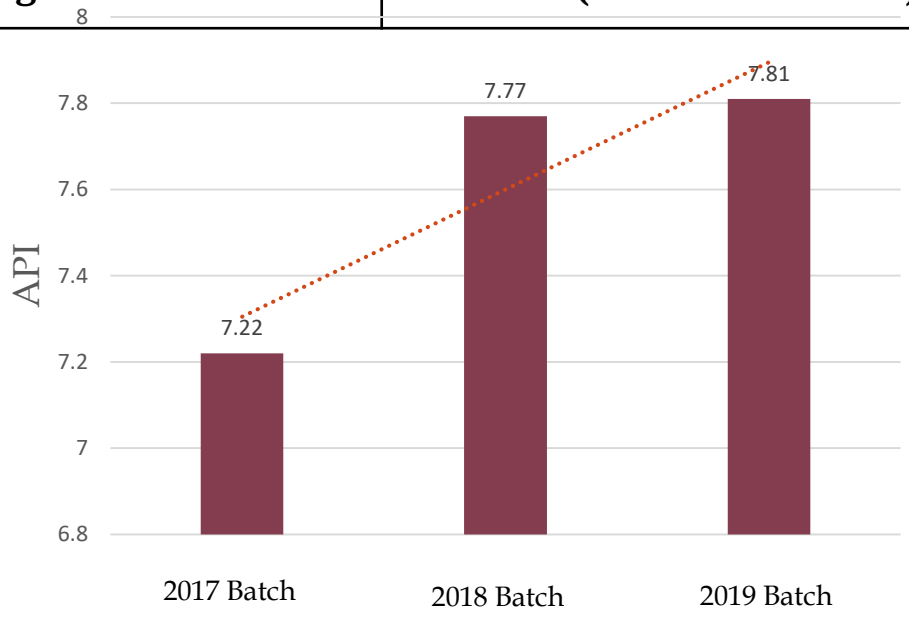
## Success rate with backlogs in any semester/year of study

| Number of Students | LYG 2016-17 | LYGm1 2015-16 | LYGm2 2014-15 |
|---|---|---|---|
| Admitted (First Year+ Lateral Entry) | 129 | 139 | 121 |
| Graduatedwith backlogs | 95 | 117 | 102 |
| Success Index (SI) | 0.74 | 0.84 | 0.84 |
| ***Average SI*** | **(0.74+0.84+0.84)/3=0.81** | | |

# Students Performance contd….

## Academic Performance of II Year Students

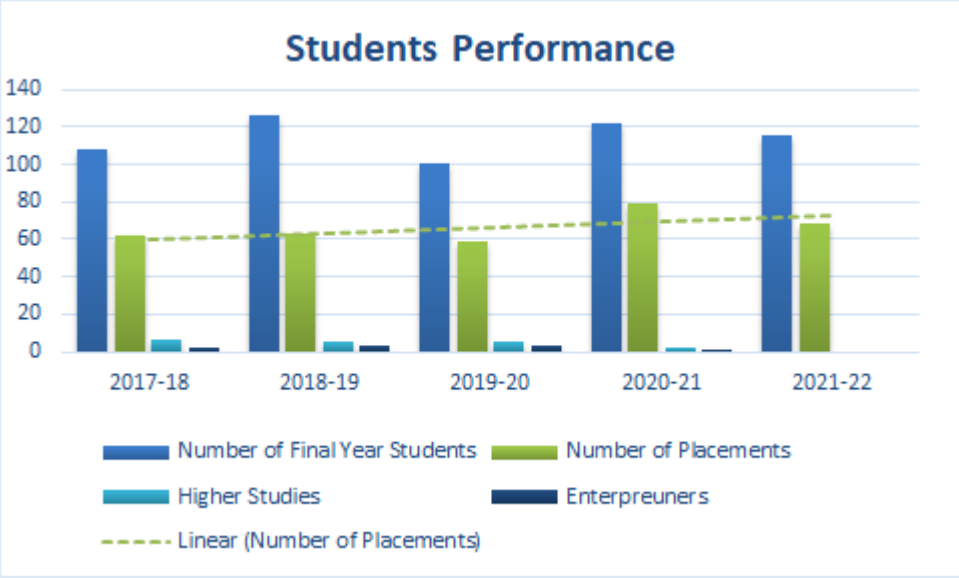
| Academic Performance | CAY*m1* *(2019-20)* *2019 Batch* | CAY*m2* *(2018-19)* *2018 Batch* | CAYm3 *(2017-18)* *2017 Batch* |
|---|---|---|---|
| Mean of CGPA | 7.81 | 7.98 | 7.92 |
| Total no. of successful students | 99 | 116 | 124 |
| Total no. of students appeared in the examination | 99 | 119 | 136 |
| API | 7.81 | 7.77 | 7.22 |
| **Average API** | **(7.81 + 7.77 + 7.22)/3=7.60** | | |



# Students Performance contd….

## Placements, Higher Studies and Entrepreneurship

| Item | LYG (2017-2018) | LYGm1 (2016-17) | LYGm2 (2015-16) | LYGm3 (2014-15) |
|---|---|---|---|---|
| Total No. of Final Year Students (N) | 122 | 101 | 126 | 108 |
| Placed students | 79 | 59 | 63 | 62 |
| Admitted to higher studies | 4* | 5 | 5 | 7 |
| Entrepreneurs | 1 | 3 | 3 | 2 |
| Total | 84 | 67 | 71 | 71 |
| Placement Index | 0.69 | 0.66 | 0.56 | 0.66 |
| **Average placement** | 0.63 | | | |



# Students Performance contd….

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## Highest Package:

- Mr. Y. Sai Teja of 2015-19 batch got placed in Jaro with a package of 12.5 LPA
- Mr. K. Adrash, Mr. V. Sai Ganesh and Ms. P. Sai Chandana of 2016-20 batch got placed in CISCO with a package of 11.3 LPA
- Mr. Saikiran of 2017-21 batch got placed in Byju's with a package of 10 LPA
- Mr. T. Thirumal Reddy of 2014-18 batch got placed in Capgemini with a package of 6.3 LPA
- Ms.Lakshmi Tanmayee of 2015-19 batch got placed in Pernod Ricard with a package of 4.25 LPA
- Mr.T.Bala Raju of 2017-2021 batch got placed in Hyundai with 3.75 LPA
- Mr.T.Rajesh of 2017-21 batch got placed in Harman Kardon with 5 LPA

# Professional Society Activities

VIDYA JYOTHI Institute of Technology
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## Three Student Chapters

- Institute of Electrical and Electronics Engineering(IEEE)
- Institute of Engineers India(IEI)
- India Society for Technical Education

| Academic Year | IEEE | IEI | ISTE | TOTAL |
|---|---|---|---|---|
| **2020-21** | 4 | 4 | 5 | 13 |
| **2019-20** | - | 14 | 5 | 19 |
| **2018-19** | - | 5 | 3 | 8 |



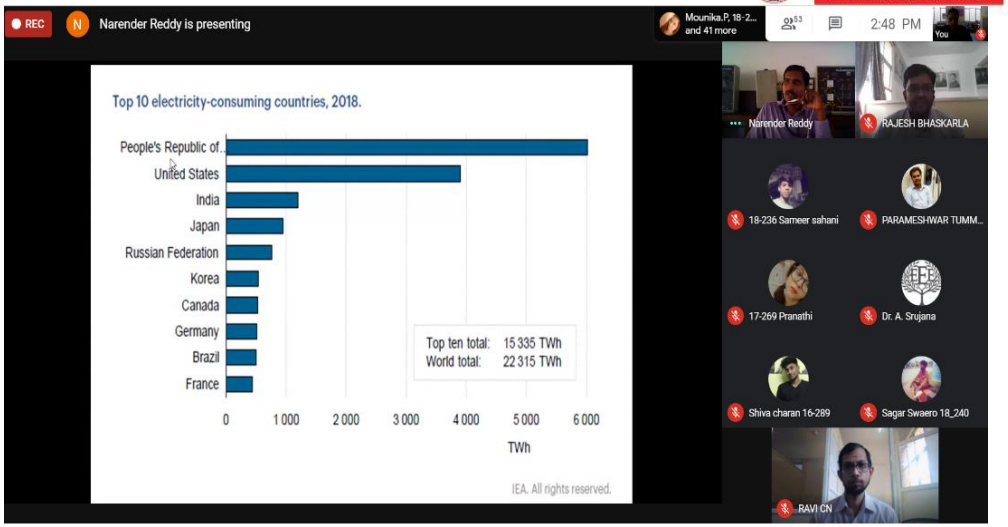
A seminar by on "Energy conservation" day by Srilekha Mavulathi , Counseller ,Green Buldings Council

A Two Day National Conference on Evolutionary Computing applications to Electrical engineering

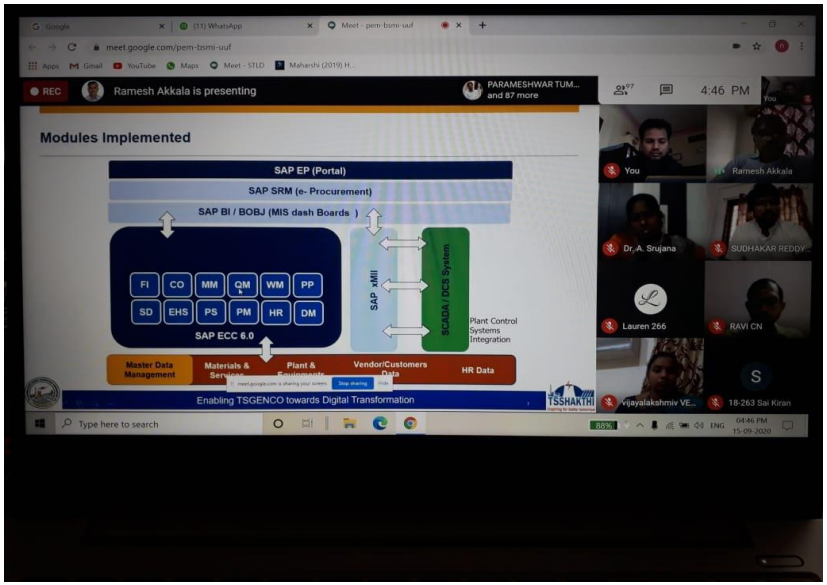
# Professional Society Activities



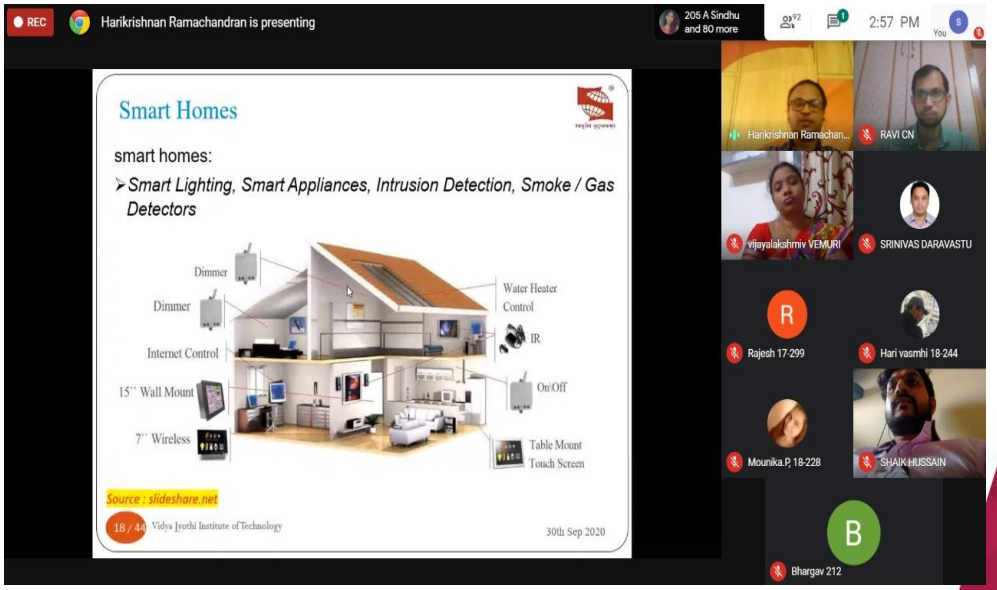
Technical talk on Job opportunities to electrical engineers by Mr. Madan Mohan, CEO, HIEE




A webinar on power quality in Micro Grid by Mr. Narender Reddy




Webinar on digital transformation in TSGENCO by Mr. A.Ramesh, Former CGM, IS&GRP




A webinar on applications of IOT to Electrical Engineering by Dr. R.Harikrishnan, Associate Professor, Symbiosis International University

# Student Club Activities

VIDYA JYOTHI Institute of Technology
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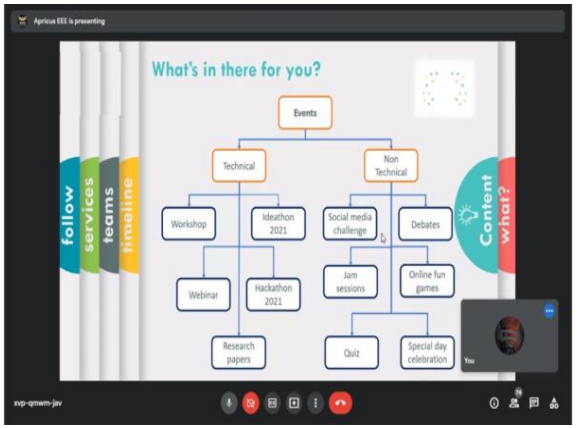
## Two student clubs

- APRICUS CLUB
- IGNITE CLUB





## VIDHYULLATHA News Letter

# Criterion 5 Faculty Information and Contributions

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

## Student Faculty Ratio

| Academic Year | 2020-21 | 2019-20 | 2018-19 |
|---|---|---|---|
| Students(UG) | 454 | 461 | 469 |
| Students(PG) | 84 | 84 | 84 |
| Total Students | **538** | **545** | **553** |
| Total Faculty | **31** | **30** | **30** |
| Student Faculty Ratio(SFR) | **17.35** | **18.16** | **18.43** |
| **Average SFR** | **17.98** | | |

## Faculty Retention

| Description | 2019-20 | 2020-21 |
|---|---|---|
| No of Faculty Retained | **28** | **27** |
| Total no of Faculty (2018-19) | **30** | **30** |
| % Of Faculty Retained | **93.33** | **90** |
| **Average** | **91.67** | |

## Faculty Cadre Proportion

| Academic Year | Professors | | Associate Professors | | Assistant Professors | |
|---|---|---|---|---|---|---|
| | Required | Available | Required | Available | Required | Available |
| **2020-21** | 3 | 6 | 5 | 6 | 18 | 19 |
| **2019-20** | 3 | 6 | 6 | 6 | 18 | 18 |
| **2018-19** | 3 | 6 | 6 | 6 | 18 | 18 |

# Faculty Competencies

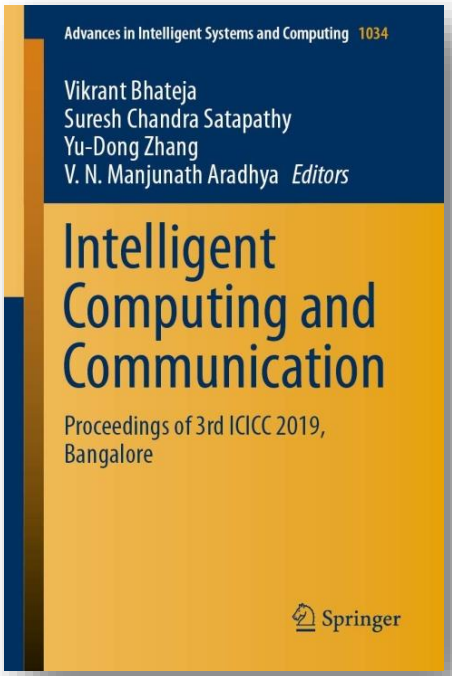
VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

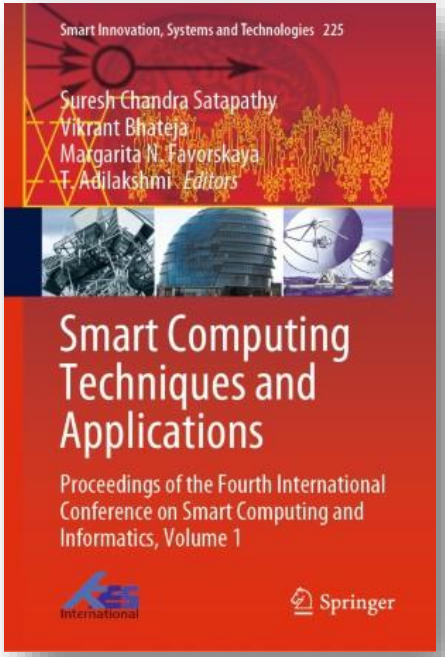
## Publications(Academic Research)

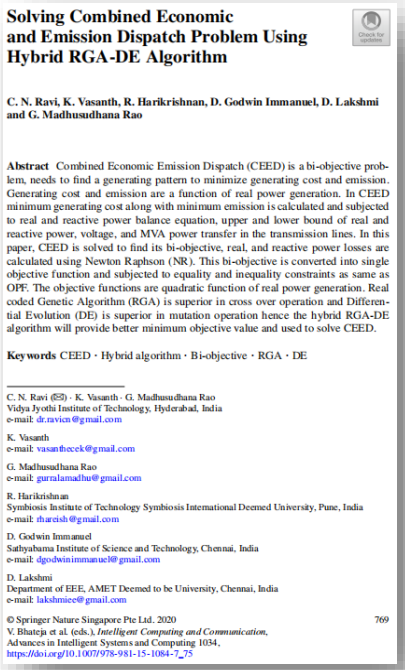
| Type of Pub. / Year | International Journals | International Conferences | Total |
|---|---|---|---|
| 2020-21 | 12 | 14 | **26** |
| 2019-20 | 6 | 4 | **10** |
| 2018-19 | 54 | 8 | **62** |
| **Total** | **72** | **26** | **98** |

| Indexing / Year | Scopus | WOS | SCI | UGC |
|---|---|---|---|---|
| 2020-21 | 18 | 3 | 2 | 3 |
| 2019-20 | 5 | 0 | 1 | 4 |
| 2018-19 | 8 | 0 | 0 | 54 |
| **Total** | **31** | **3** | **3** | **61** |

## Book Chapters



**Solving Combined Economic and Emission Dispatch Problem Using Hybrid RGA-DE Algorithm**

C. N. Ravi, K. Vasanth, R. Harikrishnan, D. Godwin Immanuel, D. Lakshmi and G. Madhusudhana Rao

**Abstract** Combined Economic Emission Dispatch (CEED) is a bi-objective problem, needs to find a generating pattern to minimize generating cost and emission. Generating cost and emission are a function of real power generation. In CEED minimum generating cost along with minimum emission is calculated and subjected to real and reactive power balance equation, upper and lower bound of real and reactive power, voltage, and MVA power transfer in the transmission lines. In this paper, CEED is solved to find its bi-objective, real, and reactive power losses are calculated using Newton Raphson (NR). This bi-objective is converted into single objective function and subjected to equality and inequality constraints as same as OPF. The objective functions are quadratic function of real power generation. Real coded Genetic Algorithm (RGA) is superior in cross over operation and Differential Evolution (DE) is superior in mutation operation hence the hybrid RGA-DE algorithm will provide better minimum objective value and used to solve CEED.

**Keywords** CEED · Hybrid algorithm · Bi-objective · RGA · DE

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D. Godwin Immanuel
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D. Lakshmi
Department of EEE, AMET Deemed to be University, Chennai, India
e-mail: lakshmiee@gmail.com



V. Bhateja et al. (eds.), *Intelligent Computing and Communication*, Advances in Intelligent Systems and Computing 1034,
https://doi.org/10.1007/978-981-15-1084-7_75

# Details of Patents Published

VIDYA JYOTHI Institute of Technology
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| S. No. | Name of the Faculty | Topic | Number and date | Status |
|---|---|---|---|---|
| 1 | Dr. A. Srujana | IFAC-Driver Less Vehicle :Driver Less Intelligent Fully Autonomous Controlled Vehicle | 2020103519 | Granted |
| 2 | Dr. A. Srujana | Design Implementation and simulation of pre paid, post paid digital electric meter, theft monitoring system with SMS, voice alert | 202041044434 30/10/2020 | Published |
| 3 | Dr. C.N. Ravi | AOVL-Voltage Load Protection: Automatic Over Voltage Under Voltage Load Protection and Distribution | 202041045339 30/10/2020 | Published |

Australian Government
IP Australia

CERTIFICATE OF GRANT

INNOVATION PATENT

**Patent number:** 2020103519

The Commissioner of Patents has granted the above patent on 13 January 2021, and certifies that the below particulars have been registered in the Register of Patents.

**Name and address of patentee(s):**

A. Srujana of (Professor and HOD (EEE), Vidya Jyothi, Institute of Technology, Aziznagar Gate Chilukur Balaji Road, Hyderabad Telangana 500075 India

Swati Kumari of Thapar institute of Engineering and Technology, Patiala Punjab 147004 India

C. N. Ravi of (Professor), Department of EEE, Vidya Jyothi Institute of Technology Aziznagar Gate, Chilukur Balaji Road Hyderabad, Telangana 500075 India

B. Sudhakar Reddy of (Assistant Professor), Department of EEE, Vidya Jyothi, Institute of Technology, Aziznagar Gate Chilukur Balaji Road Hyderabad,Telangana 500075 India

B. Rajesh of (Assistant Professor), Department of EEE, Vidya Jyothi, Institute of Technology, Aziznagar Gate Chilukur Balaji Road, Hyderabad Telangana 500075 India

M. Vijay kumar of (Assistant Professor), EEE department, Vidya jyoti, Institute of technology Aziz nagar Hyderabad Telangana 500075 India

Anil Vishram Revankar of Guruprasad Plot No 34, Ramnagar Colony NDA Road Bavdhan Pune 411021 India

Sanjay Bhaskar Zope of E21, Brahma Memories, Range Hill Road Bhosale Nagar Pune, MH 411007 India

Nadia P. Reznik of (Professor), National University of Life and Environmental Sciences of Ukraine Kyiv Ukraine

S. B. Chordiya of (Director-SIMMC-Campus), Suryadatta Institute of Management &, Mass Communication (SIMMC) Sr. No: 342, Bavdhan Pune,MH 411021 India

Vipin Jain of (Director), Teerthanker Mahaveer Institute of, Management and Technology Teerthanker Mahaveer University Moradabad, Uttar Pradesh 244001 India

**Title of invention:**

IFAC- Driver Less Vehicle: Driver Less Intelligent Fully Autonomous Controlled Vehicle

**Name of inventor(s):**

Srujana, A.; Kumari, Swati; Ravi, C. N.; Reddy, B. Sudhakar; Rajesh, B.; kumar, M. Vijay; Vishram Revankar, Anil; Bhaskar Zope, Sanjay; Reznik, Nadia P.; Chordiya, S. B. and Jain, Vipin

**Term of Patent:**

Eight years from 18 November 2020

NOTE: This Innovation Patent cannot be enforced unless and until it has been examined by the Commissioner of Patents and a Certificate of Examination has been issued. See sections 120(1A) and 129A of the Patents Act 1990, set out on the reverse of this document.

Dated this 13th day of January 2021

Commissioner of Patents

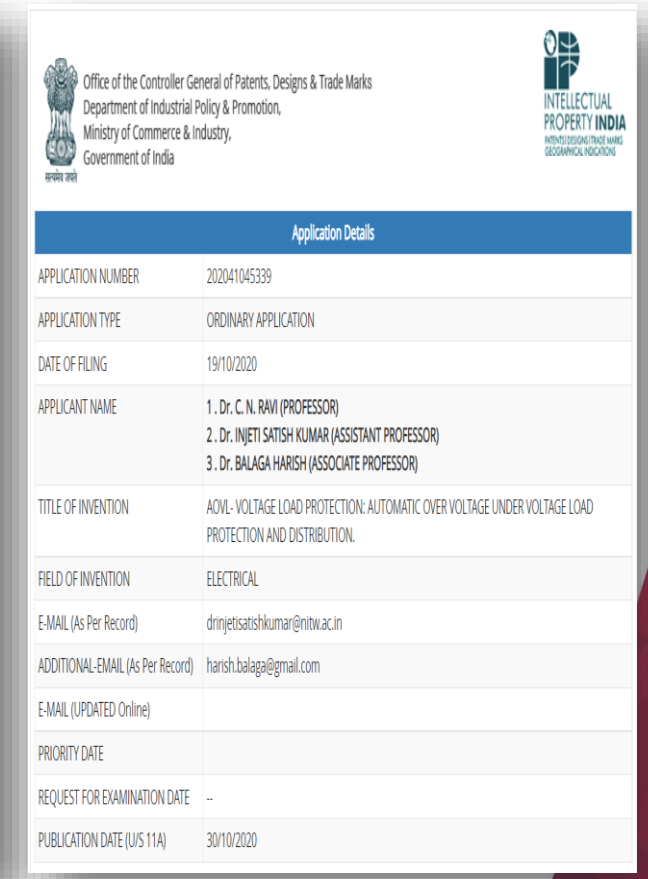
PATENTS ACT 1990

The Australian Patents Register is the official record and should be referred to for the full details pertaining to this IP Right.

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL PROPERTY INDIA

| Application Details | |
|---|---|
| APPLICATION NUMBER | 202041044434 |
| APPLICATION TYPE | ORDINARY APPLICATION |
| DATE OF FILING | 13/10/2020 |
| APPLICANT NAME | 1. Dr. A. SRUJANA (PROFESSOR AND HOD (EEE))<br>2. Dr. B. JYOTHI (ASSOCIATE PROFESSOR)<br>3. P. BHAVANA (ASSISTANT PROFESSOR)<br>4. Prof.(Dr.) S. B. CHORDIYA (DIRECTOR-SIMMC-CAMPUS) |
| TITLE OF INVENTION | DSPV-DIGITAL ELECTRIC METER :DESIGN, IMPLEMENTATION AND SIMULATION OF PREPAID , POST PAID DIGITAL ELECTRIC METER, THEFT MONITORING SYSTEM WITH SMS , VOICE ALERT. |
| FIELD OF INVENTION | PHYSICS |
| E-MAIL (As Per Record) | dr.bksarkar2003@yahoo.in |
| ADDITIONAL-EMAIL (As Per Record) | dr.bksarkar2003@gmail.com |
| E-MAIL (UPDATED Online) | |
| PRIORITY DATE | |
| REQUEST FOR EXAMINATION DATE | -- |
| PUBLICATION DATE (U/S 11A) | 30/10/2020 |



Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

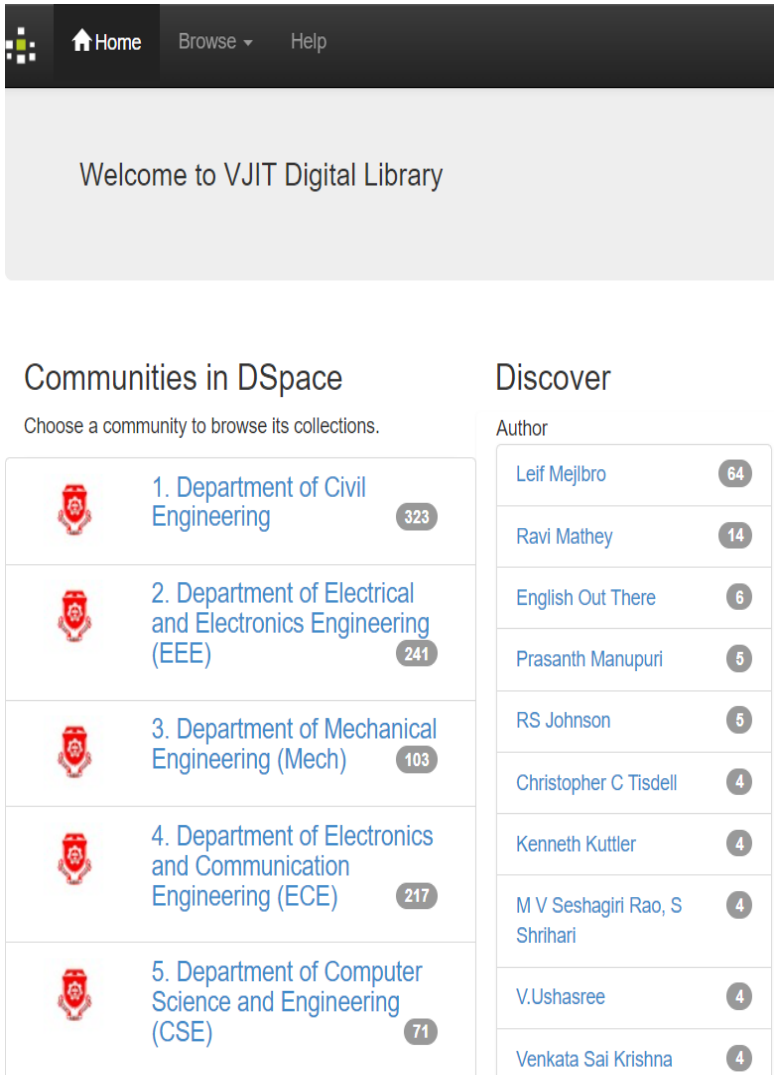
INTELLECTUAL PROPERTY INDIA

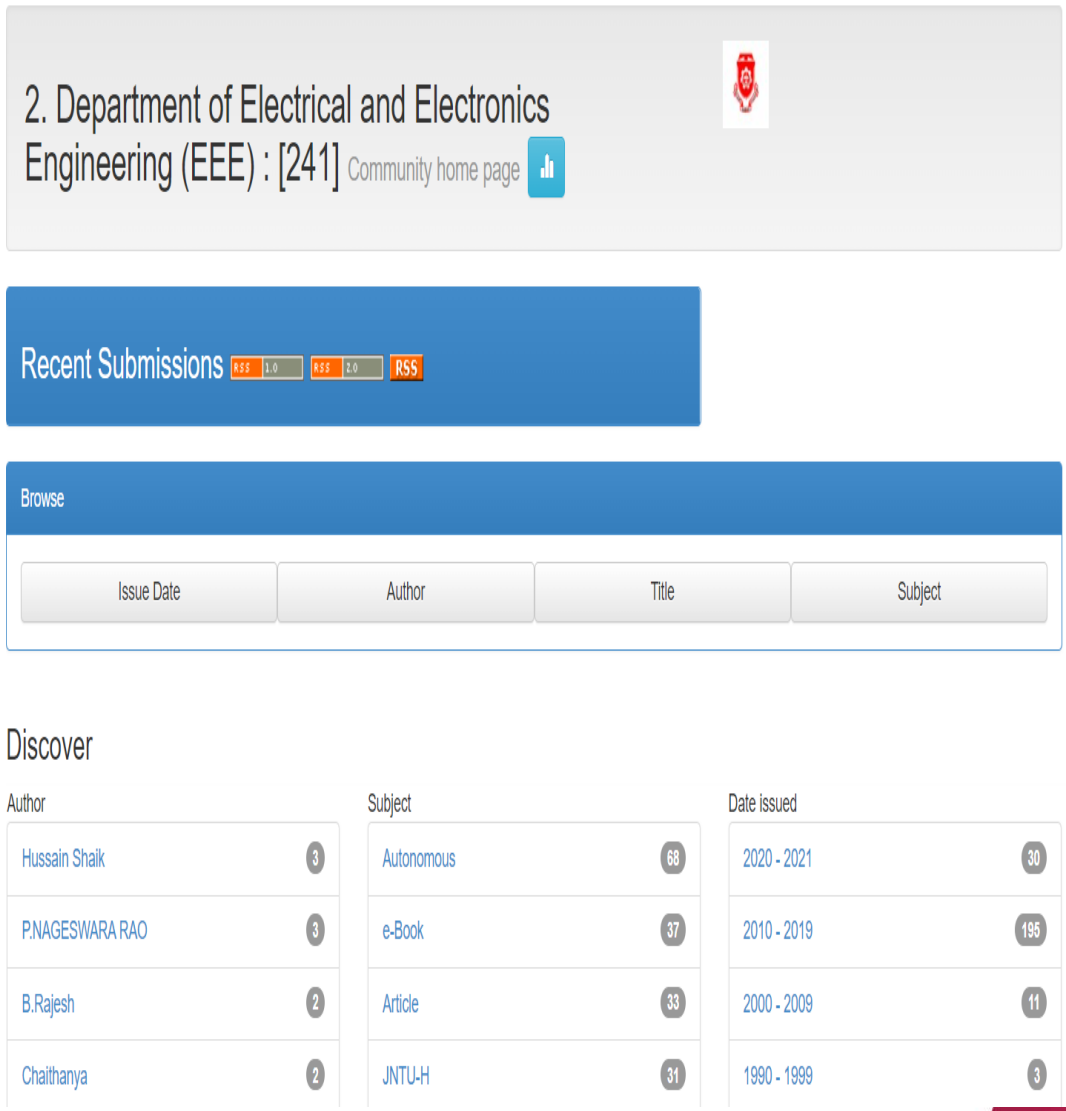
| Application Details | |
|---|---|
| APPLICATION NUMBER | 202041045339 |
| APPLICATION TYPE | ORDINARY APPLICATION |
| DATE OF FILING | 19/10/2020 |
| APPLICANT NAME | 1. Dr. C. N. RAVI (PROFESSOR)<br>2. Dr. INJETI SATISH KUMAR (ASSISTANT PROFESSOR)<br>3. Dr. BALAGA HARISH (ASSOCIATE PROFESSOR) |
| TITLE OF INVENTION | AOVL- VOLTAGE LOAD PROTECTION: AUTOMATIC OVER VOLTAGE UNDER VOLTAGE LOAD PROTECTION AND DISTRIBUTION. |
| FIELD OF INVENTION | ELECTRICAL |
| E-MAIL (As Per Record) | drinjetisatishkumar@nitw.ac.in |
| ADDITIONAL-EMAIL (As Per Record) | harish.balaga@gmail.com |
| E-MAIL (UPDATED Online) | |
| PRIORITY DATE | |
| REQUEST FOR EXAMINATION DATE | -- |
| PUBLICATION DATE (U/S 11A) | 30/10/2020 |

# Course Content Developed by Faculty

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

VJIT D Space preserves and enables easy and open access to all types of digital content (Course Material, Lab Manuals, Courses developed)



DSpace at My University / 2. Department of Electrical and Electronics Engineering (EEE) / EEE: Lecture Notes / Course Files

Please use this identifier to cite or link to this item: http://localhost:8080/xmlui/handle/1/1877

| | |
|---|---|
| Title: | Various Illumination Methods |
| Authors: | B.Rajesh |
| Keywords: | Various Illumination Methods<br>Autonomous |
| Issue Date: | Jan-2018 |
| URI: | http://localhost:8080/xmlui/handle/1/1877 |
| Appears in Collections: | EEE: Lecture Notes / Course Files |

Files in This Item:

| File | Description | Size | Format | |
|---|---|---|---|---|
| PEPU-Illumination II.pdf | | 1.99 MB | Adobe PDF | View/Open |
| PEPU unit 2.pdf | | 1.17 MB | Adobe PDF | View/Open |

DSpace at My University / 2. Department of Electrical and Electronics Engineering (EEE) / EEE: Faculty Publications

Please use this identifier to cite or link to this item: http://localhost:8080/xmlui/handle/1/1797

| | |
|---|---|
| Title: | A Modify Compensation Strategy for Power Quality Issues in Railway Electrification |
| Authors: | SHAMANTY SURESH, T. PARAMESHWAR<br>K.SWAPNA |
| Keywords: | A Modify Compensation Strategy for Power Quality Issues in Railway Electrification<br>Article |
| Issue Date: | Sep-2016 |
| URI: | http://localhost:8080/xmlui/handle/1/1797 |
| Appears in Collections: | EEE: Faculty Publications |

Files in This Item:

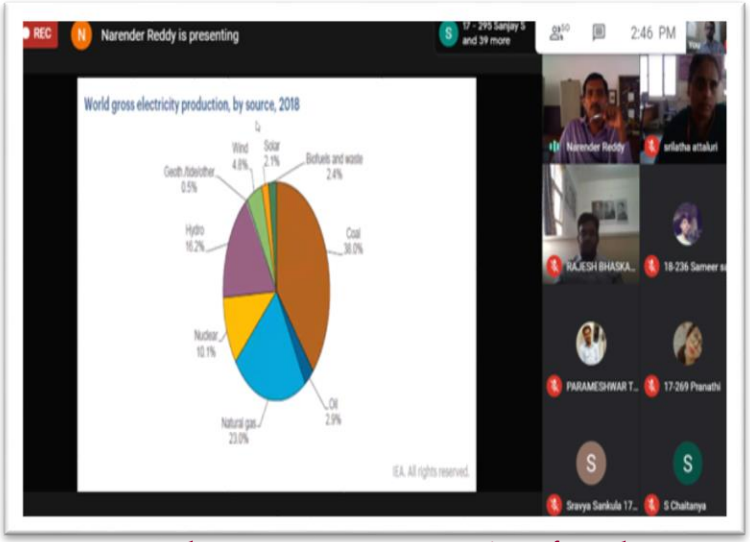
| File | Description | Size | Format | |
|---|---|---|---|---|
| A Modify Compensation Strategy for Power Quality Issues in Railway Electrification.pdf | | 850.07 kB | Adobe PDF | View/Open |

# Seminars/FDP/STTPs /Webinars Organized

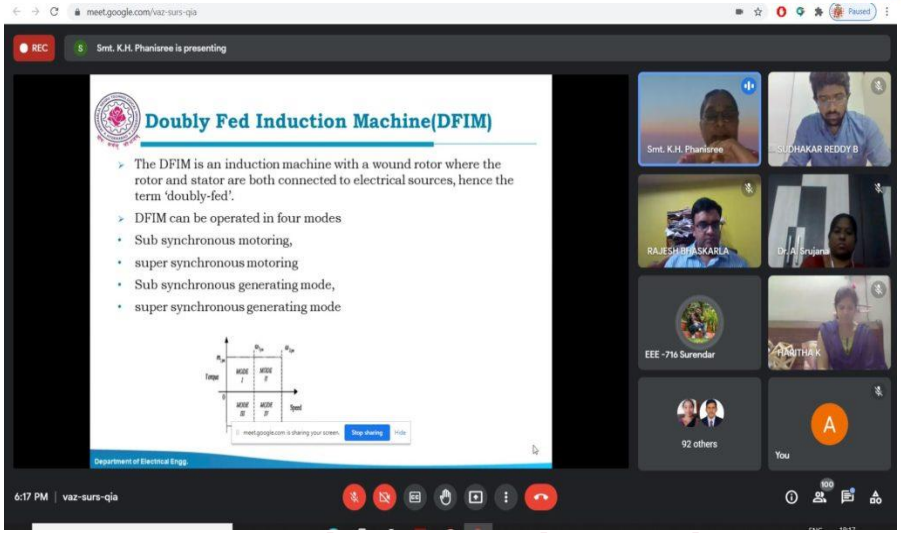
VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

| S.No | Academic Year | Title of the programme organized | Duration (Days) | Number of participants |
|---|---|---|---|---|
| 1 | 2020-21 | International FDP on Modern Trends in Power Electronics and Their Applications | 5 | 100 |
| 2 | 2020-21 | One Week Online Short-Term Training Programme (STTP) On Hands on training in Artificial Intelligence and Optimization techniques (Phase-II) | 5 | 80 |
| 3 | 2019-20 | One Week Online Short-Term Training Programme (STTP) On Hands on training in Artificial Intelligence and Optimization techniques (Phase-I) | 5 | 90 |
| 4 | 2019-20 | Online Faculty Development Program on Electrical Vehicles | 5 | 80 |
| 5 | 2019-20 | Workshop on Developing Electrical Safe Work Practices | 1 | 5 |
| 6 | 2019-20 | FDP on Effective Teaching and Research Skills | 6 | 20 |
| 7 | 2018-19 | A Two Day FDP on A Renewable Energy Integration and Modern Power System Analysis Using ETAP Software | 2 | 10 |
| 8 | 2018-19 | FDP on Recent Trends in Power Electronics & Drives | 1 | 18 |
| 9 | 2018-19 | FDP on ICT Mode Short Term Training Programme on Indian Electricity Rule and Code of Practices | 5 | 22 |
| 10 | 2018-19 | Workshop on Fuzzy Based Random Pulse Width Modulation Technique for Performance Improvement of induction Motor | 1 | 17 |
| 11 | 2018-19 | Training program on Distribution Equipment Cabling | 1 | 4 |
| 12 | 2018-19 | FDP on Data science applications to Power engineering and Energy management | 1 | 15 |

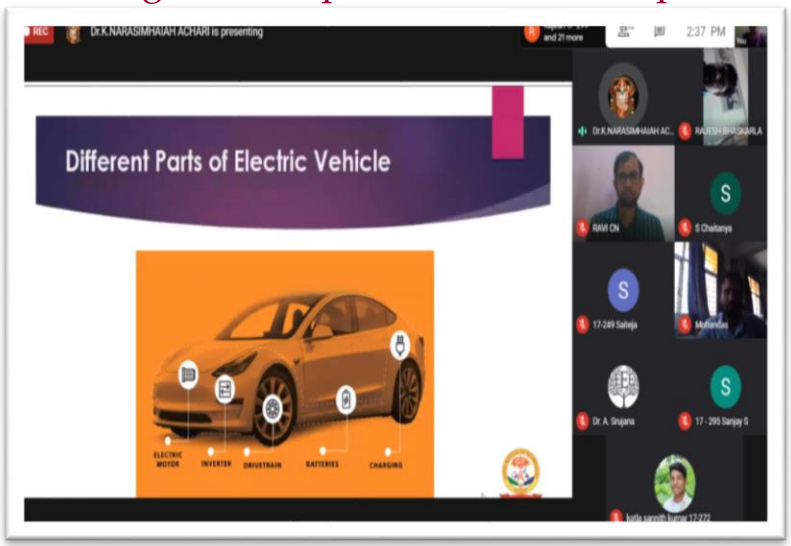
# Seminars/FDP/STTPs /Webinars Organized



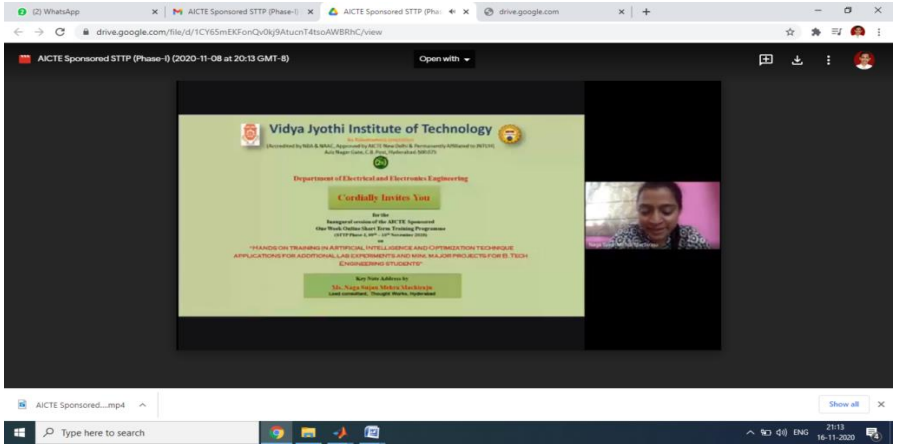

Hands on Training in Artificial Intelligence & Optimization Techniques




International FDP on Modern Trends In Power Electronics & Their Applications




A 5 Day online Faculty Development Programme on Electric Vehicles




AICTE Sponsered STTP on "Hands on Training in Artificial Intelligence and Optimization Technique Applications for Additional Lab Experiments and Mini, Major Projects for B. Tech Engineering Students".

# Faculty interaction with outside World

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

| S.No. | Name of the Faculty | Nature of Activity | Name of Journal/Event |
|---|---|---|---|
| 1 | Dr.A.Srujana | Session chair | International conference on modern research and computations in electrical technology |
| 2 | Dr. C .N. Ravi | Session chair | International conference on intelligent computing and communication |
| | | Reviewer | International Journal of Soft Computing<br>Journal of Ambient Intelligence and Humanized Computing<br>Journal of Artificial Intelligence in Medicine |
| | | Resource person | Awareness and services provisions for persons with multiple disabilities for requiring early rehabilitation in Tamil Nadu |
| 3 | Dr. D Bala Gangi Reddy | BOS Member | Anurag Engineering College, Ananthagiri (V&M), Kodad. |
| | | BOS Member | Lords institute of engineering technology |


# Faculty guiding Ph.D

| S.No | Name of the Supervisor | Name of the Research Scholar | Title of the Research work | Year of Registered | Name of the University |
|---|---|---|---|---|---|
| 1. | Dr. A. Srujana | N. Narendar Reddy | Power Quality | 2014 | KLU |
| | | B. Venugopal Reddy | Power Electronic Converters | 2015 | KLU |
| | | D. Naveen Kumar | Investigation on cascaded multilevel inverter for grid connected photovoltaic system | 2017 | JNTUH |
| 2. | Dr. C. N. Ravi | P. Abirami | Power quality improvement by mitigating harmonics using impedance converter in distribution systems | 2016 | SIST |
| | | R. Jeyaraman | Development of converter topology for grid connected renewable energy systems | 2016 | SIST |

## Sponsored Research

| S.No. | Title of the STTP | Name of the Principal Investigator | Name of the Funding agency | Type (Government/Non-Government) | Year of Award | Funds provided (INR in Lakhs) | Duration of the project |
|---|---|---|---|---|---|---|---|
| 1 | Hands on training in Artificial Intelligence and Optimization techniques | Dr. C. N. Ravi | AICTE-STTP | Government | 2020-21 | 2.70 | One Week |

# Consultancy

| Academic Year | Amount (Rupees) |
|---|---|
| 2020- 21 | 10,29,906 |
| 2019- 20 | 4,34,262 |
| 2018-19 | 2,55,920 |

## Products Developed


**Electric Vehicle for in campus transportation**

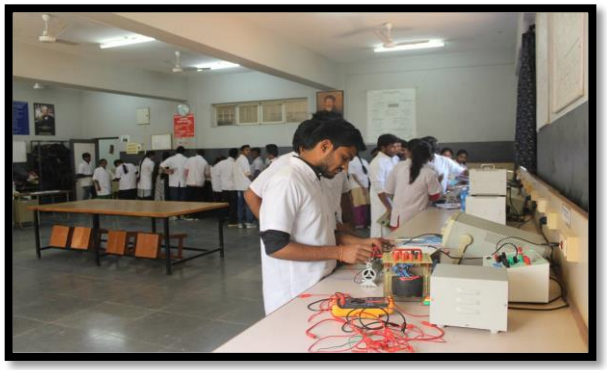
# Criterion 6 Facilities and Technical Support

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

## Program Specific Laboratories

| S. No | Name of the Lab |
|---|---|
| 1 | Basic Electrical Engineering Lab (Machines) |
| 2 | Basic Electrical Engineering Lab (Circuits) |
| 3 | Basic Simulation Tools Lab |
| 4 | Electrical Circuits Lab |
| 5 | Electrical Machines-I Lab |
| 6 | Electronic Devices and Circuits Lab |
| 7 | Electrical Machines - II Lab |
| 8 | Control Systems and Simulation Lab |
| 9 | Power Electronics and Simulation lab |
| 10 | Electrical Measurements Lab |
| 11 | Microprocessors and Interfacing Devices Lab |
| 12 | Power & Energy Systems Lab-I |
| 13 | Power & Energy Systems Lab-II |

# Images of Laboratories

# List of Software Available for Research

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

| S.NO | Software details | Supplier | No of users |
|---|---|---|---|
| 1. | ETAP | ETAP Automation Private Ltd | 15 |
| 2 | PSPICE | Future Tech Instruments private Ltd | 10 |
| 3 | MATLAB | Capricot Technologies Pvt Ltd | 15 |

etap Thinking Power

MATLAB

cadence ACADEMIC NETWORK

# Criterion 7 Continuous Improvement

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

## PO & PSO Target and Attainment Levels

| PO's | Target Level 2015 – 2019 | Attainment Level 2015 - 2019 | Target Level 2016 – 2020 | Attainment Level 2016 - 2020 | Target Level 2017 - 2021 | Attainment Level 2017 - 2021 |
|---|---|---|---|---|---|---|
| PO 1 | **2.10** | **2.42** | **2.15** | **2.47** | **2.20** | **2.51** |
| PO 2 | **2.10** | **2.31** | **2.15** | **2.34** | **2.20** | **2.38** |
| PO 3 | **2.10** | **2.23** | **2.15** | **2.25** | **2.20** | **2.30** |
| PO 4 | **2.10** | **2.21** | **2.15** | **2.27** | **2.20** | **2.32** |
| PO 5 | **2.10** | **2.16** | **2.15** | **2.15** | **2.20** | **2.22** |
| PO 6 | **2.10** | **2.08** | **2.15** | **2.14** | **2.20** | **2.25** |
| PO 7 | **2.10** | **2.18** | **2.15** | **2.15** | **2.20** | **2.28** |
| PO 8 | **2.10** | **2.04** | **2.15** | **2.10** | **2.20** | **2.20** |
| PO 9 | **2.10** | **2.24** | **2.15** | **2.17** | **2.20** | **2.23** |
| PO 10 | **2.10** | **2.09** | **2.15** | **2.18** | **2.20** | **2.23** |
| PO 11 | **2.10** | **2.14** | **2.15** | **2.16** | **2.20** | **2.24** |
| PO 12 | **2.10** | **2.23** | **2.15** | **2.25** | **2.20** | **2.30** |
| PSO1 | **2.10** | **2.48** | **2.15** | **2.53** | **2.20** | **2.57** |
| PSO2 | **2.10** | **2.34** | **2.15** | **2.33** | **2.20** | **2.36** |

# Continuous Improvement- Set of actions

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

| Pos | Target Level | Attainment Level | Observations |
|---|---|---|---|
| PO1: Engineering Knowledge | | | |
| PO1 | 2.10 | 2.42 | The Target value of attainment is reached. |
| **Action 1**: Encourage students to watch NPTEL Video lectures on engineering and technology.<br>**Action 2**: Arranging field visits for better understanding the concepts. | | | |
| PO2: Problem Analysis | | | |
| PO2 | 2.10 | 2.31 | The Target value of attainment is reached. |
| **Action 1**: Makeup classes may be conducted for mathematical oriented courses for enhancing problem solving skills especially for lateral entry students.<br>**Action 2**:Tutorial classes may be conducted to solve/practice more numericals. | | | |
| PO3: Design/development of solutions | | | |
| PO3 | 2.10 | 2.23 | The Target value of attainment is reached. |
| **Action 1**: Hands on practice sessions may be made a part of regular time table.<br>**Action 2**:Students may be encouraged to participate in design contests to present their ideas/models developed | | | |
| PO4: Conduct investigations of complex problems | | | |
| PO4 | 2.10 | 2.21 | The Target value of attainment is reached. |
| **Action 1**: Students are encouraged to register various self-learning/certification courses.<br>**Action 2**: Guest lecturers/seminars by industrial experts may be organized for updating the technical knowledge | | | |
| PO5: Modern tool usage | | | |
| PO5 | 2.10 | 2.16 | The Target value of attainment is reached. |
| **Action 1**: Conducting workshops/hands on training sessions on latest softwares/modules.<br>**Action 2**: Students were motivated to choose the projects in domains where modern tools are applied. | | | |

# Continuous Improvement- Set of actions

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

| | | | |
|---|---|---|---|
| PO6: The engineer and society | | | |
| PO6 | 2.10 | 2.08 | The Target value of attainment is not reached |
| **Action 1**: Students were encouraged to develop solutions for energy conservation/reduced utilization for society.<br>**Action 2**: Students are encouraged to carry out inter domain projects so that they would realize the importance of a project involving society, safety, health, and the legalities. | | | |
| PO7: Environment and sustainability | | | |
| PO7 | 2.10 | 2.18 | The Target value of attainment is reached. |
| **Action 1**: Students were encouraged to participate and practice various flag ship programs initiate by government like Haritha haram and usage of Electric Vehicles.<br>**Action 2**: Awareness programs on energy conservation may be organized. | | | |
| PO8: Ethics | | | |
| PO8 | 2.10 | 2.04 | The Target value of attainment is not reached |
| **Action 1**: Guest lectures of eminent speakers from "Heartfulness" may be organized to inculcate positive thinking and follow ethics.<br>**Action 2**:Students are to be encouraged to undergo internships to get acquainted the standard engineering practices. | | | |
| PO9: Individual and team work | | | |
| PO9 | 2.10 | 2.24 | The Target value of attainment is reached |
| Action 1: Students may be encouraged to publish papers on the projects carried out.<br>Action 2: Participation of the students in activities organized by professional chapters and student clubs has to be improved. | | | |
| PO10: Communication | | | |
| PO10 | 2.10 | 2.09 | The Target value of attainment is not reached |
| **Action 1**: Percentage of students participations in Ideathons/Hackathons/Technical fests in inter and intra college events is to be increased. Mentors and faculty are advised to take up this responsibility.<br>**Action 2**: Making the students to do online certification courses for the communication improvement. | | | |

# Continuous Improvement- Set of actions

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| | | | |
|---|---|---|---|
| PO11: Project management and finance | | | |
| PO11 | 2.10 | 2.14 | The Target value of attainment is reached |
| **Action 1**: Students may be encouraged to do projects in energy auditing and cost estimation.<br>**Action 2**: Encourage to become entrepreneurs with the help of EDC cell. | | | |
| PO12: Life-long learning | | | |
| PO12 | 2.10 | 2.23 | The Target value of attainment is reached |
| **Action 1**: Students may be habituated to Self-learning by doing various certification programs.<br>**Action 2**: In house Lectures may be organized emphasizing the importance of lifelong learning. | | | |

| PSOs | Target Level | Attainment Level | Observations |
|---|---|---|---|
| PSO1: Conceptualize electrical and electronics systems, employ control strategies for power electronics related applications to prioritize societal requirements. | | | |
| PSO1 | 2.10 | 2.48 | The Target value of attainment is reached |
| **Action 1**: Encourage to participate and organize student forums and workshops.<br>**Action 2**: Students are encouraged to publish research papers in various national and international journals/conferences. | | | |
| PSO2: Apply the appropriate techniques and modern engineering hardware and software tools in electrical engineering to engage in multi-disciplinary environments. | | | |
| PSO2 | 2.10 | 2.34 | The Target value of attainment is reached |
| **Action 1**: Students are exposed to application to multi-disciplinary skills in Electrical and Electronics domain.<br>**Action 2**: Students are encouraged to work on multi-disciplinary areas in their Mini/Major projects. | | | |

# Academic Audit

VIDYA JYOTHI Institute of Technology
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**Academic Audit**

- **Internal Audit**
- **External Audit**

Documents Verified by the Academic Audit Committee

- Time Tables
- Attendance Registers
- Syllabus Coverage as per the Course Plan
- Course Files
- Technical Seminar Evaluation Details
- Evaluation of Internal Marks
- Attendance of Remedial classes
- Result Analysis
- Monitoring the Evaluation Process of Mini Projects
- Monitoring the Evaluation Process of Major Projects
- Continuous Assessment of Lab Experiments
- Monitoring the Mentors Responsibility
- Students Mentoring Records

# Continuous Improvement

VIDYA JYOTHI Institute of Technology
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## Improvement in Placement, Higher Studies and Entrepreneurship

| S. No. | Academic Year | Number of Final Year Students | Placements | Higher Studies | Entrepreneurship | Total | % |
|---|---|---|---|---|---|---|---|
| 1 | 2020-2021 | 122 | 79 | 4* | 1 | 84 | 68.85 |
| 2 | 2019-2020 | 101 | 59 | 5 | 3 | 67 | 66.33 |
| 3 | 2018-2019 | 126 | 63 | 5 | 3 | 71 | 56.34 |
| 4 | 2017-2018 | 108 | 62 | 7 | 2 | 71 | 65.74 |

# Improvement in Workshops/Events/Guest lectures

VIDYA JYOTHI Institute of Technology
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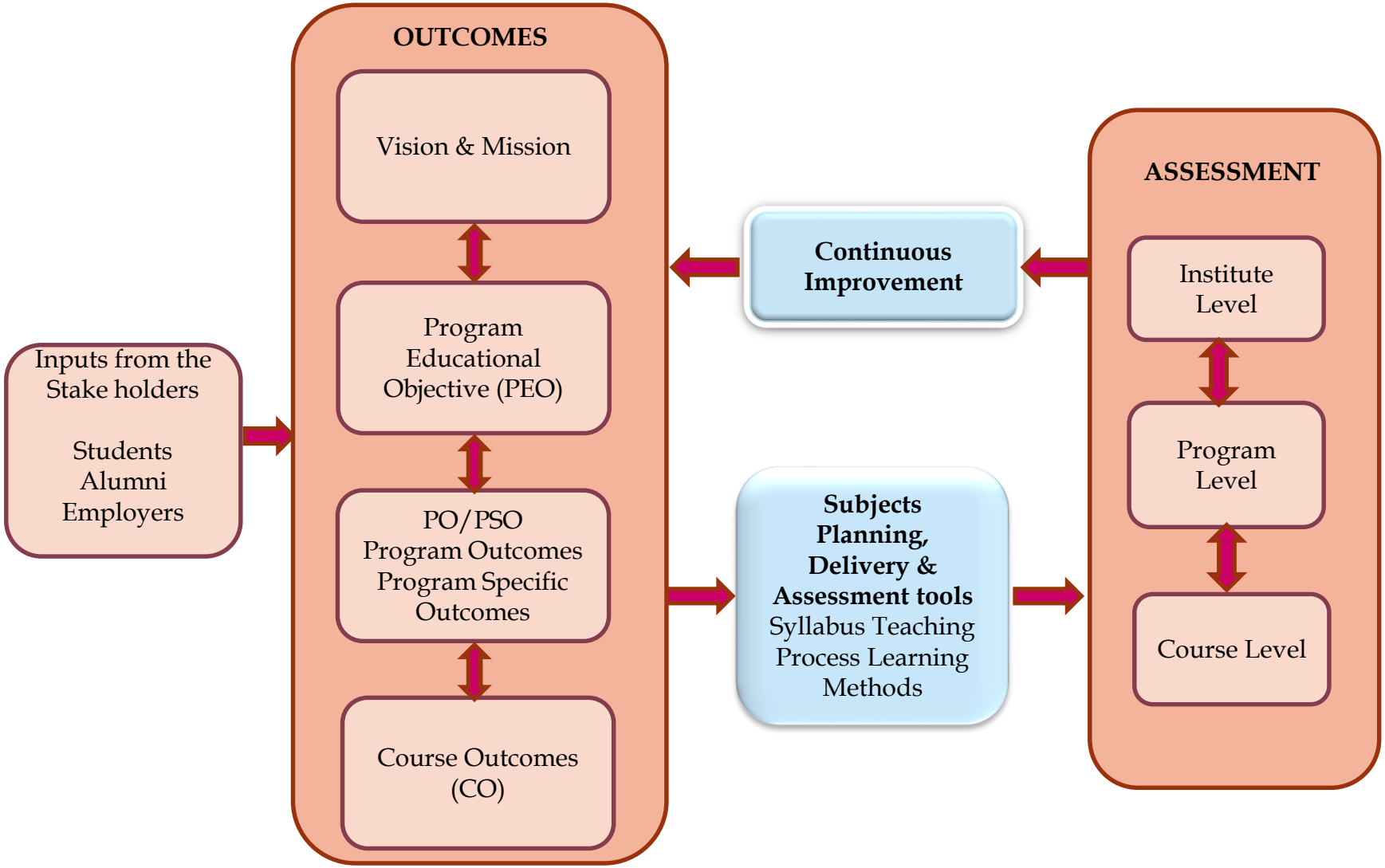
| Number of Workshops Organized by Department | | |
|---|---|---|
| 2020-21 | 2019-20 | 2018-19 |
| 6 | 4 | 8 |

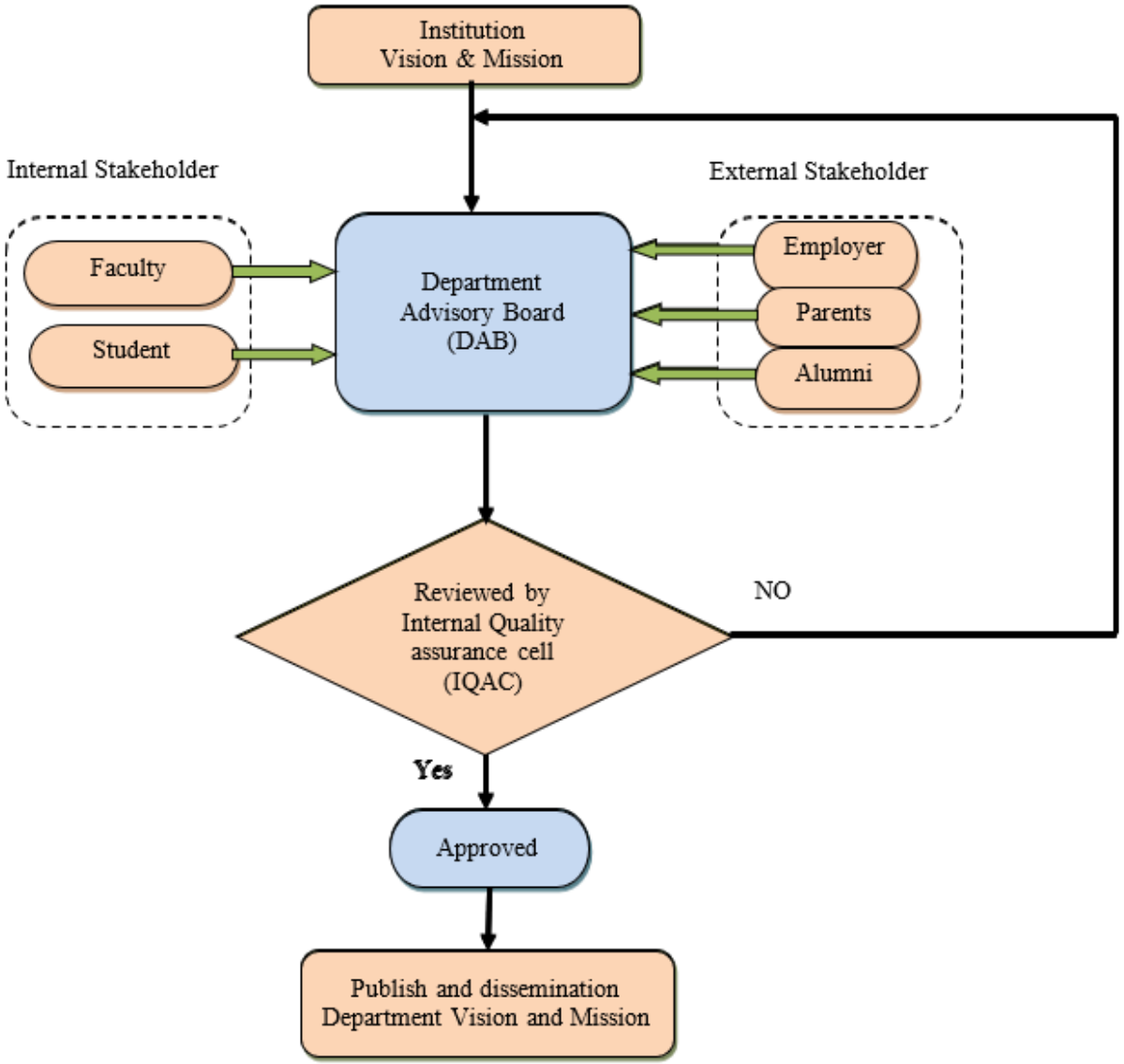
| Name of Professional Chapter/Society | Number of Events Conducted | | |
|---|---|---|---|
| | 2020-21 | 2019-20 | 2018-19 |
| Institute of Engineers India(IEI) | 4 | 14 | 5 |
| Institute of Electrical and Electronics Engineering(IEEE) | 4 | - | - |
| Indian Society for Technical Education(ISTE) | 5 | 5 | 3 |
| Total | 13 | 19 | 8 |

# OUTCOME BASED EDUCATION
# Philosophy in the Department

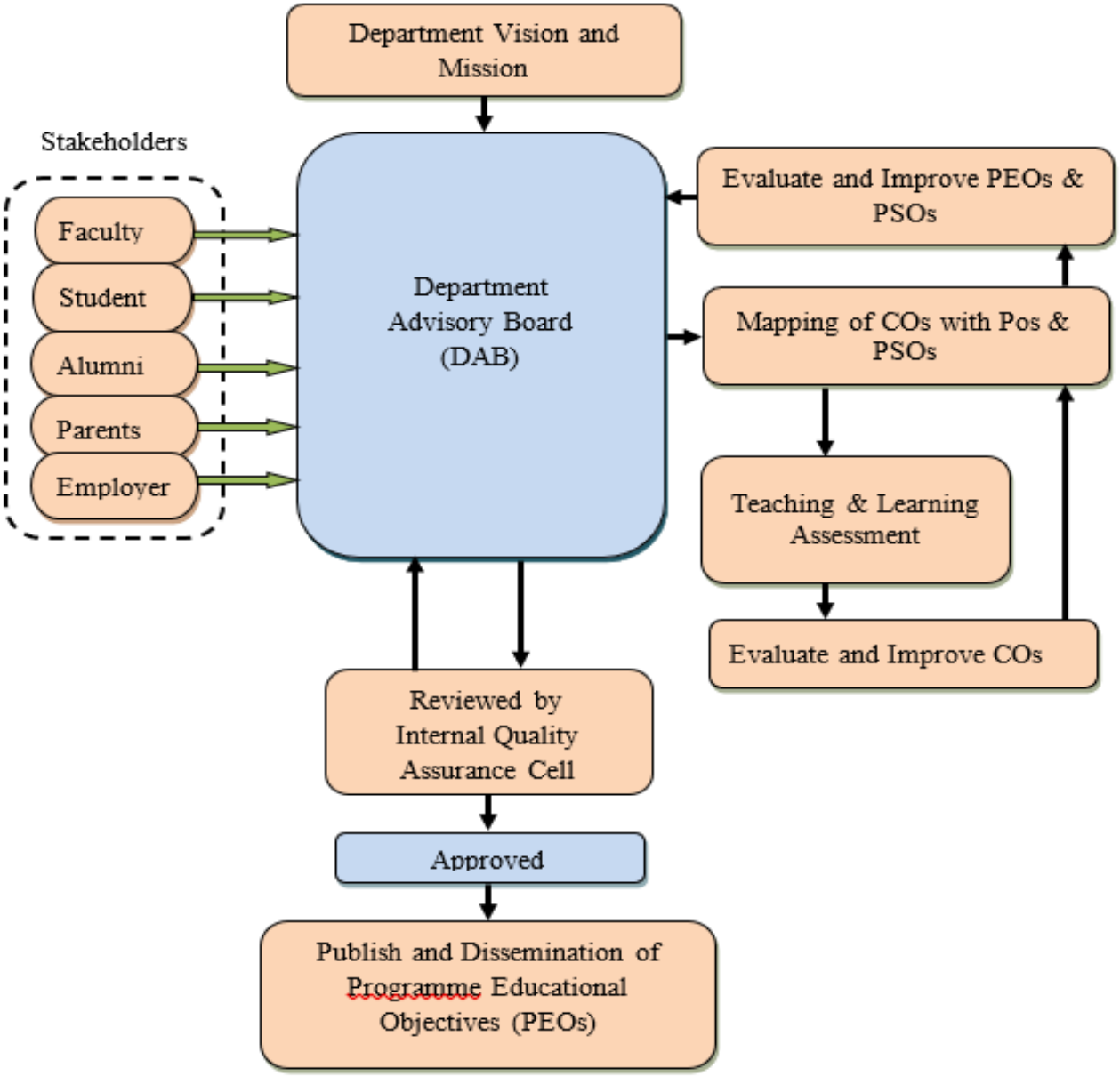
# OBE Philosophy of EEE



# Process of defining Vision & Mission of the Department

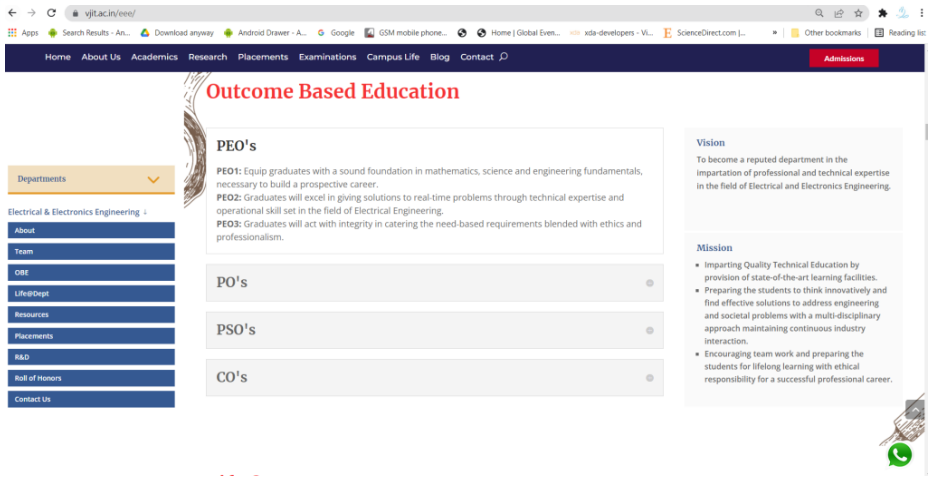


# Process of defining PEOs

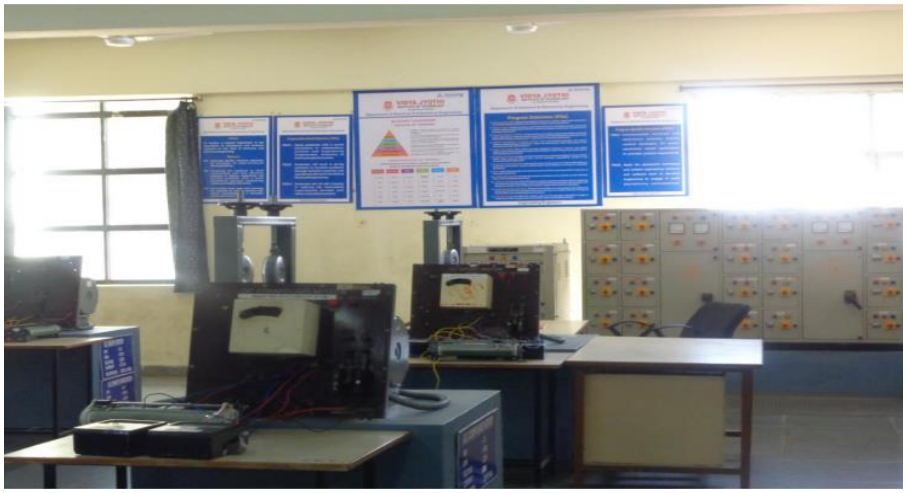


# Dissemination of Vision Mission






Dissemination through Website



Dissemination in Laboratory

Dissemination in Class Room


Dissemination in Corridor

# Key Functional Committees –Curricular Aspects

- **Program Assessment Committee**
- **Department Advisory Board**
- **Board of Studies**
- **IQAC**
- **Academic Council**
- **Board of Governors**

## Members of PAC

| S. No | Name of the Member | Designation |
|---|---|---|
| 1 | Dr. A. Srujana | Program Coordinator |
| 2 | Dr. D Bala Gangi Reddy | Member |
| 3 | Mr. P. Nageswara Rao | Member |
| 4 | Dr. C.N.Ravi | Member |
| 5 | Mr.T.Parameshwar | Member |
| 6 | Mrs.V.Vijaya Lakshmi | Member |
| 7 | Mr. B. Rajesh | Member |

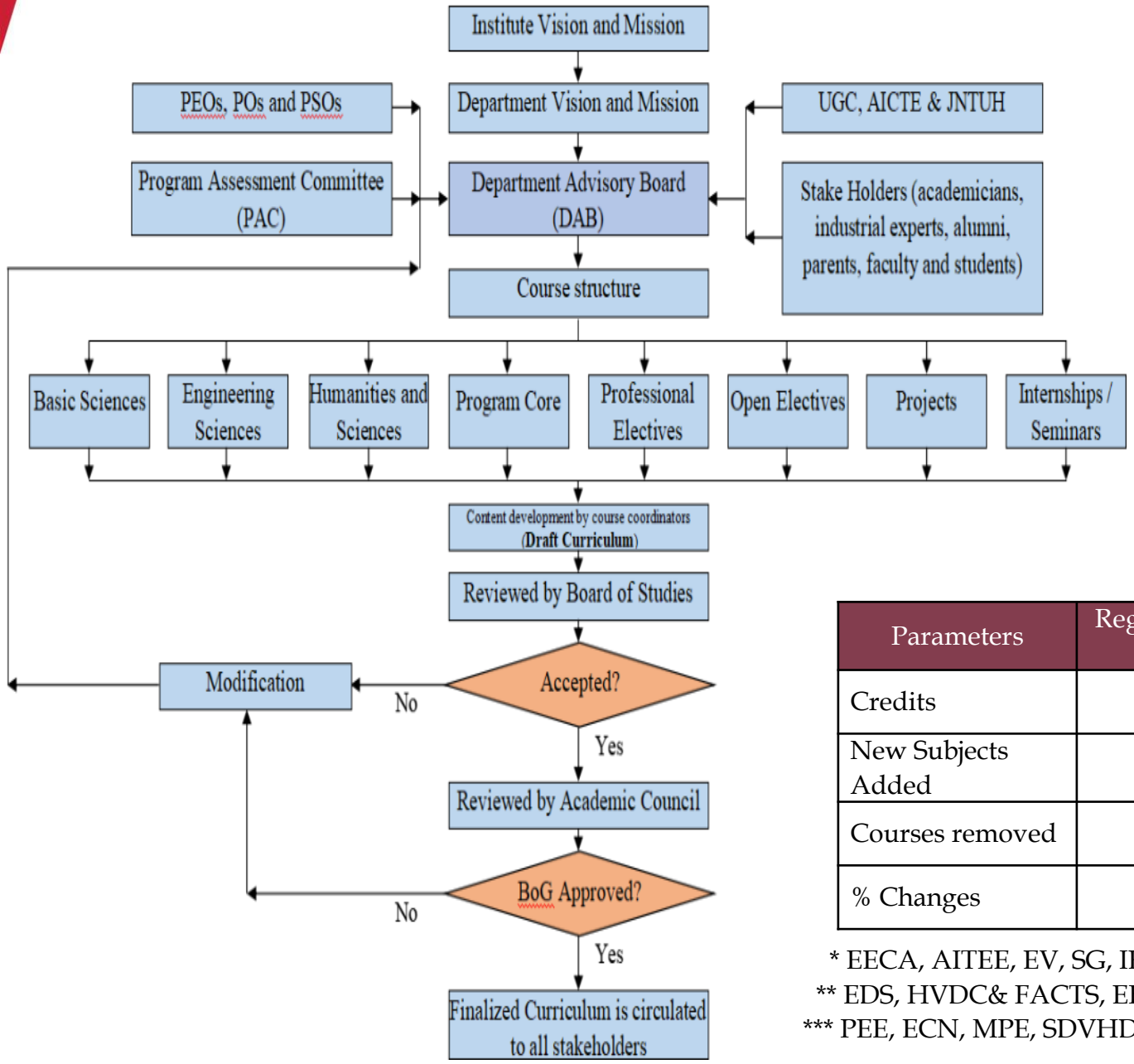
## Members of DAB

| Name of the Member | Details of the Member | Designation |
|---|---|---|
| Dr. A. Srujana | Professor & HOD | Chairperson |
| Dr. D Bala Gangi Reddy | Professor | Faculty Member |
| Dr. C. N. Ravi | Professor | Faculty Member |
| Mr. P. Nageswara Rao | Associate Professor | Faculty Member |
| Mr. A.Mohan Das | Assistant Professor | Faculty Member |
| Mr. L. Raju | Assistant Professor | Faculty Member |
| Mr. B. Sudhakar Reddy | Assistant Professor | Faculty Member |
| Ms. G. Sahithi | IV B.Tech EEE | Student Member |
| Mr. D. Tarun | IV B.Tech EEE | Student Member |
| Dr. A. R. M. Vani | A.E, TSSPDCL, S.R. Nagar, Hyd | Industry Expert Member |
| Mr. S. Laxmi Kanth | (Toshiba Trans.& Dist. System) | Industry Expert Member |
| Mr. K. Suresh Goud | Electrician, TSSPDCL | Parent Member |
| Mr. J. Srikanth Reddy | Software Engineer, (Wells Fargo, Hyd) | Alumni Member |

## Members of BOS

| S. No | Name of the Member | Designation |
|---|---|---|
| 1 | **Dr. A. Srujana**, Professor and HOD/EEE,VJIT | **Chairperson** |
| 2 | **Dr. K. H. Phani Sree**, Associate Professor/ EEE, JNTUH | **JNTUH Nominee** |
| 3 | **Mr. P. Chow Reddy**, M.D. Interleaved Multidisciplinary Research Centre | **Industry Expert External Member** |
| 4 | **Dr. T. Anil Kumar**, Professor & HOD/EEE, Anurag University | **Academician External Member** |
| 5 | **Dr. G. Suresh Babu**, Professor& HOD/EEE, CBIT | **Academician External Member** |
| 6 | **Dr. P. Ram Kishore Kumar Reddy**, Professor & HOD/EEE, MGIT | **Academician External Member** |
| 7 | **Dr. D. B. G. Reddy**, Professor/EEE,VJIT | **Internal Member** |
| 8 | **Dr. C. N. Ravi**, Professor/EEE, VJIT | **Internal Member** |
| 9 | **Dr. M. Hari Krishna**, Associate Professor/EEE, VJIT | **Internal Member** |
| 10 | **Dr. M. Dileep Krishna**, Associate Professor/EEE, VJIT | **Internal Member** |
| 11 | **Mr. B. Rajesh**, Assistant Professor/EEE,VJIT | **Internal Member** |

# Process followed to design the Program Curriculum



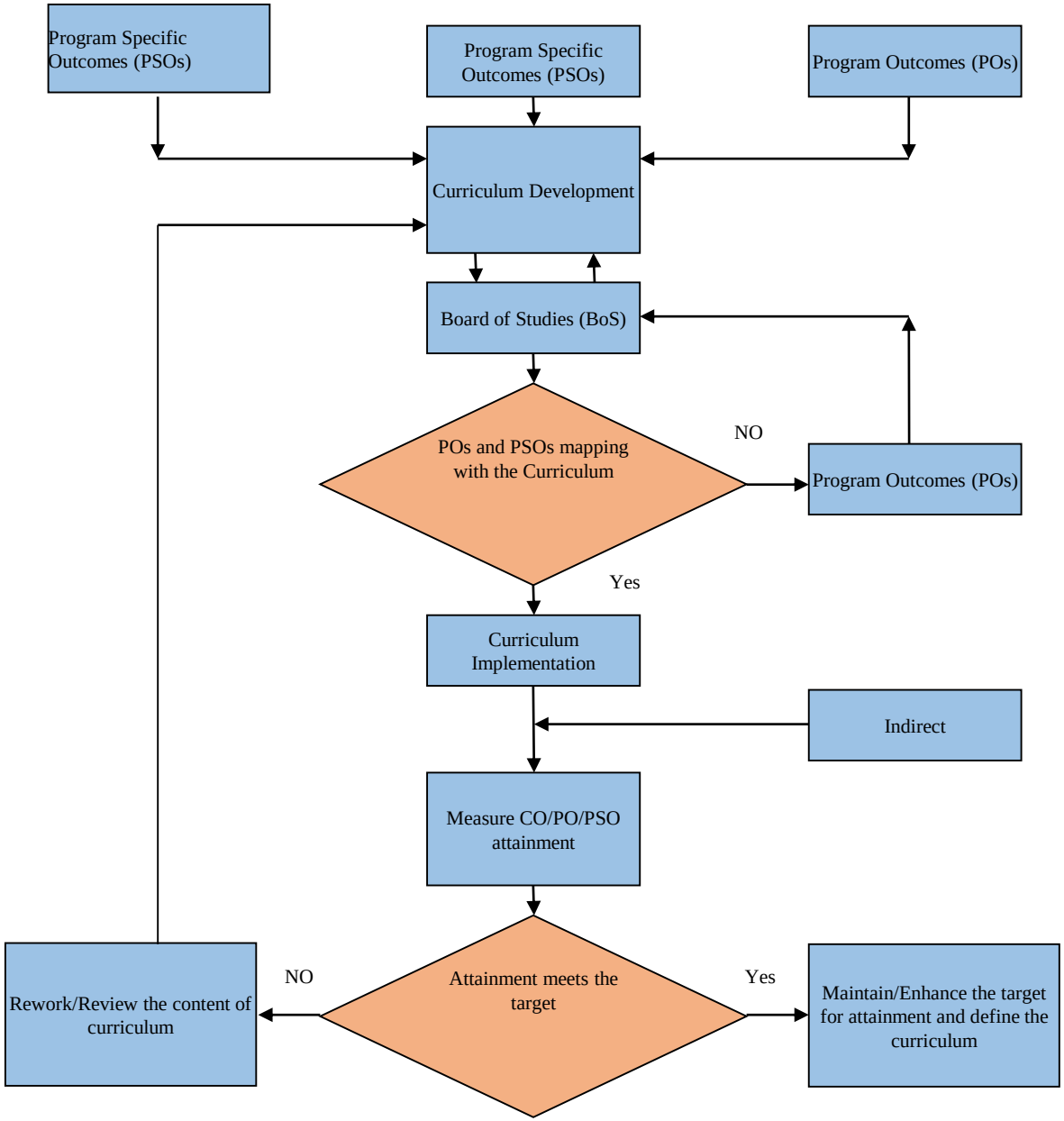

| Parameters | Regulation R15 | Regulation R18 | Regulation R20 |
|---|---|---|---|
| Credits | 192 | 160 | 160 |
| New Subjects Added | - | 6* | 7*** |
| Courses removed | - | 3** | - |
| % Changes | - | 17 | 13 |

* EECA, AITEE, EV, SG, IES, REEST

** EDS, HVDC& FACTS, EHVAC

*** PEE, ECN, MPE, SDVHDL, ES&IOT, ACED, PLC&SCADA

# Process to ensure the compliance and attainment of POs and PSOs



# Teaching and Learning Process

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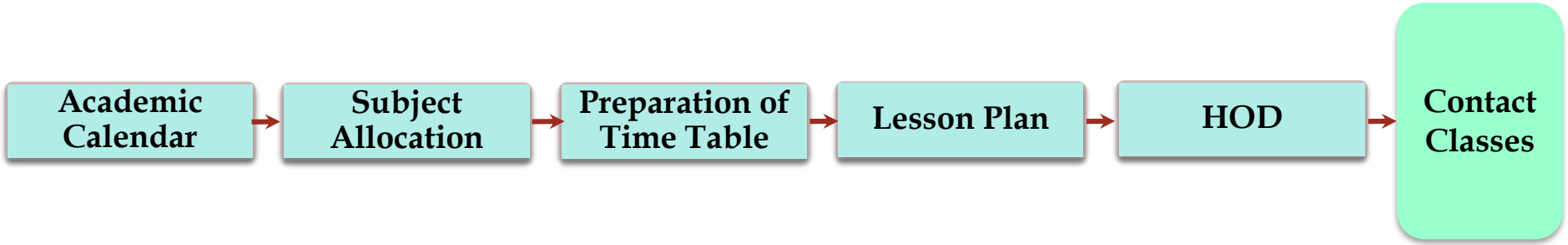
## Adherence to Academic Calendar



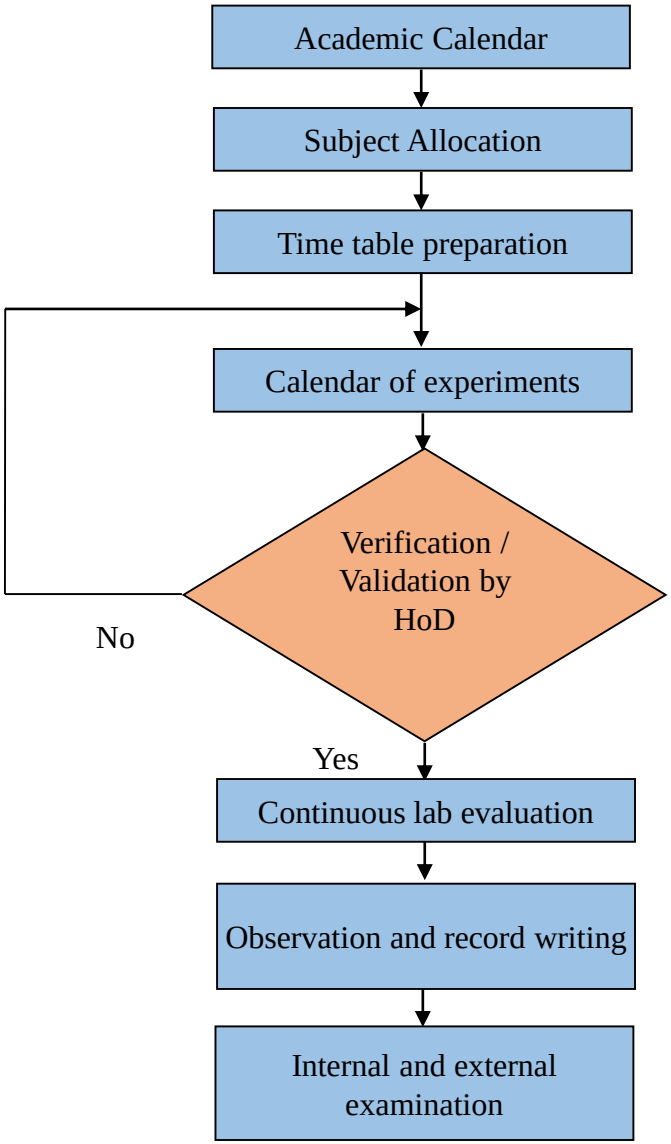

### Value Added Course

| Academic Year | Name of the Value-Added Course |
|---|---|
| 2020-2021 | Python Programming |
| | Internet of Things |
| | Electrical Grounding Practices |
| 2019-20 | Internet of Things |
| | SCILAB |
| | Arduino |
| 2018-2019 | Earthing and Grounding Practices |
| | Internet of Things |
| | PLC Programming |

### Self Learning Certifications by students

| Name of the Certification | No. of student Certifications (2018-21) |
|---|---|
| CISCO | 47 |
| Coursera | 500 |
| IIT Bombay | 75 |
| IIRS Outreach Programmes | 8 |

# Conduct of Experiments




| S. No | Roll No | Day to day Evaluation (10M) | Record (5M) | Internal Exam (10M) | Total (25M) |
|---|---|---|---|---|---|
| 41 | 20915A0220 | 10 | 05 | 09 | 23 |

## Day to Day Lab Assessment

Vidya Jyothi Institute of Technology (An Autonomous Institution)

(Accredited by NAAC, Approved by AICTE New Delhi & Permanently Affiliated to JNTUH)

Aziznagar Gate, C.B. Post, Hyderabad-500 075

**Department of Electrical and Electronics Engineering (Accredited by NBA)**

LAB ASSESSMENT

Name of the Laboratory: Basic Simulati Branch/Section:B Year/Sem:II-I Page: 03

| S.No | Roll Number | Day to Day Assessment – Week 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Day To Day Assessment Average(10M) | Record 5 Marks | Internal Exam 10 Marks | Total Marks 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 20915A0214 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 05 | 09 | 24 |
| 36 | 20915A0215 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 04 | 09 | 23 |
| 37 | 20915A0216 | 10 | 8 | 9 | 10 | 9 | 9 | 9 | 9 | 9 | 8 | | | | | | | 09 | 05 | 09 | 23 |
| 38 | 20915A0217 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 05 | 09 | 24 |
| 39 | 20915A0218 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 04 | 09 | 23 |
| 40 | 20915A0219 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 04 | 02 | 16 |
| 41 | 20915A0220 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 05 | 09 | 23 |
| 42 | 20915A0221 | 5 | 5 | 5 | 9 | 9 | 6 | 6 | 10 | 8 | 7 | | | | | | | 07 | 03 | 04 | 14 |
| 43 | 20915A0222 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | | | | | | | 10 | 04 | 09 | 23 |

# Rubrics for Major Project Evaluation

VIDYA JYOTHI Institute of Technology
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| Rubrics | Reviews | Marks |
|---|---|---|
| **Project Review I** | | |
| I | Understanding background and topic | 3M |
| II | Specific Project goals | 2M |
| III | Literature Survey | 2M |
| IV | Project Planning | 4M |
| V | Presentation skills | 4M |
| **Project Review II** | | |
| I | Specific Project goals | 2M |
| II | Specific testing platforms and bench mark systems | 3M |
| III | Project Planning | 2M |
| IV | Technical Design | 3M |
| V | Summary of the findings of Project | 2M |
| VI | Presentation Skills | 3M |
| **Final Project Review** | | |
| I | Abstract | 2M |
| II | Research Methodology | 4M |
| III | Results obtained and performance Evaluation | 5M |
| IV | Pre - final draft of entire project | 5M |
| V | Presentation skills | 4M |
| **Total Marks** | | **50M** |

| Rubrics for Comprehensive Viva Voce | | Marks |
|---|---|---|
| I | Knowledge in basic engineering | 20M |
| II | Problem solving ability | 20M |
| III | Presentation Ability | 20M |
| IV | Communication Skills | 20M |
| V | Critical Thinking | 20M |
| **Total Marks** | | **100M** |

| Rubrics for Technical Seminar | | Marks |
|---|---|---|
| I | Literature Review | 10M |
| II | Subject Knowledge | 10M |
| III | Communication Skills | 10M |
| IV | Presentation | 10M |
| V | Report | 10M |
| | **Total Marks** | **50M** |

# Rubrics to validate Best Projects

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

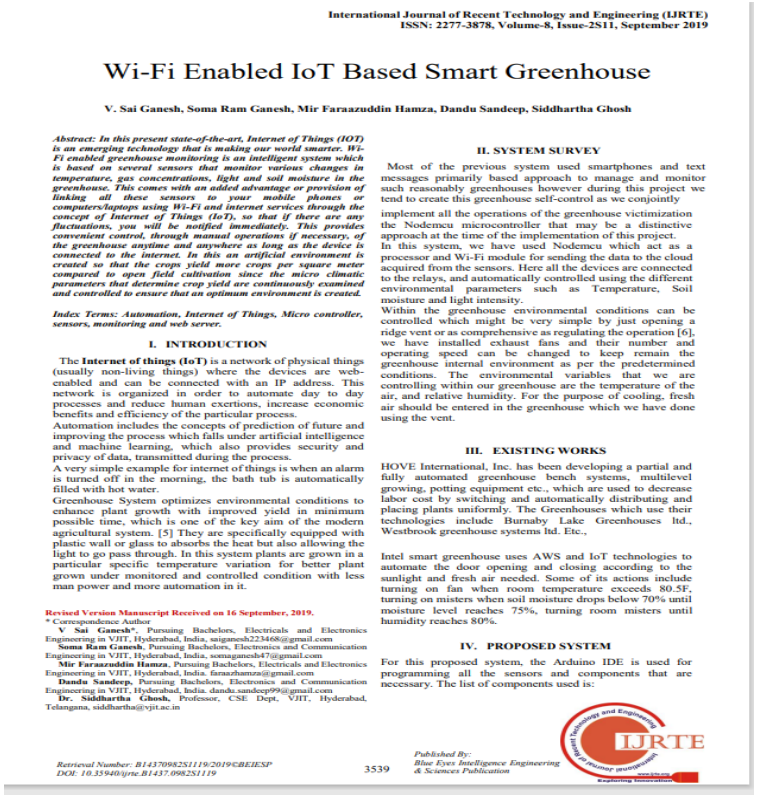
## Rubrics for selection of Best Project

| Criterion for Evaluation / Rubric | Excellent (91 – 100 %) | Good (71 – 90 %) | Average (51 - 70%) | Below Average (Below 51%) |
|---|---|---|---|---|
| Relevance of the Area chosen with societal Problems and Eco-friendly solutions (5M) | Area chosen with societal problems and Eco-friendly solutions are in micro level. | Area chosen with Societal problems and Eco-Friendly solutions are Good level | Area chosen with Societal problems but not relate to Eco-Friendly solutions are Average level | Area chosen is partially related to societal problems and Eco-friendly solutions are poor level. |
| Literature Survey on the innovations in technology applicable to the area chosen (10M) | Literature survey on innovations in technology applicable to area chosen is excellent | Literature survey on innovations in technology applicable to area chosen is excellent is good | Literature survey on innovations in technology applicable to area chosen is excellent is average | Literature survey on innovations in technology applicable to area chosen is excellent is poor |
| Problem Identification and Formulation, with constraints as safety factors and Cost effectiveness 10M) | Problem Identification and Formulation, with constraints as safety factors and Cost effectiveness is Excellent | Problem Identification and Formulation, with constraints as safety factors and Cost effectiveness good | Problem Identification and Formulation, with constraints as safety factors and Cost effectiveness is average | Problem Identification and Formulation, with constraints as safety factors and Cost effectiveness is poor |
| Theoretical Analysis / Experimental Observation with ethical values (10M) | Expected performance is obtained | Moderate performance of the proposed system | Average performance is obtained | Poor performance of the system |
| Implementation , Presentation of Results & Discussion (10M) | Results of the proposed system are expected level | Results of the proposed system are satisfactory | Results of the proposed system are not satisfactory | Expected results are not obtained |
| Conclusions and scope for future work (5M) | Excellent Conclusions and more scope for future work | Good Conclusions and moderate scope for future work | Average Conclusions and less scope for future work | Poor Conclusions and No scope for future work |

# Quality of Student Projects

## Student Publications

| Academic year | Publications |
|---|---|
| 2020-21 | 17 |
| 2019-20 | 13 |
| 2018-19 | 38 |



International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878, Volume-8, Issue-2S11, September 2019

### Wi-Fi Enabled IoT Based Smart Greenhouse

V. Sai Ganesh, Soma Ram Ganesh, Mir Faraazuddin Hamza, Dandu Sandeep, Siddhartha Ghosh

*Abstract: In this present state-of-the-art, Internet of Things (IOT) is an emerging technology that is making our world smarter. Wi-Fi enabled greenhouse monitoring is an intelligent system which is based on several sensors that monitor various changes in temperature, gas concentrations, light and soil moisture in the greenhouse. This comes with an added advantage or provision of linking all these sensors to your mobile phones or computers/laptops using Wi-Fi and internet services through the concept of Internet of Things (IoT), so that if there are any fluctuations, you will be notified immediately. This provides convenient control, through manual operations if necessary, of the greenhouse anytime and anywhere as long as the device is connected to the internet. In this an artificial environment is created so that the crops yield more crops per square meter compared to open field cultivation since the micro climatic parameters that determine crop yield are continuously examined and controlled to ensure that an optimum environment is created.*

*Index Terms: Automation, Internet of Things, Micro controller, sensors, monitoring and web server.*

#### I. INTRODUCTION

The **Internet of things (IoT)** is a network of physical things (usually non-living things) where the devices are web-enabled and can be connected with an IP address. This network is organized in order to automate day to day processes and reduce human exertions, increase economic benefits and efficiency of the particular process.
Automation includes the concepts of prediction of future and improving the process which falls under artificial intelligence and machine learning, which also provides security and privacy of data, transmitted during the process.
A very simple example for internet of things is when an alarm is turned off in the morning, the bath tub is automatically filled with hot water.
Greenhouse System optimizes environmental conditions to enhance plant growth with improved yield in minimum possible time, which is one of the key aim of the modern agricultural system. [5] They are specifically equipped with plastic wall or glass to absorbs the heat but also allowing the light to go pass through. In this system plants are grown in a particular specific temperature variation for better plant grown under monitored and controlled condition with less man power and more automation in it.

#### II. SYSTEM SURVEY

Most of the previous system used smartphones and text messages primarily based approach to manage and monitor such reasonably greenhouses however during this project we tend to create this greenhouse self-control as we conjointly implement all the operations of the greenhouse victimization the Nodemcu microcontroller that may be a distinctive approach at the time of the implementation of this project.
In this system, we have used Nodemcu which act as a processor and Wi-Fi module for sending the data to the cloud acquired from the sensors. Here all the devices are connected to the relays, and automatically controlled using the different environmental parameters such as Temperature, Soil moisture and light intensity.
Within the greenhouse environmental conditions can be controlled which might be very simple by just opening a ridge vent or as comprehensive as regulating the operation [6], we have installed exhaust fans and their number and operating speed can be changed to keep remain the greenhouse internal environment as per the predetermined conditions. The environmental variables that we are controlling within our greenhouse are the temperature of the air, and relative humidity. For the purpose of cooling, fresh air should be entered in the greenhouse which we have done using the vent.

#### III. EXISTING WORKS

HOVE International, Inc. has been developing a partial and fully automated greenhouse bench systems, multilevel growing, potting equipment etc., which are used to decrease labor cost by switching and automatically distributing and placing plants uniformly. The Greenhouses which use their technologies include Burnaby Lake Greenhouses ltd., Westbrook greenhouse systems ltd. Etc.,

Intel smart greenhouse uses AWS and IoT technologies to automate the door opening and closing according to the sunlight and fresh air needed. Some of its actions include turning on fan when room temperature exceeds 80.5F, turning on misters when soil moisture drops below 70% until moisture level reaches 75%, turning room misters until humidity reaches 80%.

#### IV. PROPOSED SYSTEM

For this proposed system, the Arduino IDE is used for programming all the sensors and components that are necessary. The list of components used is:

Revised Version Manuscript Received on 16 September, 2019.
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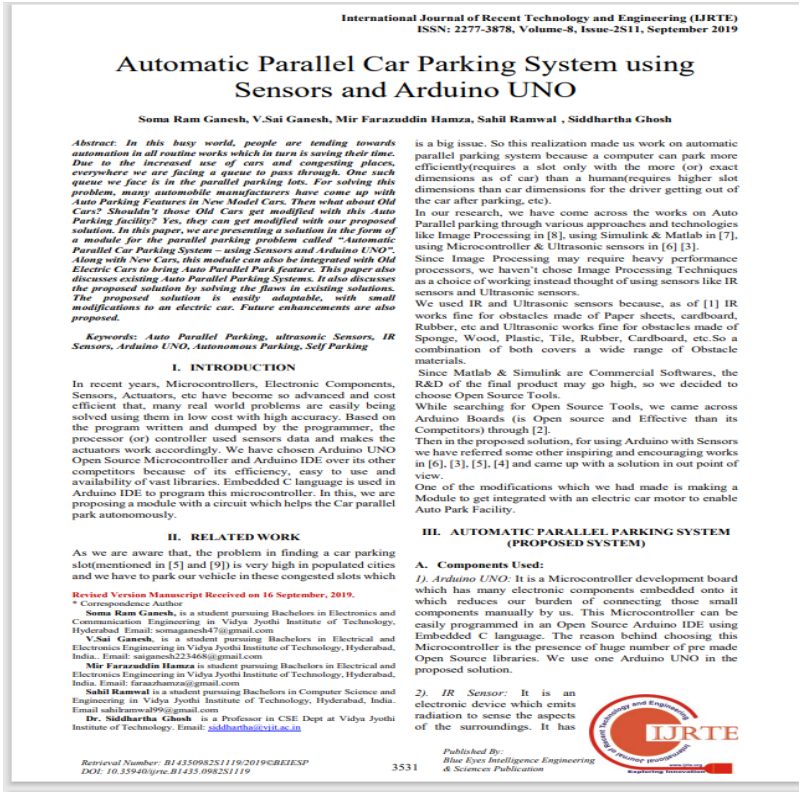
**Soma Ram Ganesh**, Pursuing Bachelors, Electronics and Communication Engineering in VJIT, Hyderabad, India, somaganesh47@gmail.com
**Mir Farazuddin Hamza**, Pursuing Bachelors, Electricals and Electronics Engineering in VJIT, Hyderabad, India. faraazhamza@gmail.com
**Dandu Sandeep**, Pursuing Bachelors, Electronics and Communication Engineering in VJIT, Hyderabad, India. dandu.sandeep999@gmail.com
**Dr. Siddhartha Ghosh**, Professor, CSE Dept, VJIT, Hyderabad, Telangana, siddhartha@vjit.ac.in





International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878, Volume-8, Issue-2S11, September 2019

### Automatic Parallel Car Parking System using Sensors and Arduino UNO

Soma Ram Ganesh, V.Sai Ganesh, Mir Farazuddin Hamza, Sahil Ramwal , Siddhartha Ghosh

*Abstract: In this busy world, people are tending towards automation in all routine works which in turn is saving their time. Due to the increased use of cars and congesting places, everywhere we are facing a queue to pass through. One such queue we face is in the parallel parking lots. For solving this problem, many automobile manufacturers have come up with Auto Parking Features in New Model Cars. Then what about Old Cars? Shouldn't those Old Cars get modified with this Auto Parking facility? Yes, they can get modified with our proposed solution. In this paper, we are presenting a solution in the form of a module for the parallel parking problem called "Automatic Parallel Car Parking System – using Sensors and Arduino UNO". Along with New Cars, this module can also be integrated with Old Electric Cars to bring Auto Parallel Park feature. This paper also discusses existing Auto Parallel Parking Systems. It also discusses the proposed solution by solving the flaws in existing solutions. The proposed solution is easily adaptable, with small modifications to an electric car. Future enhancements are also proposed.*

*Keywords: Auto Parallel Parking, ultrasonic Sensors, IR Sensors, Arduino UNO, Autonomous Parking, Self Parking*

#### I. INTRODUCTION

In recent years, Microcontrollers, Electronic Components, Sensors, Actuators, etc have become so advanced and cost efficient that, many real world problems are easily being solved using them in low cost with high accuracy. Based on the program written and dumped by the programmer, the processor (or) controller used sensors data and makes the actuators work accordingly. We have chosen Arduino UNO Open Source Microcontroller and Arduino IDE over its other competitors because of its efficiency, easy to use and availability of vast libraries. Embedded C language is used in Arduino IDE to program this microcontroller. In this, we are proposing a module with a circuit which helps the Car parallel park autonomously.

#### II. RELATED WORK

As we are aware that, the problem in finding a car parking slot(mentioned in [5] and [9]) is very high in populated cities and we have to park our vehicle in these congested slots which is a big issue. So this realization made us work on automatic parallel parking system because a computer can park more efficiently(requires a slot only with the more (or) exact dimensions as of car) than a human(requires higher slot dimensions than car dimensions for the driver getting out of the car after parking, etc).
In our research, we have come across the works on Auto Parallel parking through various approaches and technologies like Image Processing in [8], using Simulink & Matlab in [7], using Microcontroller & Ultrasonic sensors in [6] [3].
Since Image Processing may require heavy performance processors, we haven't chose Image Processing Techniques as a choice of working instead thought of using sensors like IR sensors and Ultrasonic sensors.
We used IR and Ultrasonic sensors because, as of [1] IR works fine for obstacles made of Paper sheets, cardboard, Rubber, etc and Ultrasonic works fine for obstacles made of Sponge, Wood, Plastic, Tile, Rubber, Cardboard, etc.So a combination of both covers a wide range of Obstacle materials.
Since Matlab & Simulink are Commercial Softwares, the R&D of the final product may go high, so we decided to choose Open Source Tools.
While searching for Open Source Tools, we came across Arduino Boards (is Open source and Effective than its Competitors) through [2].
Then in the proposed solution, for using Arduino with Sensors we have referred some other inspiring and encouraging works in [6], [3], [5], [4] and came up with a solution in out point of view.
One of the modifications which we had made is making a Module to get integrated with an electric car motor to enable Auto Park Facility.

#### III. AUTOMATIC PARALLEL PARKING SYSTEM (PROPOSED SYSTEM)

**A. Components Used:**

*1). Arduino UNO:* It is a Microcontroller development board which has many electronic components embedded onto it which reduces our burden of connecting those small components manually by us. This Microcontroller can be easily programmed in an Open Source Arduino IDE using Embedded C language. The reason behind choosing this Microcontroller is the presence of huge number of pre made Open Source libraries. We use one Arduino UNO in the proposed solution.

*2). IR Sensor:* It is an electronic device which emits radiation to sense the aspects of the surroundings. It has

Revised Version Manuscript Received on 16 September, 2019.
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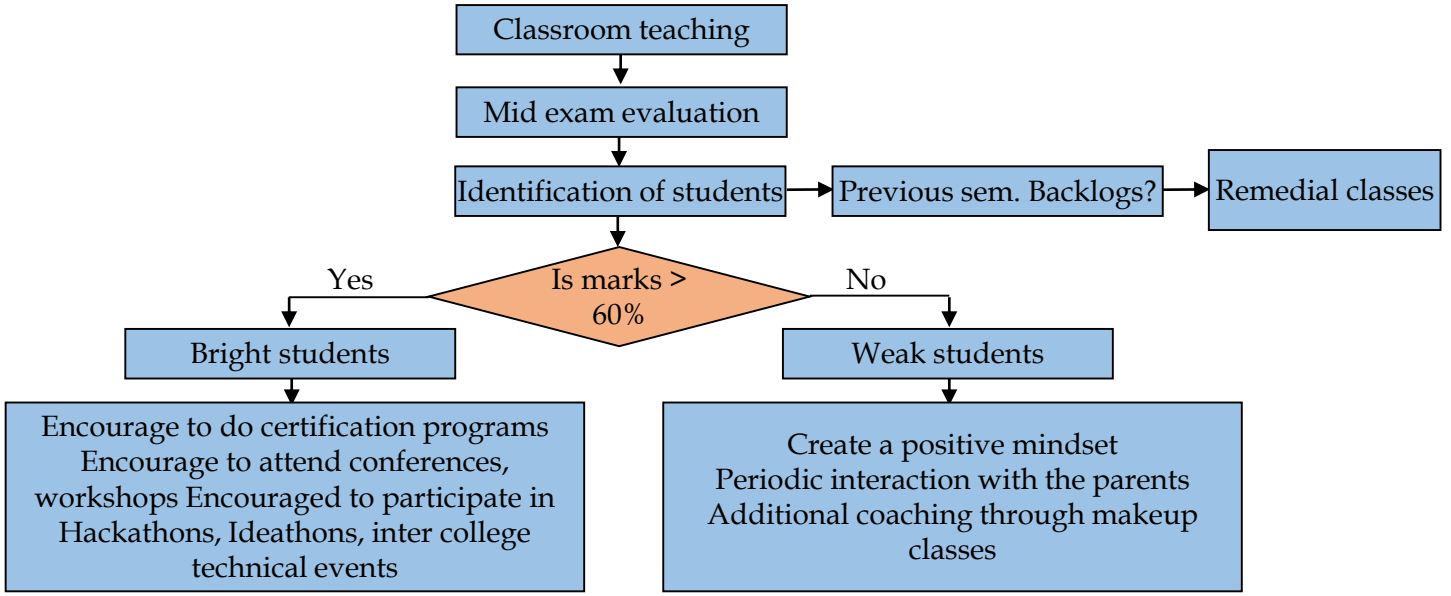
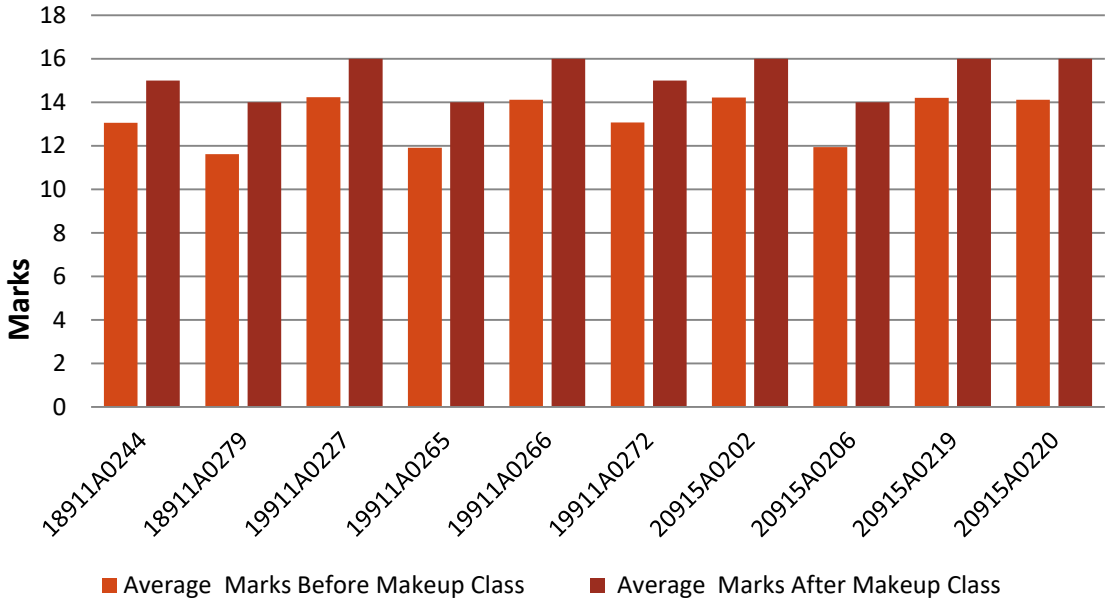
**Mir Farazuddin Hamza** is student pursuing Bachelors in Electrical and Electronics Engineering in Vidya Jyothi Institute of Technology, Hyderabad, India. Email: faraazhamza@gmail.com
**Sahil Ramwal** is a student pursuing Bachelors in Computer Science and Engineering in Vidya Jyothi Institute of Technology, Hyderabad, India. Email sahilramwal99@gmail.com
**Dr. Siddhartha Ghosh** is a Professor in CSE Dept at Vidya Jyothi Institute of Technology. Email: siddhartha@vjit.ac.in

# Academic Support for Advanced/Slow learners

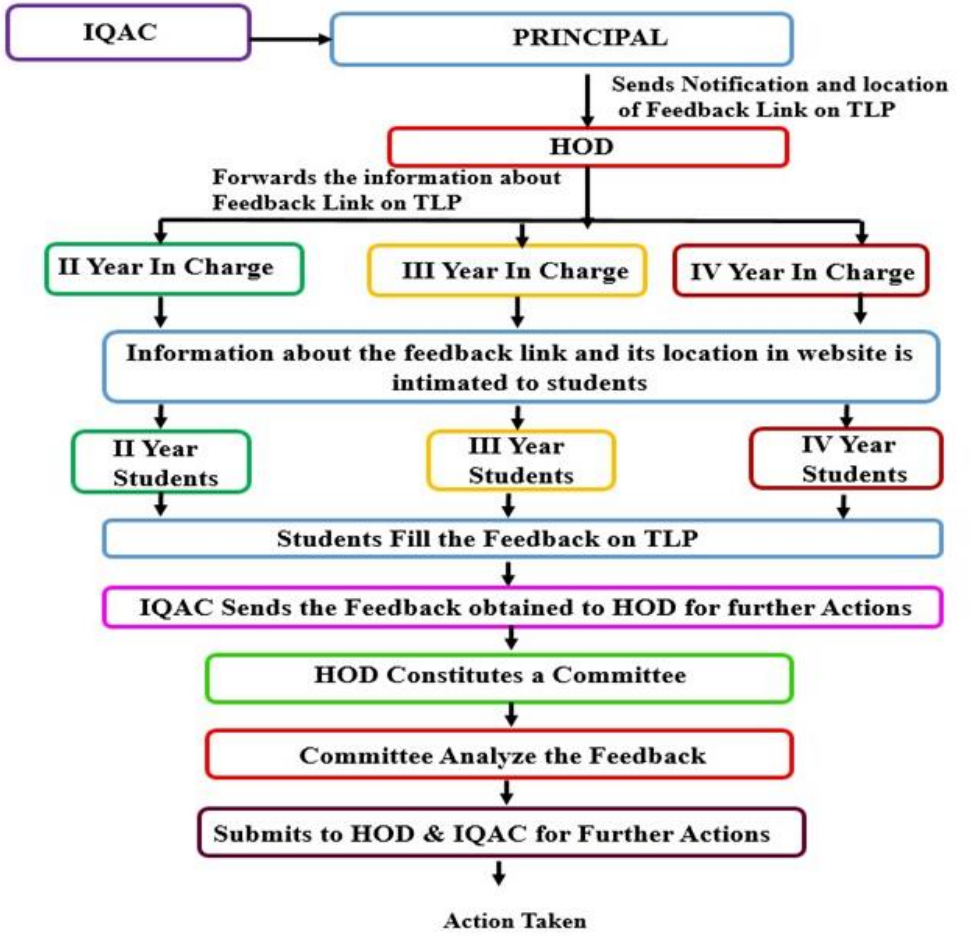





## Performance Analysis for AY 2020-21



# Feedback on Teaching Learning Process




**Action taken on student's feedback**

Few of the action points for the academic year 2019-20 that has been implemented based on the inputs given by stakeholders are

- Faculty are instruct the complete the syllabus of all five units, one week before the last working day
- Faculty are encouraged to provide practical examples and applications of the subject taken in the classroom

# Initiatives related to Industry Interaction

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## Industry supported Labs

| S .No. | Name of the Laboratory | Industry Collaboration | Activity | Beneficiary | PO/PSO Mapping |
|---|---|---|---|---|---|
| 1 | NI LAB | NILABVIEW Academy | Value Added Training | 25 | PO1,PO2,PO3, PO5,PO6,PO9,PO11,PSO1,PSO2 |
| 2 | CISCO laboratory | CISCO | Value Added Training Program | 42 | PO1,PO2,PO3, PO5,PO6,PO9,PO11,PSO1,PSO2 |

## Guest lectures by various industry experts for partial delivery of the courses


Guest Lecture on 'Power Systems and Industrial Applications' by Mr.P.C.Reddy

Guest Lecture on 'Internships'

| S. No | Name of the Company | Guest lectures |
|---|---|---|
| 1 | KG MECH Electro –Mechanical Pvt. Ltd | 2 |
| 2 | Profuse Energy & Infrastructure (p) LTD. | 1 |
| 3 | Hyderabad Institute of Electrical Engineers (HIEE) | 1 |

# Initiatives related to Industry Interaction

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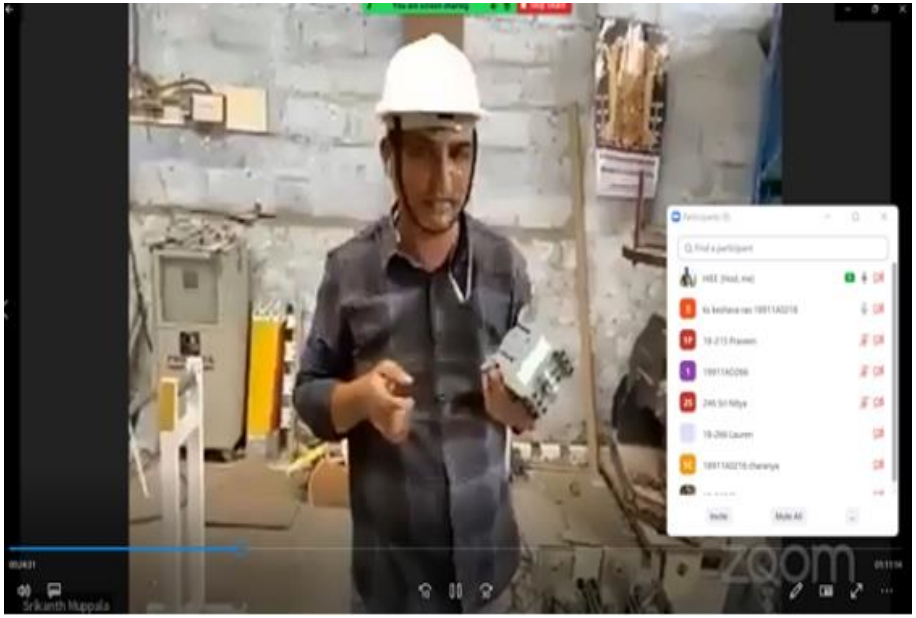
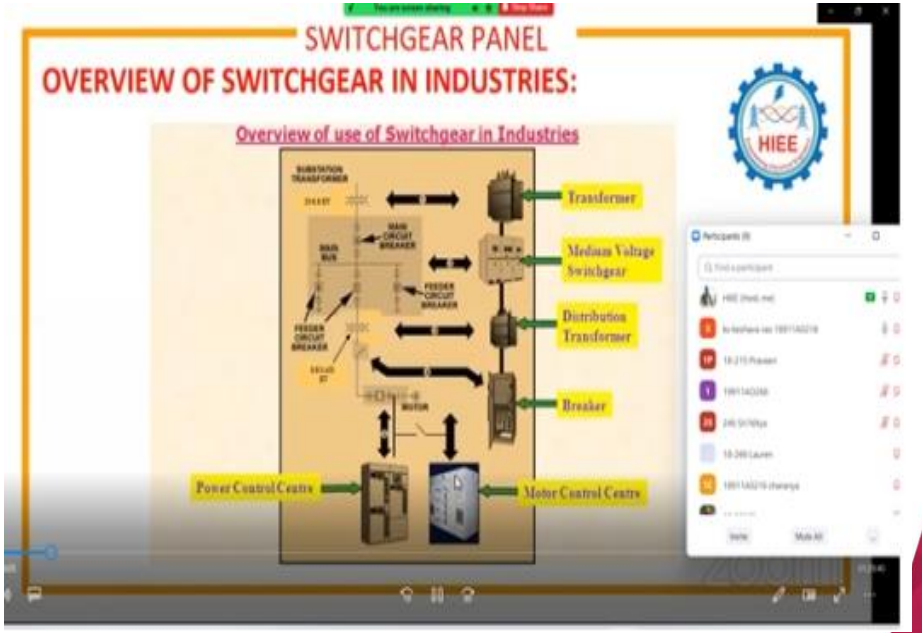
## Internship / Industrial visits

| S.No | Name of the Company | No of Internship | No of Industrial visits |
|---|---|---|---|
| 1 | Hyderabad Institute of Electrical Engineers (HIEE) | **23** | **2** |
| 2 | ECI Engineering and Construction. | **15** | **-** |
| 3 | Balaji Electrical and Engineering works. | **20** | **1** |





# CO Attainment of Power Electronics Course

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## Direct CO Attainment

| S.No | Reg.No | MID I Threshold 60% | | | | | | | MID II Threshold 60% | | | | | | | Threshold 60% (45M) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ASM - I (5) | PART-A | | | PART-B | | | ASM - II (5) | PART-A | | | PART-B | | | End Exam (75M) |
| | | | Q1(2M) | Q2(2M) | Q3(2M) | Q4(5M) | Q5(5M) | Q6(4M) | | Q1(2M) | Q2(2M) | Q3 (2M) | Q4(4M) | Q5(5M) | Q6(5M) | |
| 1 | 16911A0206 | 5 | AB | AB | AB | AB | AB | AB | 5 | 0 | 0 | 2 | 1 | | | 56 |
| 2 | 17911A0202 | 5 | 2 | 2 | 1 | 4 | 4 | 4 | 5 | 2 | | 2 | 2 | | 2 | 45 |
| 3 | 17911A0203 | 5 | 2 | 2 | 2 | 4 | 5 | 4 | 5 | 2 | 2 | 1 | 4 | 4 | 4 | 28 |
| 125 | 18915A0241 | 5 | 2 | 2 | 2 | 3 | 3 | 4 | 5 | 2 | 2 | 2 | 3 | 3 | 4 | 54 |
| 126 | 18915A0242 | 5 | 1 | 1 | 1 | | | | 5 | | 1 | 2 | 2 | 0 | | 17 |
| Average marks | | 5.00 | 1.95 | 1.94 | 1.59 | 3.88 | 4.05 | 3.44 | 5.00 | 1.89 | 1.82 | 1.50 | 2.87 | 3.39 | 3.34 | 40.04 |
| No of students attempted | | 126 | 119 | 116 | 125 | 112 | 109 | 111 | 126 | 120 | 119 | 126 | 119 | 113 | 111 | 126 |
| %of students scored | | 100.0 | 95.0 | 94.8 | 59.2 | 83.9 | 88.1 | 89.2 | 100.0 | 91.7 | 86.6 | 50.0 | 59.7 | 69.0 | 72.1 | 60.3 |
| CO ATTAINMENT | | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 2 | 3 | 2 |

| ASSESSMENT OF COs FOR THE COURSE | | | | | | |
|---|---|---|---|---|---|---|
| CO | Method | value | Average | Internal Exam | External Exam | Overall CO Attainment |
| CO 1 | **MID I Q1** | 3.0 | 3.00 | 2.75 | 2.00 | 2.19 |
| | **MID I Q4** | 3.0 | | | | |
| | **ASM-I** | 3.0 | | | | |
| CO 2 | **MID I Q2** | 3.0 | 3.00 | | | |
| | **MID I Q5** | 3.0 | | | | |
| | **ASM-I** | 3.0 | | | | |
| CO 3 | **MID I Q3** | 1.0 | 2.33 | | | |
| | **MID I Q6** | 3.0 | | | | |
| | **MID 2 Q1** | 3.0 | | | | |
| | **MID 2 Q4** | 1.0 | | | | |
| | **ASM-I** | 3.0 | | | | |
| | **ASM-II** | 3.0 | | | | |
| CO 4 | **MID 2 Q2** | **3.0** | 2.67 | | | |
| | **MID 2 Q5** | **2.0** | | | | |
| | **ASM-II** | 3.0 | | | | |
| CO 5 | **MID 2 Q3** | 1.0 | 2.33 | | | |
| | **MID 2 Q6** | 3.0 | | | | |
| | **ASM-II** | 3.0 | | | | |

# Overall CO Attainment of Power Electronics Course

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## Indirect CO Attainment

**Power Electronics Course End Survey Report:**

CO - Indirect Attainment (b1)

x – Number of students opted for low option (Disagree)
y - Number of students opted for medium option (Agree)
z – Number of students opted for high option (Strongly Agree)

CO1 Attainment = = [(1*0)+(2*13)+(3*113)] /(0+13+113) = 2.89

| PE COURSE | Disagree | Agree | Strongly Agree | Total | Attainment |
|---|---|---|---|---|---|
| CO1 | 0 | 13 | 113 | 126 | 2.89 |
| CO2 | 0 | 9 | 117 | 126 | 2.92 |
| CO3 | 0 | 18 | 108 | 126 | 2.85 |
| CO4 | 0 | 24 | 102 | 126 | 2.81 |
| CO5 | 0 | 15 | 111 | 126 | 2.88 |
| | | | | **Average** | **2.87** |

## Overall CO Attainment

CO Attainment of each course is obtained from 80% of Direct Attainment and 20% of Indirect Attainment.

| Type of Assessment | Co Attainment |
|---|---|
| Direct Attainment(DA) | 2.19 |
| Indirect Attainment(IDA) | 2.87 |
| Course Co Attainment (80% of DA+20% of IDA) | 2.33 |

# Calculation of PO Attainment

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## Overall PO Attainment

The overall PO attainment is calculated from **80% of PO Direct Attainment and 20% of Indirect Attainment**.

**PO Overall Attainment c = (0.8*a) + (0.2*b)**

**For example PO1 Attainment c =** (0.8*a) + (0.2*b) = (0.8*2.39) + (0.2*2.88) **= 2.49**

| | PO & PSO Direct Attainment a | PO & PSO Indirect Attainment b | PO & PSO Overall Attainment c |
|---|---|---|---|
| **PO1** | 2.39 | 2.88 | **2.49** |

# Innovative Teaching Methods adopted by Faculty

VIDYA JYOTHI Institute of Technology

## Flipped Classroom

## Collaborative Learning

## Peer to Peer Learning

## Pictionary

# PEO Attainment

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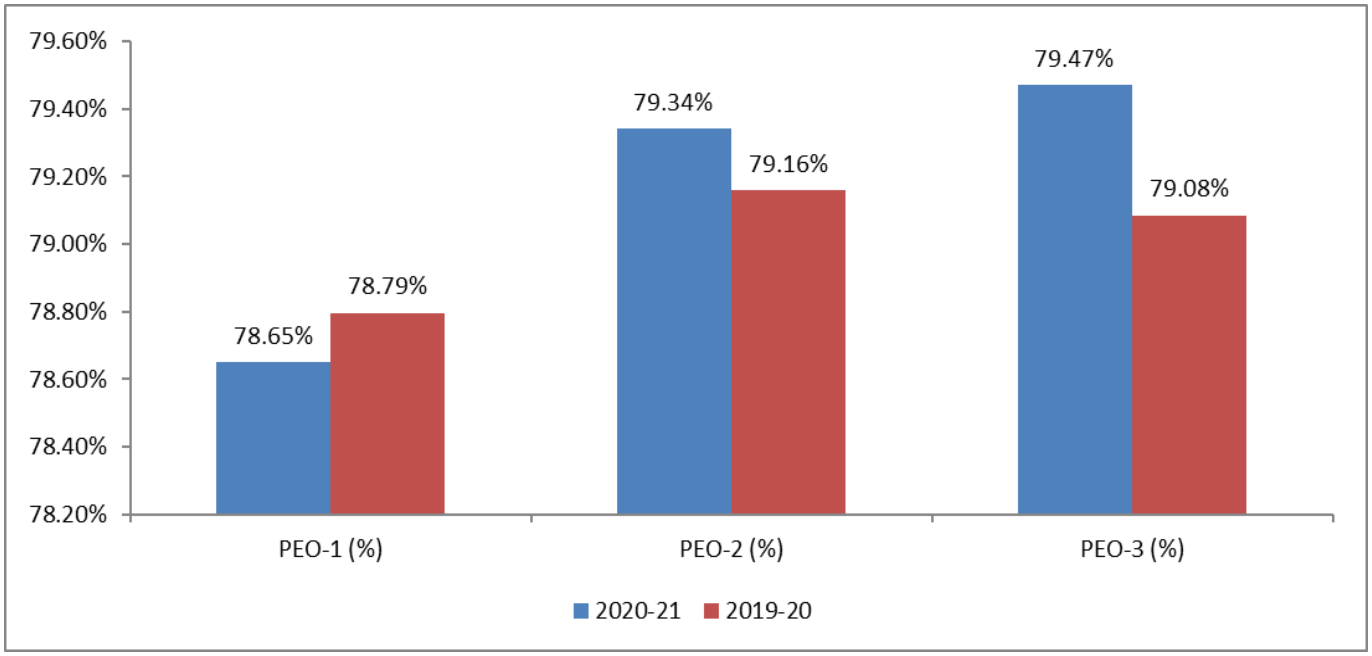
| ATTAINMENT OF PEOs | | | |
|---|---|---|---|
| Batch | 80% Direct attainment + 20% Indirect attainment | | |
| | PEO-1 (%) | PEO-2 (%) | PEO-3 (%) |
| 2015-19 | 78.65% | 79.34% | 79.47% |
| 2014-18 | 78.79% | 79.16% | 79.08% |



# Prominent Alumni

VIDYA JYOTHI Institute of Technology
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## Potential of EEE VJITians at National and International level in serving mankind in core and software streams

- Public Sector
- Telangana State Distribution System
- L & T Metro( Hyderabad)
- Design and verification Engineers in Electric Vehicle Sector( Nissan and Hyundai Motors
- R & D Sector- ABB
- Software – Data Scientist, Software Development Engineers

# Prominent Alumni

**Ananchu Rajeshwar**
EXECUTIVE ENGINEER
NHPC Kolkata
2002-2006

**Rajendra Kamble**
ASST. ENGINEER
TSSPDCL, Secunderabad
2004-2008

**Sasya Talluri**
TOS Admin II
EA - Electronic Arts
2011-2015

**Rallapati Pradeep**
Metrics and reporting specialist
Google
2011-2015

**Pranav Vallapudasu**
Overhead Electric Traction System Engineer
L&T Metro Rail (Hyderabad)

**Shiva Krishna Reddy RAPOLU**
R&D Associate Engineer, ABB
2012-2016

**Uday Kumar Taidala**
Validation Engineer | ADAS, MIL, SIL
@ Renault-Nissan-Mitsubishi
2004-2008

**Puzah kasulla**
Test Engineer at Kony, Inc.
2012-2016

# "Thank You"