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# PRESIDENCY UNIVERSITY

(Private University Estd. in Karnataka State by Act No. 41 of 2013)

## PU-SoE-EEE 2019-20

Ref. No. PU/ SoE/ EEE /2019-20/VAC/CIR/01 31-12-2019

## CIRCULAR

**Sub: VALUE ADDED COURSES – OFFERED BY THE DEPT. OF EEE**

This is to inform all the students of the 3rd, 5th, and 7th semesters of B. Tech (EEE), the following value-added courses will be offered by the department during the AY 2019-20 (Fall Semester):

| Sl. No | Course Code | Course Name | Name of the Faculty |
|---|---|---|---|
| 1. | EEEV001 | Introduction to Multilevel Inverters | Dr. Snehaprabha T V & Mr. Sarin M V |
| 2. | EEEV002 | Renewable Energy and Green Building Entrepreneurship | Dr. V Joshi Manohar |
| 3. | EEEV003 | MATLAB Programming and Simulink for Power Electronic converters | Mr.K.Sreekanth Reddy |
| 4. | EEEV005 | AutoCAD for Electrical Engineers | Mr. Ravi V Angadi |
| 5. | EEEV006 | Solar Cells - Past, Present and Future | Ms.Ramya K |
| 6. | EEEV008 | Hybrid Energy Storage System | Mr. Nageswara Rao A |
| 7. | EEEV009 | Fundamentals of Electric and Hybrid Electric Vehicles | Ms. Ragasudha C P |
| 8. | EEEV010 | Pulse Width Modulation For Multilevel Converter | Dr Snehaprabha T V |

All are informed to contact the respective course ICs of VAC based on your choice. The duration of the course is 30 hours. All the students are encouraged to attend VAC as per the course instructor's schedule. A certificate will be awarded after successful completion of the course.

PRESIDENCY UNIVERSITY IQAC BANGALORE

Dr. Snehaprabha T V
HOD - EEE

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Odd Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV001 |
| **Course Name:** | Introduction to Multilevel Inverters |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | This course contains a detailed explanation of Basics of Inverters, Principles of operation of single-phase and three-phase DC-AC inverters, Space phasors and alpha-beta reference frame, Space vector modulation for three-phase inverters, Current control mode of inverters. Modeling and Control of Grid-Connected Inverters. Modeling of three-phase grid-connected inverters, Closed-loop control of<br>three-phase inverters. Multilevel Converters Basics of multilevel converters, Various multilevel converter topologies, Modular Multilevel Converters. Basics of cascaded half-bridge and full-bridge modules, Control aspects of the modular multilevel converter, Circulating current control. Control of Grid-Connected Modular Multilevel Converters Control of grid-connected modular multilevel converter, Control of the MMC for High-Voltage DC (HVDC) transmission |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. The basics of operation and modulation techniques of various DC-AC voltage-sourced<br>converters (VSCs), e.g., the conventional two-level converter and<br>various multi-level VSCs.<br>CO.2. How to develop closed-loop control strategies for proper operation of various<br>grid-connected VSCs under both steady-state and transient operating conditions<br>CO.3. Ways to recognize the salient features of the Modular Multilevel Converter (MMC) as compared with other multilevel VSCs.<br>CO.4. The operational/control challenges associated with the MMC |
| **Course Content:** | **Module 1:** Basics of Inverters<br>Principles of operation of single-phase and three-phase DC-AC inverters, Space phasors and alpha-beta reference frame, Space vector modulation for three-phase inverters, Current control mode of inverters<br>**Module 2:** Modeling and Control of Grid-Connected Inverters<br>Modeling of three-phase grid-connected inverters, Closed-loop control of three-phase inverters<br>**Module 3:** Multilevel Converters<br>Basics of multilevel converters, Various multilevel converter topologies<br>**Module 4:** Modular Multilevel Converters<br>Basics of cascaded half-bridge and full-bridge modules, Control aspects of the modular multilevel converter, Circulating current control<br>**Module 5:** Control of Grid-Connected Modular Multilevel Converters<br>Control of grid-connected modular multilevel converter, Control of the MMC for High-Voltage DC (HVDC) transmission |
| **Instructor In-charge:** | Mr. Sarin MV, Dr. Sneha Prabha T V |

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# School of Engineering
## Department of Electrical & Electronics Engineering
### AY 2019-20 (Odd Sem)
### Value added Course(VAC) Name and Code: Introduction to Multilevel Inverters & EEEV001
### Name of the Instructor: Mr. Sarin MV, Dr. Sneha Prabha T V
## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 20161EEE0002 | SHIVASAGAR M | 30 | 23 | 77 |
| 2 | 20161EEE0010 | GAGAN R B | 30 | 21 | 70 |
| 3 | 20161EEE0025 | ANAS SHAIKH MAHMOOD | 30 | 27 | 90 |
| 4 | 20171LEE0002 | SANJAY MALLIK | 30 | 23 | 77 |
| 5 | 20171EEE0007 | AKSHAY B | 30 | 26 | 87 |
| 6 | 20171EEE0008 | AKSHAY KUMAR J UPARKAR | 30 | 21 | 70 |
| 7 | 20171EEE0020 | HARPREET SINGH | 30 | 26 | 87 |
| 8 | 20171EEE0032 | MD AFFAN KHAN | 30 | 20 | 67 |
| 9 | 20171EEE0040 | NAVEEN KUMAR A | 30 | 30 | 100 |
| 10 | 20171EEE0052 | RAKSHITH T | 30 | 21 | 70 |
| 11 | 20171EEE0066 | SOPHIE SALINS | 30 | 28 | 93 |
| 12 | 20171EEE0070 | SYED MUIZZ AHMED | 30 | 23 | 77 |
| 13 | 20171EEE0077 | DUDEKULA BASHEER BABA | 30 | 25 | 83 |
| 14 | 20171EEE0082 | VARSHA A | 30 | 25 | 83 |
| 15 | 20181LEE0003 | HEMANTH KUMAR M L | 30 | 26 | 87 |
| 16 | 20181LEE0016 | SACHIN SANGAMESH DIVATAGI | 30 | 23 | 77 |
| 17 | 20181EEE0001 | ABHINAV SURESH | 30 | 27 | 90 |
| 18 | 20181EEE0007 | ARVINDGOWDA C N | 30 | 27 | 90 |
| 19 | 20181EEE0014 | DEEKSHITHA N | 30 | 24 | 80 |
| 20 | 20181EEE0019 | HANUMANTH KUMAR A | 30 | 24 | 80 |
| 21 | 20181EEE0025 | K SHRAVAN KUMAR | 30 | 25 | 83 |
| 22 | 20181EEE0034 | MOHAMMED NASIR | 30 | 24 | 80 |
| 23 | 20181EEE0038 | PALLAVI R | 30 | 27 | 90 |
| 24 | 20191LEE0001 | NIHARIKA H | 30 | 28 | 93 |
| 25 | 20191EEE0003 | BASAVAKUMAR S HIREHAL | 30 | 24 | 80 |
| 26 | 20191LEE0006 | DHEERAJ C | 30 | 26 | 87 |
| 27 | 20191EEE0001 | ABHISHEK C | 30 | 13 | 43 |

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| | | | | | |
|---|---|---|---|---|---|
| **28** | 20191EEE0022 | NANDA KISHORE KIRAN DESHPANDE | 30 | 13 | 43 |
| **29** | 20191EEE0040 | SAPNA N | 30 | 14 | 46 |
| **Signature of Course Instructor** | | | | | |

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# School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV001 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Introduction to Multilevel Inverters | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. Sarin MV, Dr. Sneha Prabha T V | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01347 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
| 1 | 20161EEE0002 | SHIVASAGAR M | SoE | 73 | 66 | No | Not Eligible for Certificate |
| 2 | 20161EEE0010 | GAGAN R B | SoE | 66 | 60 | No | Not Eligible for Certificate |
| 3 | 20161EEE0025 | ANAS SHAIKH MAHMOOD | SoE | 86 | 78 | Yes | |
| 4 | 20171LEE0002 | SANJAY MALLIK | SoE | 73 | 66 | No | Not Eligible for Certificate |
| 5 | 20171EEE0007 | AKSHAY B | SoE | 83 | 75 | Yes | |
| 6 | 20171EEE0008 | AKSHAY KUMAR J UPARKAR | SoE | 66 | 60 | No | Not Eligible for Certificate |
| 7 | 20171EEE0020 | HARPREET SINGH | SoE | 83 | 75 | Yes | |
| 8 | 20171EEE0032 | MD AFFAN KHAN | SoE | 63 | 57 | No | Not Eligible for Certificate |
| 9 | 20171EEE0040 | NAVEEN KUMAR A | SoE | 96 | 87 | Yes | |
| 10 | 20171EEE0052 | RAKSHITH T | SoE | 66 | 60 | No | Not Eligible for Certificate |
| 11 | 20171EEE0066 | SOPHIE SALINS | SoE | 89 | 81 | Yes | |
| 12 | 20171EEE0070 | SYED MUIZZ AHMED | SoE | 73 | 66 | No | Not Eligible for Certificate |
| 13 | 20171EEE0077 | DUDEKULA BASHEER BABA | SoE | 79 | 72 | Yes | |
| 14 | 20171EEE0082 | VARSHA A | SoE | 79 | 72 | Yes | |
| 15 | 20181LEE0003 | HEMANTH KUMAR M L | SoE | 83 | 75 | Yes | |
| 16 | 20181LEE0016 | SACHIN SANGAMESH HIVATAGI | SoE | 73 | 66 | No | Not Eligible for Certificate |
| 17 | 20181EEE0001 | ABHINAV SURESH | SoE | 86 | 78 | Yes | |
| 18 | 20181EEE0007 | ARVINDGOWDA C N | SoE | 86 | 78 | Yes | |
| 19 | 20181EEE0014 | DEEKSHITHA N | SoE | 76 | 69 | Yes | |
| 20 | 20181EEE0019 | HANUMANTH KUMAR A | SoE | 76 | 69 | Yes | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **21** | 20181EEE0025 | K SHRAVAN KUMAR | SoE | 79 | 72 | Yes | |
| **22** | 20181EEE0034 | MOHAMMED NASIR | SoE | 76 | 69 | Yes | |
| **23** | 20181EEE0038 | PALLAVI R | SoE | 86 | 78 | Yes | |
| **24** | 20191LEE0001 | NIHARIKA H | SoE | 89 | 81 | Yes | |
| **25** | 20191LEE0003 | BASAVAKUMAR S HIREHAL | SoE | 76 | 69 | Yes | |
| **26** | 20191LEE0006 | DHEERAJ C | SoE | 83 | 75 | Yes | |
| **27** | 20191EEE0001 | ABHISHEK C | SoE | 55 | 20 | No | Not Eligible for Certificate |
| **28** | 20191EEE0022 | NANDA KISHORE KIRAN DESHPANDE | SoE | 64 | 10 | No | Not Eligible for Certificate |
| **29** | 20191EEE0040 | SAPNA N | SoE | 70 | 25 | No | Not Eligible for Certificate |

**Name of Course Instructor :** Mr. Sarin MV, Dr. Sneha Prabha T V

**Employee ID of Course Instructor:** PUNIV01347

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Kajanukunte, Yelahanka, Bengaluru-64

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# PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

## Department of Electrical & Electronics Engineering

## Value Added Courses to be offered during the Odd Semester Break 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV002 |
| **Course Name:** | Renewable Energy and green building Entreprenuership |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | This course explains various business opportunities in renewable energy and green building. This course presents the significant growth in the renewable energy and green building sectors, challenges and criticisms of both sectors, along with counterpoints and solutions. It also presents the road map for entrepreneurship |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>1. List out the renewable energy sources<br>2. Describe the concept of green building<br>3. Explain the process of the bussiness model<br>4. Develop a project using real time data |
| **Course Content:** | **Module No 1:** Introduction to Green Building: Reviews of various renewable energy sources and the concept of green building, [8- Hours]<br>**Module No 2:** Start Ups in opportunities renewable energy sector and case study of solar plant **start up.** Take real world first steps towards launching a new business or corporate initiative [10 Hours]<br>**Module No 3:** Identification of any two problems with either renewable energy or green building products or services. - Plan for engaging with investors who might finance a new business[12 Hours] |
| **Instructor In-charge:** | Dr Joshi Manohar V |

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# Presidency University, Bengaluru

## Department of Electrical and Electronics Engineering

## School of Engineering

**VAC DETAILS**
**Total number of hours:30**
**AY 2019-20 ODD Semester**
**Value added Course(VAC) Name and Code:RENEWABLE ENERGY AND GREEN BUILDING ENTREPRENUERSHIP & EEEV002**
**Name of the Instructor:Dr. V Joshi Manohar**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE008 | ARCHANA S S | 30 | 22 | 73.33 |
| 2 | 2016EEE015 | BALAJI R | 30 | 27 | 90.00 |
| 3 | 2016EEE022 | AKANKSHA PRAJAPATI | 30 | 23 | 76.67 |
| 4 | 2016EEE034 | JASU AISHWARYA | 30 | 26 | 86.67 |
| 5 | 20171EEE0004 | AHMED | 30 | 27 | 90.00 |
| 6 | 20171EEE0016 | EMILY JOSEPH | 30 | 25 | 83.33 |
| 7 | 20171EEE0026 | KUMARI CHANCHAL | 30 | 21 | 70.00 |
| 8 | 20171EEE0036 | MOHAMMED GOUSE SAB M K | 30 | 25 | 83.33 |
| 9 | 20171EEE0044 | NIKHIL RAMESH | 30 | 22 | 73.33 |
| 10 | 20171EEE0050 | PUNITH T P | 30 | 24 | 80.00 |
| 11 | 20171EEE0061 | SHANKAR MOHITH KUMAR | 30 | 27 | 90.00 |
| 12 | 20171EEE0068 | SUPRITH B | 30 | 27 | 90.00 |
| 13 | 20171EEE0075 | WAIL FAUD GHANEM HAZAEA AQLAN | 30 | 24 | 80.00 |
| 14 | 20171EEE0079 | AMITH G | 30 | 24 | 80.00 |
| 15 | 20181LEE0013 | VARDHAN B O | 30 | 26 | 86.67 |
| 16 | 20181LEE0019 | SINDHU P | 30 | 22 | 73.33 |
| 17 | 20181EEE0005 | ANKIT KUMAR SHARMA | 30 | 24 | 80.00 |
| 18 | 20181EEE0012 | BOGGULA MARUTHI MANOHAR REDDY | 30 | 24 | 80.00 |
| 19 | 20181EEE0017 | G.D.S DHEERAJ | 30 | 23 | 76.67 |
| 20 | 20181EEE0022 | JAYASHREE SAHU | 30 | 25 | 83.33 |
| 21 | 20181EEE0031 | MALLIKARJUN M HIREMATH | 30 | 24 | 80.00 |
| 22 | 20191LEE9003 | VISHAK VIJAYA KUMAR | 30 | 24 | 80.00 |
| 23 | 20181EEE0045 | PUNITH K KULAL | 30 | 22 | 73.33 |
| 24 | 20181EEE0051 | SAI HRITHIK P K | 30 | 19 | 63.33 |
| 25 | 20181EEE0056 | SHARON PRANATHI M | 30 | 15 | 50.00 |
| 26 | 20181EEE0061 | SREEVATSA P M | 30 | 20 | 66.67 |
| 27 | 20181EEE0068 | VARSHA ANIL | 30 | 23 | 76.67 |
| 28 | 20181EEE0072 | YASSER AHAMED KHAISAR | 30 | 25 | 83.33 |
| 29 | 20181EEE9003 | SYED ZABI SAMEER | 30 | 23 | 76.67 |
| 30 | 20191LEE0010 | S R GURUPRASAD | 30 | 24 | 80.00 |
| 31 | 20191EEE0011 | KEERTHANA B R | 30 | 19 | 63.33 |
| 32 | 20191EEE0031 | PRUTHVIRAJ D KUDACHI | 30 | 15 | 50.00 |
| 33 | 20191EEE0050 | YARRABALLI NAVEEN | 30 | 20 | 66.67 |
| 34 | 20181EEE9001 | R TEJASWINI | 30 | 19 | 63.33 |
| 35 | 20191LEE0005 | KUSHAL S | 30 | 15 | 50.00 |
| 36 | 20171EEE9002 | FAISAL MARWAN | 30 | 20 | 66.67 |

**Signature of Course Instructor**

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# Presidency University, Bengaluru
## Value Added Course Marksheet
## School of Engineering

| Course Code : | EEEV002 | Academic Year : | 2019-20 |
|---|---|---|---|
| Course Name : | RENEWABLE ENERGY AND GREEN BUILDING ENTREPRENUERSHIP | Semester : | Odd Semester |
| | | Instructor-in-Charge Name : | Dr V Joshi Manohar |
| | | Instructor-in-Charge Employee ID | PUNIV01153 |

| S. No | UID No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2016EEE008 | ARCHANA S S | SoE | 73.33 | 65 | Yes | |
| 2 | | 2016EEE015 | BALAJI R | SoE | 90.00 | 90 | Yes | |
| 3 | | 2016EEE022 | AKANKSHA PRAJAPATI | SoE | 82.14 | 85 | Yes | |
| 4 | | 2016EEE034 | JASU AISHWARYA | SoE | 86.67 | 65 | Yes | |
| 5 | | 20171EEE0004 | AHMED | SoE | 90.00 | 74 | Yes | |
| 6 | | 20171EEE0016 | EMILY JOSEPH | SoE | 83.33 | 56 | Yes | |
| 7 | | 20171EEE0026 | KUMARI CHANCHAL | SoE | 70.00 | 89 | Yes | |
| 8 | | 20171EEE0036 | MOHAMMED GOUSE SAB M K | SoE | 83.33 | 76 | Yes | |
| 9 | | 20171EEE0044 | NIKHIL RAMESH | SoE | 73.33 | 54 | Yes | |
| 10 | | 20171EEE0050 | PUNITH T P | SoE | 80.00 | 43 | Yes | |
| 11 | | 20171EEE0061 | SHANKAR MOHITH KUMAR | SoE | 90.00 | 57 | Yes | |
| 12 | | 20171EEE0068 | SUPRITH B | SoE | 90.00 | 60 | Yes | |
| 13 | | 20171EEE0075 | WAIL FAUD GHANEM HAZAEA AQLAN | SoE | 80.00 | 78 | Yes | |
| 14 | | 20171EEE0079 | AMITH G | SoE | 80.00 | 76 | Yes | |
| 15 | | 20181LEE0013 | VARDHAN B O | SoE | 86.67 | 80 | Yes | |
| 16 | | 20181LEE0019 | SINDHU P | SoE | 73.33 | 66 | Yes | |
| 17 | | 20181EEE0005 | ANKIT KUMAR SHARMA | SoE | 80.00 | 76 | Yes | |
| 18 | | 20181EEE0012 | BOGGULA MARUTHI MANOHAR REDDY | SoE | 82.76 | 78 | Yes | |
| 19 | | 20181EEE0017 | G.D.S DHEERAJ | SoE | 76.67 | 87 | Yes | |
| 20 | | 20181EEE0022 | JAYASHREE SAHU | SoE | 86.21 | 78 | Yes | |
| 21 | | 20181EEE0031 | MALLIKARJUN M HIREMATH | SoE | 80.00 | 85 | Yes | |
| 22 | | 20191LEE9003 | VISHAK VIJAYA KUMAR | SoE | 80.00 | 76 | Yes | |
| 23 | | 20181EEE0045 | PUNITH K KULAL | SoE | 75.86 | 54 | Yes | |
| 24 | | 20181EEE0051 | SAI HRITHIK P K | SoE | 63.33 | 35 | No | |
| 25 | | 20181EEE0056 | SHARON PRANATHI M | SoE | 50.00 | 30 | No | |
| 26 | | 20181EEE0061 | SREEVATSA P M | SoE | 66.67 | 45 | Yes | |
| 27 | | 20181EEE0068 | VARSHA ANIL | SoE | 76.67 | 77 | Yes | |
| 28 | | 20181EEE0072 | YASSER AHAMED KHAISAR | SoE | 83.33 | 65 | Yes | |
| 29 | | 20181EEE9003 | SYED ZABI SAMEER | SoE | 76.67 | 66 | Yes | |
| 30 | | 20191LEE0010 | S R GURUPRASAD | SoE | 80.00 | 70 | Yes | |
| 31 | | 20191EEE0011 | KEERTHANA B R | SoE | 63.33 | 35 | No | |
| 32 | | 20191EEE0031 | PRUTHVIRAJ D KUDACHI | SoE | 50.00 | 30 | No | |
| 33 | | 20191EEE0050 | YARRABALLI NAVEEN | SoE | 66.67 | 20 | No | |
| 34 | | 20181EEE9001 | R TEJASWINI | SoE | 63.33 | 30 | No | |
| 35 | | 20191LEE0005 | KUSHAL S | SoE | 50.00 | 25 | No | |
| 36 | | 20171EEE9002 | FAISAL MARWAN | SoE | 66.67 | 20 | No | |

**Name of Course Instructor 1:** Dr. V Joshi Manohar

**Employee ID of Course Instructor 1:** PUNIV01153

**Signature of Instructor-in-Charge**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru-64

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## School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Odd Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV003 |
| **Course Name:** | MATLAB Programming and Simulink for Power Electronic converters |
| **Area of Specialization:** | Electrcal Engineering |
| **Course Description:** | MATLAB is a leading software in numerical computing, building algorithms and Simulink tool for simulating the converters. In this will introduce some Elementary Mathematics Problems, Matrices, data import analysis, the simulation of different power converter circuits and modelling of motors using MATLAB Simulink. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br><br>01. Recognize the importance of MATLAB and Its capabilities<br><br>02. Explain the simulation of AC-DC circuits using Simulink in MATLAB<br><br>03. Demonstrate the simulation AC-AC converters as single phase AC choppers using Simulink in MATLAB<br><br>04. Show the model of DC machine using MATLAB Simulink |
| **Course Content:** | **Module 1:** Introduction To Array Programming, Creating Vectors & Matrices, Basic Operations, Arithmetic Operations In MATLAB, Import Spreadsheets from Excel To MATLAB, Differentiation and integration In MATLAB, Solving One Non Linear Equation In MATLAB Using zero Function [10 hrs]<br>**Module 2:** Simulation Of Bridge Controlled Rectifier, Simulation Of Buck and Boost regulator [8 hrs]<br>**Module 3:** Simulation Of Single Phase and three phase Bridge Inverter, Simulation Of Charging And Discharging Capacitor DC Motor Modelling At No Load Using Simulink In MATLAB.[12 hrs] |
| **Instructor In-charge:** | Mr. K Sreekanth Reddy |

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# School of Engineering
## Department of Electrical & Electronics Engineering
**AY 2019-20 (Odd Sem)**

**Value added Course(VAC) Name and Code: MATLAB Programming and Simulink for Power Electronic converters & EEEV003**

**Name of the Instructor: Mr. K Sreekanth Reddy**

## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 20171EEE0023 | JYOTHI T | 30 | 25 | 83.33 |
| 2 | 20171EEE0034 | MD RASHIDUL ISLAM KHAN | 30 | 25 | 83.33 |
| 3 | 20171EEE0041 | NAVEEN P | 30 | 28 | 93.33 |
| 4 | 20171EEE0048 | HATEM ATA TAHER ABDULAZIZ ATA | 30 | 25 | 83.33 |
| 5 | 20171EEE0056 | S HARIVIGNESH | 30 | 28 | 93.33 |
| 6 | 20181LEE0007 | GANESH KUMAR SINGH | 30 | 14 | 46.67 |
| 7 | 20181LEE0017 | RAVANA K N | 30 | 24 | 80.00 |
| 8 | 20181EEE0002 | ABHISHEK R BHARADWAJ | 30 | 24 | 80.00 |
| 9 | 20181EEE0008 | B H LAVANYA | 30 | 29 | 96.67 |
| 10 | 20181EEE0015 | FARHAN MUKHTIAR ABDUL Late | 30 | 13 | 43.33 |
| 11 | 20181EEE0020 | HARIKRISHN V | 30 | 28 | 93.33 |
| 12 | 20181EEE0026 | KALYAN CH | 30 | 25 | 83.33 |
| 13 | 20181EEE0036 | PAGADALA REVANTH NATH | 30 | 29 | 96.67 |
| 14 | 20181EEE0042 | PRAJWAL S | 30 | 19 | 63.33 |
| 15 | 20181EEE0050 | SADIYA TAHERA | 30 | 28 | 93.33 |
| 16 | 20181EEE0054 | SANJAY KUMAR S C | 30 | 23 | 76.67 |
| 17 | 20181EEE0060 | SOUMYA T | 30 | 28 | 93.33 |
| 18 | 20181EEE0066 | SYED IDREES QUADRI | 30 | 17 | 56.67 |
| 19 | 20181EEE0071 | YAMAVARAM MADHU SUDHAN | 30 | 17 | 56.67 |
| 20 | 20181EEE0075 | T.POORNIMA | 30 | 24 | 80.00 |
| 21 | 20191LEE0009 | LOKESH M | 30 | 26 | 86.67 |
| 22 | 20191LEE0013 | NAGARAJU V | 30 | 24 | 80.00 |
| 23 | 20191EEE0003 | ANUSHA M JOLAD | 30 | 17 | 56.67 |

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| | | | | | |
|---|---|---|---|---|---|
| 24 | 20191EEE0023 | NAVYA N | 30 | 17 | 56.67 |
| 25 | 20191EEE0041 | SHAIK MUNEER | 30 | 19 | 63.33 |
| 26 | 20191LEE0004 | RAVI KUMAR K | 30 | 13 | 43.33 |
| 27 | 20171EEE0067 | SONIA G | 30 | 14 | 46.67 |
| **Signature of Course Instructor** | | | K. Sreekanth Reddy | | |

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# School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV003 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | MATLAB Programming and Simulink for Power Electronic converters | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. K Sreekanth Reddy | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV00489 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | 20171EEE0023 | JYOTHI T | SoE | 83.33 | 64 | Yes | |
| 2 | 20171EEE0034 | MD RASHIDUL ISLAM KHAN | SoE | 83.33 | 58 | Yes | |
| 3 | 20171EEE0041 | NAVEEN P | SoE | 93.33 | 62 | Yes | |
| 4 | 20171EEE0048 | HATEM ATA TAHER ABDULAZIZ ATA | SoE | 83.33 | 53 | Yes | |
| 5 | 20171EEE0056 | S HARIVIGNESH | SoE | 93.33 | 81 | Yes | |
| 6 | 20181LEE0007 | GANESH KUMAR SINGH | SoE | 46.67 | 20 | No | Not Eligible for Certificate |
| 7 | 20181LEE0017 | RAVANA K N | SoE | 80.00 | 52 | Yes | |
| 8 | 20181EEE0002 | ABHISHEK R BHARADWAJ | SoE | 80.00 | 57 | Yes | |
| 9 | 20181EEE0008 | B H LAVANYA | SoE | 96.67 | 67 | Yes | |
| 10 | 20181EEE0015 | FARHAN MUKHTIAR ABDUL Late | SoE | 43.33 | Ab | No | Not Eligible for Certificate |
| 11 | 20181EEE0020 | HARIKRISHN V | SoE | 93.33 | 60 | Yes | |
| 12 | 20181EEE0026 | KALYAN CH | SoE | 83.33 | 75 | Yes | |
| 13 | 20181EEE0036 | PAGADALA REVANTH NATH | SoE | 96.67 | 60 | Yes | |
| 14 | 20181EEE0042 | PRAJWAL S | SoE | 63.33 | 43 | No | Not Eligible for Certificate |
| 15 | 20181EEE0050 | SADIYA TAHERA | SoE | 93.33 | 54 | Yes | |
| 16 | 20181EEE0054 | SANJAY KUMAR S C | SoE | 76.67 | 63 | Yes | |
| 17 | 20181EEE0060 | SOUMYA T | SoE | 93.33 | 61 | Yes | |
| 18 | 20181EEE0066 | SYED IDREES QUADRI | SoE | 56.67 | 31 | No | Not Eligible for Certificate |

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|---|---|---|---|---|---|---|---|
| 19 | 20181EEE0071 | YAMAVARAM MADHU SUDHAN | SoE | 56.67 | 24 | No | Not Eligible for Certificate |
| 20 | 20181EEE0075 | T POORNIMA | SoE | 80.00 | 51 | Yes | |
| 21 | 20191LEE0009 | LOKESH M | SoE | 86.67 | 62 | Yes | |
| 22 | 20191LEE0013 | NAGARAJU V | SoE | 80.00 | 66 | Yes | |
| 23 | 20191EEE0003 | ANUSHA M JOLAD | SoE | 56.67 | 30 | No | Not Eligible for Certificate |
| 24 | 20191EEE0023 | NAVYA N | SoE | 56.67 | 25 | No | Not Eligible for Certificate |
| 25 | 20191EEE0041 | SHAIK MUNEER | SoE | 63.33 | 20 | No | Not Eligible for Certificate |
| 26 | 20191LEE0004 | RAVI KUMAR K | SoE | 43.33 | 10 | No | Not Eligible for Certificate |
| 27 | 20171EEE0067 | SONIA G | SoE | 46.67 | 25 | No | Not Eligible for Certificate |

**Name of Course Instructor :** Mr. K Sreekanth Reddy

**Employee ID of Course Instructor:** PUNIV00489

K. Sreekanth Reddy

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

## School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Odd Semester 2019-20

| | |
|---|---|
| **Course Code:** | EEEV005 |
| **Course Name:** | Auto CAD for Electrical Engineers |
| **Area of Specialization:** | Electrcal Engineering |
| **Course Description:** | This course contains a detailed explanation of AutoCAD Electrical tools and features. Every tool and feature is thoroughly explained with the help of examples. After going through this course, you will be able to create professional electrical control drawings with ease such as ladder diagrams, schematic drawings, panel drawings, parametric and nonparametric PLC modules, point-to-point wiring diagrams, report generation, creation of symbols, Circuit Builder, Terminal symbols, and so on. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. Explain all AutoCAD Electrical tools and features<br>CO.2. Develop professional electrical control drawings with ease.<br>CO.3. Create a Panel Drawings, Wiring Diagram and creation of symbol.<br>CO.4. Explain the various types of wire selection and PLC selection in CAD. |
| **Course Content:** | **Module No 1:** Basics Of Electrical Drawings: Introduction, Need of Drawings, Electrical Drawings, Common Symbols in Electrical Drawings, Wire and its Types, Labeling. [5- Hours]<br>**Module No 2:** Introduction to AutoCAD Electrical and Interface: Introduction, System Requirement, Starting AutoCAD Electrical/AutoCAD, Creating A New Drawing Document, Meaning of Default templates, Electrical Templates, Application Menu. Starting Drawing, Open Options, Opening Drawing File Save, Applying Password on File, Save As, Export, Publish, Print Drawing Tab Bar, Drawing Area, Command Window, Bottom Bar, Drafting Settings dialog box [8- Hours]<br>**Module No 3:** Project Management: Introduction, Project Management, Workflow in AutoCAD Electrical, Starting a New Project, Changing Properties of a project, Adding drawings in the project, Retagging and renumbering ladders in the drawings of project, Plotting/publishing project files, INSERTING COMPONENTS: Inserting Components using Icon menu, Inserting Components using Catalog Browser, Inserting Components using User Defined list, Inserting Components using Equipment list, Inserting Components using Panel list, Inserting Components using Terminal (Panel list), Pneumatic, Hydraulic, and P&ID components [9- Hours]<br>**Module No 4:** Wires, Circuits, and Ladders: Inserting Wires, Applying wire numbers, Inserting user defined circuits, Inserting ladders, Cable Markers, Circuit Builders. Plcs and Components: Introduction, Application of PLCs in manufacturing process, Inserting Parametric PLCs, Inserting PLCs (Full Unit), Inserting Connectors, Inserting Terminals. [8- Hours] |
| **Instructor In-charge:** | Mr. Ravi V Angadi |

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# School of Engineering
## Department of Electrical & Electronics Engineering
### AY 2019-20 (Odd Sem)
### Value added Course(VAC) Name and Code: Auto CAD for Electrical Engineers & EEEV005
### Name of the Instructor: Mr. Ravi V Angadi
## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE003 | ISMAIL ZAIN S A | 30 | 30 | 100.00 |
| 2 | 2016EEE008 | ARCHANA S S | 30 | 27 | 90.00 |
| 3 | 2016EEE010 | GAGAN R B | 30 | 26 | 86.67 |
| 4 | 2016EEE013 | BHARATH V | 30 | 26 | 86.67 |
| 5 | 2016EEE014 | ASHISH PANDIT R | 30 | 28 | 93.33 |
| 6 | 2016EEE015 | BALAJI R | 30 | 30 | 100.00 |
| 7 | 2016EEE018 | DHINU S | 30 | 25 | 83.33 |
| 8 | 2016EEE019 | ABHISHEK SANGOLI | 30 | 4 | 13.33 |
| 9 | 2016EEE022 | AKANKSHA PRAJAPATI | 30 | 30 | 100.00 |
| 10 | 2016EEE025 | ANAS SHAIKH MAHMOOD | 30 | 26 | 86.67 |
| 11 | 2016EEE026 | CHAGI ANIRUDH | 30 | 28 | 93.33 |
| 12 | 2016EEE034 | JASU AISHWARYA | 30 | 25 | 83.33 |
| 13 | 2016EEE035 | JERLIN JOY | 30 | 28 | 93.33 |
| 14 | 2017LEE005 | AMRUTHA | 30 | 28 | 93.33 |
| Signature of Course Instructor | | | | | |

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## School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV005 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | AutoCAD for Electrical Engineers | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. Ravi V Angadi | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01021 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
| 1 | 2016EEE003 | ISMAIL ZAIN S A | SoE | 100.00 | 56 | Yes | |
| 2 | 2016EEE008 | ARCHANA S S | SoE | 90.00 | 60 | Yes | |
| 3 | 2016EEE010 | GAGAN R B | SoE | 86.67 | 74 | Yes | |
| 4 | 2016EEE013 | BHARATH V | SoE | 86.67 | 63 | Yes | |
| 5 | 2016EEE014 | ASHISH PANDIT R | SoE | 93.33 | 78 | Yes | |
| 6 | 2016EEE015 | BALAJI R | SoE | 100.00 | 56 | Yes | |
| 7 | 2016EEE018 | DHINU S | SoE | 83.33 | 70 | Yes | |
| 8 | 2016EEE019 | ABHISHEK SANGOLI | SoE | 13.33 | Ab | No | Not Eligible for Certificate |
| 9 | 2016EEE022 | AKANKSHA PRAJAPATI | SoE | 100.00 | 80 | Yes | |
| 10 | 2016EEE025 | ANAS SHAIKH MAHMOOD | SoE | 86.67 | 56 | Yes | |
| 11 | 2016EEE026 | CHAGI ANIRUDH | SoE | 93.33 | 60 | Yes | |
| 12 | 2016EEE034 | JASU AISHWARYA | SoE | 83.33 | 75 | Yes | |
| 13 | 2016EEE035 | JERLIN JOY | SoE | 93.33 | 82 | Yes | |
| 14 | 2017LEE005 | AMRUTHA | SoE | 93.33 | 69 | Yes | |

**Name of Course Instructor :** Mr. Ravi V Angadi

**Employee ID of Course Instructor:** PUNIV01021

**Signature of Instructor-in-charge**

IQAC

**Signature of HoD**

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Odd Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV006 |
| **Course Name:** | Solar Cells - Past, Present and Future |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | This course introduces the innovation in solar technology which continued to improve its efficiency, size and cost by making it more pervasive throughout society compared with past. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. Describe the importance of conveters in Power Electronics<br>CO.2. Illustrate the power from solar cell and modelling a solar cell<br>CO.3. Calculate the efficiency and performance of solar cells<br>CO.4. Explain the types of solar cells |
| **Course Content:** | **Module No 1:** How do solar cells work, why do we need, and how can we measure their efficiency?. [5- Hours]<br>**Module No 2:** In this module we will introduce an equivalent circuit of a solar cell and use it to explain key concepts including short circuit current, open circuit voltage, parasitic resistances, and more. We will also talk about connected solar cells, and their behavior in shaded conditions. [8- Hours]<br>**Module No 3:** With a knowledge of the working principles of solar cells, we are now ready to apply this knowledge to understand why there are limits to the efficiency of solar cells. We will also briefly look into loss mechanisms that limit the practical efficiency. [9- Hours]<br>**Module No 4:** In our final module of this course we will look into a selection of solar cell technologies and its types and spend some time comparing all the different solar cell technologies. [8- Hours] |
| **Instructor In-charge:** | Ms. Ramya K |

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# School of Engineering
## Department of Electrical & Electronics Engineering
### AY 2019-20 (Odd Sem)
### Value added Course(VAC) Name and Code: Solar Cells - Past, Present and Future & EEEV006
### Name of the Instructor: Ms. Ramya K
## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE002 | SHIVASAGAR M | 30 | 22 | 73.33 |
| 2 | 2016EEE010 | GAGAN R B | 30 | 27 | 90.00 |
| 3 | 2016EEE025 | ANAS SHAIKH MAHMOOD | 30 | 16 | 53.33 |
| 4 | 2017LEE002 | SANJAY MALLIK | 30 | 26 | 86.67 |
| 5 | 20171EEE0007 | AKSHAY B | 30 | 27 | 90.00 |
| 6 | 20171EEE0008 | AKSHAY KUMAR J UPARKAR | 30 | 25 | 83.33 |
| 7 | 20171EEE0020 | HARPREET SINGH | 30 | 22 | 73.33 |
| 8 | 20171EEE0032 | MD AFFAN KHAN | 30 | 25 | 83.33 |
| 9 | 20171EEE0040 | NAVEEN KUMAR A | 30 | 23 | 76.67 |
| 10 | 20171EEE0052 | RAKSHITH T | 30 | 24 | 80.00 |
| 11 | 20171EEE0066 | SOPHIE SALINS | 30 | 27 | 90.00 |
| 12 | 20171EEE0070 | SYED MUIZZ AHMED | 30 | 27 | 90.00 |
| 13 | 20171EEE0077 | DUDEKULA BASHEER BABA | 30 | 24 | 80.00 |
| 14 | 20171EEE0082 | VARSHA A | 30 | 24 | 80.00 |
| 15 | 20181LEE0003 | HEMANTH KUMAR M L | 30 | 26 | 86.67 |
| 16 | 20181LEE0016 | SACHIN SANGAMESH DIVATAGI | 30 | 22 | 73.33 |
| 17 | 20181EEE0001 | ABHINAV SURESH | 30 | 24 | 80.00 |
| 18 | 20181EEE0007 | ARVINDGOWDA C N | 29 | 24 | 82.76 |
| 19 | 20181EEE0014 | DEEKSHITHA N | 30 | 23 | 76.67 |
| 20 | 20181EEE0019 | HANUMANTH KUMAR A | 29 | 25 | 86.21 |
| 21 | 20181EEE0025 | K SHRAVAN KUMAR | 30 | 24 | 80.00 |
| 22 | 20181EEE0034 | MOHAMMED NASIR | 30 | 24 | 80.00 |
| 23 | 20181EEE0038 | PALLAVI R | 29 | 22 | 75.86 |
| 24 | 20191LEE0001 | NIHARIKA H | 30 | 19 | 63.33 |
| 25 | 20191LEE0003 | BASAVAKUMAR S HIREHAL | 30 | 15 | 50.00 |
| 26 | 20191LEE0006 | DHEERAJ C | 30 | 20 | 66.67 |

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|---|---|---|---|---|---|
| 27 | 20181EEE0039 | PANDLA GURU SAI GOUD | 30 | 23 | 76.67 |
| 28 | 20181EEE0048 | RITHIK R K | 30 | 25 | 83.33 |
| 29 | 20181EEE0053 | SAMI UL ARFAATH | 30 | 23 | 76.67 |
| 30 | 20181EEE0059 | SONU B M | 30 | 24 | 80.00 |
| 31 | 20181EEE0064 | SURABHI M Y | 30 | 25 | 83.33 |
| 32 | 20181EEE0070 | WASEELKHAN WASEELKHAN | 30 | 16 | 53.33 |
| 33 | 20181EEE0074 | POOJA B S PATEL | 30 | 27 | 90.00 |
| 34 | 20191LEE0008 | PANCHENDRA H D | 30 | 16 | 53.33 |
| 35 | 20191LEE0012 | ARJUN CHHETRY | 30 | 26 | 86.67 |
| 36 | 20191EEE0013 | KOTHAKOTA JAI RAMAKRISHNA | 30 | 19 | 63.33 |
| 37 | 20191EEE0033 | ROSHAN S | 30 | 15 | 50.00 |
| 38 | 20191EEE0052 | YASHWANTH N | 30 | 20 | 66.67 |
| **Signature of Course Instructor** | | | | | |

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## School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV006 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Solar Cells - Past, Present and Future | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Ms. Ramya K | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01211 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
| 1 | 2016EEE002 | SHIVASAGAR M | SoE | 73.33 | 65 | Yes | |
| 2 | 2016EEE010 | GAGAN R B | SoE | 90.00 | 75 | Yes | |
| 3 | 2016EEE025 | ANAS SHAIKH MAHMOOD | SoE | 53.33 | Ab | NO | Not Eligible for Certificate |
| 4 | 2017LEE002 | SANJAY MALLIK | SoE | 86.67 | 77.5 | Yes | |
| 5 | 20171EEE0007 | AKSHAY B | SoE | 90.00 | 52.5 | Yes | |
| 6 | 20171EEE0008 | AKSHAY KUMAR J UPARKAR | SoE | 83.33 | 57.5 | Yes | |
| 7 | 20171EEE0020 | HARPREET SINGH | SoE | 73.33 | 60 | Yes | |
| 8 | 20171EEE0032 | MD AFFAN KHAN | SoE | 83.33 | 58 | Yes | |
| 9 | 20171EEE0040 | NAVEEN KUMAR A | SoE | 76.67 | 90 | Yes | |
| 10 | 20171EEE0052 | RAKSHITH T | SoE | 50.00 | Ab | NO | Not Eligible for Certificate |
| 11 | 20171EEE0066 | SOPHIE SALINS | SoE | 90.00 | 72 | Yes | |
| 12 | 20171EEE0070 | SYED MUIZZ AHMED | SoE | 90.00 | 60 | Yes | |
| 13 | 20171EEE0077 | DUDEKULA BASHEER BABA | SoE | 80.00 | 67 | Yes | |
| 14 | 20171EEE0082 | VARSHA A | SoE | 80.00 | 42.5 | Yes | |
| 15 | 20181EEE0003 | HEMANTH KUMAR M L | SoE | 86.67 | 69 | Yes | |
| 16 | 20181EEE0016 | SACHIN SANGAMESH DIVATAGI | SoE | 73.33 | 58 | Yes | |
| 17 | 20181EEE0001 | ABHINAV SURESH | SoE | 80.00 | 78 | Yes | |

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|---|---|---|---|---|---|---|---|
| 18 | 20181EEE0007 | ARVINDGOWDA C N | SoE | 62.758 62069 | Ab | NO | Not Eligible for Certificate |
| 19 | 20181EEE0014 | DEEKSHITHA N | SoE | 66.666 66667 | Ab | NO | Not Eligible for Certificate |
| 20 | 20181EEE0019 | HANUMANTH KUMAR A | SoE | 86.21 | 72.5 | Yes | |
| 21 | 20181EEE0025 | K SHRAVAN KUMAR | SoE | 80.00 | 79 | Yes | |
| 22 | 20181EEE0034 | MOHAMMED NASIR | SoE | 80.00 | 50 | Yes | |
| 23 | 20181EEE0038 | PALLAVI R | SoE | 75.86 | 71 | Yes | |
| 24 | 20191LEE0001 | NIHARIKA H | SoE | 63.33 | 71 | NO | Not Eligible for Certificate |
| 25 | 20191LEE0003 | BASAVAKUMAR S HIREHAL | SoE | 50.00 | 66 | NO | Not Eligible for Certificate |
| 26 | 20191LEE0006 | DHEERAJ C | SoE | 66.67 | 54 | NO | Not Eligible for Certificate |
| 27 | 20181EEE0039 | PANDLA GURU SAI GOUD | SoE | 76.67 | 65 | Yes | |
| 28 | 20181EEE0048 | RITHIK R K | SoE | 83.33 | 67 | Yes | |
| 29 | 20181EEE0053 | SAMI UL ARFAATH | SoE | 76.67 | 62 | Yes | |
| 30 | 20181EEE0059 | SONU B M | SoE | 80.00 | 70 | Yes | |
| 31 | 20181EEE0064 | SURABHI M Y | SoE | 83.33 | 72 | Yes | |
| 32 | 20181EEE0070 | WASEELKHAN WASEELKHAN | SoE | 53.33 | 65 | NO | Not Eligible for Certificate |
| 33 | 20181EEE0074 | POOJA B S PATEL | SoE | 90.00 | 69 | Yes | |
| 34 | 20191LEE0008 | PANCHENDRA H D | SoE | 53.33 | 67 | NO | Not Eligible for Certificate |
| 35 | 20191LEE0012 | ARJUN CHHETRY | SoE | 86.67 | 66 | Yes | |
| 36 | 20191EEE0013 | KOTHAKOTA JAI RAMAKRISHNA | SoE | 63.33 | 20 | NO | Not Eligible for Certificate |
| 37 | 20191EEE0033 | ROSHAN S | SoE | 50.00 | 25 | NO | Not Eligible for Certificate |
| 38 | 20191EEE0052 | YASHWANTH N | SoE | 66.67 | 28 | NO | Not Eligible for Certificate |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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PRESIDENCY UNIVERSITY Registrar BANGALORE

| | |
|---|---|
| **Name of Course Instructor :** | Ms. Ramya K |
| **Employee ID of Course Instructor:** | PUNIV01211 |

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Odd Semester 2019-2020

| | |
|---|---|
| **Course Code:** | **EEEV008** |
| **Course Name:** | Hybrid Energy Storage System |
| **Area of Specialization:** | Power and Energy System |
| **Course Description:** | This course introduces students to energy storage systems and provides a broad understanding and appreciation of the scientific principles that underpin the operation of such systems. The emphasis is on grid-scale (or utility-scale) energy storage as a means of addressing the intermittency of renewable energy components (e.g. solar or wind power systems) of modern electricity networks. Smaller energy storage systems are also discussed for benchmarking and comparisons. Topics covered include electrical, chemical, thermal, mechanical, electrochemical, thermochemical and thermomechanical energy storage systems as well as grid integration issues |
| **Course Outcome:** | **On successful completion of the course the students shall be able to:**<br>1. Discuss the scientific principles underpinning the operation of energy storage systems.<br>2. Assess the need for introducing energy storage within a closed energy system;<br>3. Suggest suitable methods and technologies for energy storage units in a given system;<br>4. Summarize the demand for further development, potential improvements and possibilities for innovative solutions in the energy storage subject field; |
| **Course Content:** | **Module No 1:** This course introduces students to energy storage systems and provides a broad understanding and appreciation of the scientific principles that underpin the operation of such systems. [8- Hours]<br>**Module No 2:** The emphasis is on grid-scale (or utility-scale) energy storage as a means of addressing the intermittency of renewable energy components (e.g. solar or wind power systems) of modern electricity networks.. [8- Hours]<br>**Module No 3:** Smaller energy storage systems are also discussed for benchmarking and comparisons. [8- Hours]<br>**Module No 4:** Topics covered include electrical, chemical, thermal, mechanical, electrochemical, thermochemical and thermomechanical energy storage systems as well as grid integration issues.<br>[6- Hours] |
| **Instructor In-charge:** | Mr. Nageswara Rao A |

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**Department of Electrical & Electronics Engineering**
**AY 2019-20 (Odd Sem)**
**Value added Course(VAC) Name and Code: Hybrid Energy Storage System & EEEV008**
**Name of the Instructor: Mr. Nageswara Rao A**
**Attendance Sheet**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE003 | ISMAIL ZAIN S A | 30 | 24 | 80.00 |
| 2 | 2016EEE011 | SHALIZA KAUSHAL | 30 | 24 | 80.00 |
| 3 | 2016EEE018 | DHINU S | 30 | 26 | 86.67 |
| 4 | 2016EEE026 | CHAGI ANIRUDH | 30 | 22 | 73.33 |
| 5 | 2016EEE036 | NITISH K A | 30 | 24 | 80.00 |
| 6 | 2017LEE003 | SUNNY KUMAR | 30 | 13 | 43.33 |
| 7 | 20171EEE0009 | ANUSHA DESHPANDE S | 30 | 23 | 76.67 |
| 8 | 20171EEE0046 | PATAN ISMAIL ALLI KHAN | 29 | 25 | 86.21 |
| 9 | 2016EEE005 | KANTESH BASVANTAPPA OLEKAR | 30 | 24 | 80.00 |
| 10 | 2016EEE013 | BHARATH V | 30 | 24 | 80.00 |
| 11 | 2016EEE020 | KEERTHI P | 29 | 22 | 75.86 |
| 12 | 2016EEE028 | MAHANTESH M | 30 | 19 | 63.33 |
| 13 | 20171EEE0002 | ABHISHEK B N | 30 | 15 | 50.00 |
| 14 | 20171EEE0013 | BISHWAKARMA KUMAR | 30 | 20 | 66.67 |
| 15 | 20191EEE0004 | ARUN S | 30 | 19 | 63.33 |
| 16 | 20191EEE0018 | MOHAMMED NOORUDDIN ASRAR | 30 | 15 | 50 |
| 17 | 20191EEE0024 | NAVYA SHREE M | 30 | 20 | 66.67 |
| 18 | 20191EEE0038 | SANJAY P | 30 | 20 | 66.67 |
| 19 | 20191EEE0042 | SHARANYA P C | 30 | 19 | 63.33 |
| 20 | 20171EEE0022 | HUMAIRA TARANNUM | 30 | 15 | 50 |
| | **Signature of Course Instructor** | | | | |

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**School of Engineering**
**Department of Electrical & Electronics Engineering**
**Value Added Course Marksheet**

| Course | EEEV008 | Academic Year : | 2019-20 |
|---|---|---|---|

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| Code : | | | | | | | |
|---|---|---|---|---|---|---|---|
| Course Name : | Hybrid Energy Storage System | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. Nageswara Rao A | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01282 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
| 1 | 2016EEE003 | ISMAIL ZAIN S A | SoE | 60.00 | 88 | Yes | Eligible for Certificate |
| 2 | 2016EEE011 | SHALIZA KAUSHAL | SoE | 73.33 | 76 | Yes | Eligible for Certificate |
| 3 | 2016EEE018 | DHINU S | SoE | 73.33 | 92 | Yes | Eligible for Certificate |
| 4 | 2016EEE026 | CHAGI ANIRUDH | SoE | 73.33 | 90 | Yes | Eligible for Certificate |
| 5 | 2016EEE036 | NITISH K A | SoE | 73.33 | 81 | Yes | Eligible for Certificate |
| 6 | 2017LEE003 | SUNNY KUMAR | SoE | 20.00 | 43 | No | Not Eligible for Certificate |
| 7 | 20171EEE0009 | ANUSHA DESHPANDE S | SoE | 13.33 | 95 | Yes | Eligible for Certificate |
| 8 | 20171EEE0046 | PATAN ISMAIL ALLI KHAN | SoE | 86.67 | 92 | Yes | Eligible for Certificate |
| 9 | 2016EEE005 | KANTESH BASVANTAPPA OLEKAR | SoE | 73.33 | 78 | Yes | Eligible for Certificate |
| 10 | 2016EEE013 | BHARATH V | SoE | 86.67 | 80 | Yes | Eligible for Certificate |
| 11 | 2016EEE020 | KEERTHI P | SoE | 86.67 | 82 | Yes | Eligible for Certificate |
| 12 | 2016EEE028 | MAHANTESH M | SoE | 93.33 | 82 | Yes | Eligible for Certificate |
| 13 | 20171EEE0002 | ABHISHEK B N | SoE | 86.67 | 83 | Yes | Eligible for Certificate |
| 14 | 20171EEE0013 | BISHWAKARMA KUMAR | SoE | 73.33 | 45 | No | Not Eligible for Certificate |
| 15 | 20191EEE0004 | ARUN S | SoE | 63.33 | 39 | No | Not Eligible for |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | Certificate |
| 16 | 20191EEE0018 | MOHAMMED NOORUDDIN ASRAR | SoE | 50 | 25 | No | Not Eligible for Certificate |
| 17 | 20191EEE0024 | NAVYA SHREE M | SoE | 66.67 | 32 | No | Not Eligible for Certificate |
| 18 | 20191EEE0038 | SANJAY P | SoE | 66.67 | 20 | No | Not Eligible for Certificate |
| 19 | 20191EEE0042 | SHARANYA P C | SoE | 63.33 | 27 | No | Not Eligible for Certificate |
| 20 | 20171EEE0022 | HUMAIRA TARANNUM | SoE | 50 | 10 | No | Not Eligible for Certificate |

**Name of Course Instructor:Mr.Nageswa Rao A**

**Employee ID of Course Instructor:** PUNIV01282

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Kajanahalli, Yelahanka, Bengaluru-64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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PRESIDENCY UNIVERSITY Registrar BANGALORE

# PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

## School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Odd Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV009 |
| **Course Name:** | Fundamentals of Electric and Hybrid Electric Vehicles |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | The course will be a first level course on electric and hybris electric vehicles. Students will be able to understand the operation of Electric Vehicles. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. Explain the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamentals<br>CO.2. Discuss the fundamentals of vehicle dynamics<br>CO.3. Analyse the use of different powere electronic devices and electrical machines in hybrid electric vehicles<br>CO.4. Discuss different energy storage technologies used for hybrid electric vehicles |
| **Course Content:** | **Module No 1: Different types of Electric** vehicles Types of EVs, Hybrid Electric Drive-train, Tractive effort in normal driving, Energy consumption Concept of Hybrid Electric Drive Trains, Architecture of Hybrid Electric Drive Trains, Series Hybrid Electric Drive Trains, Parallel hybrid electric drive trains, [10- Hours]<br>**Module No 2: vehicle dynamics Electric Propulsion** unit, Configuration and control of DC Motor drives, Induction Motor drives, Permanent Magnet Motor drives, switched reluctance motor, Introduction to Energy Storage. [10-Hours]<br>**Module No 3**: **Requirements in Hybrid and Electric Vehicles** Battery based energy storage and its analysis, Fuel Cell based energy storage and its analysis, Hybridization of different energy storage devices. Sizing the drive system, Design of Hybrid Electric Vehicle and Plug-in Electric Vehicle, Energy Management Strategies, Automotive networking and communication, EV and EV charging standards, V2G, G2V, V2B, V2H [10- Hours] |
| **Instructor In-charge:** | Ms. Ragasudha C P |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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**School of Engineering**
**Department of Electrical & Electronics Engineering**
**AY 2019-20 (Odd Sem)**
**Value added Course(VAC) Name and Code: Fundamentals of Electric and Hybrid Electric Vehicles & EEEV009**
**Name of the Instructor: Ms. Ragasudha C P**

**Attendance Sheet**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE009 | RAJA R | 30 | 22 | 73.33 |
| 2 | 2016EEE017 | MOHAMMED TAUSIF T L | 30 | 27 | 90.00 |
| 3 | 2016EEE024 | MADANKUMAR S | 30 | 24 | 80.00 |
| 4 | 2016EEE035 | JERLIN JOY | 30 | 26 | 86.67 |
| 5 | 20171EEE0005 | AISHWARYA S | 30 | 27 | 90.00 |
| 6 | 20171EEE0017 | EPHNOTH M | 30 | 25 | 83.33 |
| 8 | 20171EEE0027 | KUSUMA A | 30 | 22 | 73.33 |
| 9 | 20171EEE0037 | MOHAMMED SALEHA RAFI | 30 | 25 | 83.33 |
| 10 | 20171EEE0038 | MS SANJAY | 30 | 23 | 76.67 |
| 11 | 20171EEE0051 | RAKESH G | 30 | 24 | 80.00 |
| 12 | 20171EEE0064 | SONAM PAL A | 30 | 27 | 90.00 |
| 13 | 20171EEE0069 | SURAJ J R | 30 | 27 | 90.00 |
| 14 | 20171EEE0076 | YUKESH M | 30 | 16 | 53.33 |
| 15 | 20191EEE0005 | ASFIYA AAZIM | 30 | 12 | 40.00 |
| 16 | 20191EEE0025 | P ABHINAV | 30 | 12 | 40.00 |
| 17 | 20191EEE0044 | SHWETHA N | 30 | 13 | 43.33 |
| 18 | 20171EEE0010 | ARJUN SINGH KUSHWAH | 30 | 12 | 40.00 |

**Signature of Course Instructor**

REGISTRAR

**School of Engineering**

**Department of Electrical & Electronics Engineering**

**Value Added Course Marksheet**

| Course Code : | EEEV009 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Fundamentals of Electric and Hybrid Electric Vehicles | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Ms. Ragasudha C P | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01324 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
| 1 | 2016EEE009 | RAJA R | SoE | 73.33 | 87 | Yes | |
| 2 | 2016EEE017 | MOHAMMED TAUSIF T L | SoE | 90.00 | 92 | Yes | |
| 3 | 2016EEE024 | MADANKUMAR S | SoE | 80.00 | 78 | Yes | |
| 4 | 2016EEE035 | JERLIN JOY | SoE | 86.67 | 85 | Yes | |
| 5 | 20171EEE0005 | AISHWARYA S | SoE | 90.00 | 96 | Yes | |
| 6 | 20171EEE0017 | EPHNOTH M | SoE | 83.33 | 86 | Yes | |
| 7 | 20171EEE0027 | KUSUMA A | SoE | 73.33 | 87 | Yes | |
| 8 | 20171EEE0037 | MOHAMMED SALEHA RAFI | SoE | 83.33 | 98 | Yes | |
| 9 | 20171EEE0038 | MS SANJAY | SoE | 76.67 | 85 | Yes | |
| 10 | 20171EEE0051 | RAKESH G | SoE | 80.00 | 67 | Yes | |
| 11 | 20171EEE0064 | SONAM PAL A | SoE | 90.00 | 87 | Yes | |
| 12 | 20171EEE0069 | SURAJ J R | SoE | 90.00 | 94 | Yes | |
| 13 | 20171EEE0076 | YUKESH M | SoE | 53.33 | AB | No | Shortage of attendance & Absent in Test |
| 14 | 20171EEE0081 | SYED FARDEEN | SoE | 80.00 | 95 | Yes | |
| 15 | 20191EEE0005 | ASFIYA AAZIM | SoE | 53.33 | 20 | No | Not Eligible for Certificate |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16 | 20191EEE0025 | P ABHINAV | SoE | 50.33 | 15 | No | Not Eligible for Certificate |
| 17 | 20191EEE0044 | SHWETHA N | SoE | 45.33 | 25 | No | Not Eligible for Certificate |
| 18 | 20171EEE0010 | ARJUN SINGH KUSHWAH | SoE | 40.33 | 30 | No | Not Eligible for Certificate |

**Name of Course Instructor :** **Ms. Ragasudha C P**

**Employee ID of Course Instructor:** PUNIV01324

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru-64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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**School of Engineering**

**Department of Electrical & Electronics Engineering**

**Value Added Course offered during the Odd Semester AY 2019-20**

| | |
|---|---|
| **Course Code:** | EEEV010 |
| **Course Name:** | Pulse Width Modulation for Multilevel Converters |
| **Area of Specialization:** | Power Electronics |
| **Course Description:** | The course is a tour through the fundamental disciplines including Pulse width Modulation and its importance in power electronic converters. At the end of the course you will have gained a fundamental understanding of the field. This will allow you to identify the most interesting or relevant aspects to be pursued in your future studies or in your professional career. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>**01** Describe the importance of Multilevel conveters in Power Electronics<br>**02** Discuss the generation of PWMs.<br>**03** Explain the types of pulse width modulation techniques<br>**04** Analyse the performance of differenct PWMs. |
| **Course Content:** | **Module 1:** Introduction to Multilevel ConvertersOverview of power electronics and its applicationsIntroduction to multilevel converters and their advantagesTypes of multilevel converters (Diode-Clamped, Flying Capacitor, Cascaded H-Bridge, etc.)Comparison between conventional two-level converters and multilevel converters [10 Hours]<br>**Module 2:** Basics of Pulse Width Modulation (PWM), Principles of Pulse Width Modulation, Modulation index and its significance, PWM techniques (Sinusoidal PWM, Space Vector PWM, Carrier-Based PWM), Performance metrics of PWM techniques (THD, Switching frequency, etc.) [10 Hours]<br>**Module 3:** Multilevel Inverter Topologies, Diode-Clamped Multilevel Inverter (Neutral Point Clamped), Flying Capacitor Multilevel Inverter, Cascaded H-Bridge Multilevel Inverter, Comparison of various multilevel inverter topologies [10 Hours] |
| **Instructor In-charge:** | Dr. Snehaprabha T.V |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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PRESIDENCY UNIVERSITY Registrar BANGALORE

**School of Engineering**

**Department of Electrical & Electronics Engineering**

**AY 2019-20 (Odd Sem)**

**Value added Course(VAC) Name and Code: Pulse Width Modulation for Multilevel Converters & EEEV010**

**Name of the Instructor: Dr. Snehaprabha T.V**

**Attendance Sheet**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE002 | SHIVASAGAR M | 30 | 23 | 77 |
| 2 | 2016EEE010 | GAGAN R B | 30 | 21 | 70 |
| 3 | 2016EEE025 | ANAS SHAIKH MAHMOOD | 30 | 27 | 90 |
| 4 | 2017LEE002 | SANJAY MALLIK | 30 | 23 | 77 |
| 5 | 20171EEE0007 | AKSHAY B | 30 | 26 | 87 |
| 6 | 20171EEE0008 | AKSHAY KUMAR J UPARKAR | 30 | 21 | 70 |
| 7 | 20171EEE0020 | HARPREET SINGH | 30 | 26 | 87 |
| 8 | 20171EEE0032 | MD AFFAN KHAN | 30 | 20 | 67 |
| 9 | 20171EEE0040 | NAVEEN KUMAR A | 30 | 30 | 100 |
| 10 | 20171EEE0052 | RAKSHITH T | 30 | 21 | 70 |
| 11 | 20171EEE0066 | SOPHIE SALINS | 30 | 28 | 93 |
| 12 | 20171EEE0070 | SYED MUIZZ AHMED | 30 | 23 | 77 |
| 13 | 20171EEE0077 | DUDEKULA BASHEER BABA | 30 | 25 | 83 |
| 14 | 20171EEE0082 | VARSHA A | 30 | 25 | 83 |
| 15 | 20181LEE0003 | HEMANTH KUMAR M L | 30 | 26 | 87 |
| 16 | 20181LEE0016 | SACHIN SANGAMESH DIVATAGI | 30 | 23 | 77 |
| 17 | 20181EEE0001 | ABHINAV SURESH | 30 | 27 | 90 |
| 18 | 20181EEE0007 | ARVINDGOWDA C N | 30 | 27 | 90 |
| 19 | 20181EEE0014 | DEEKSHITHA N | 30 | 24 | 80 |
| 20 | 20181EEE0019 | HANUMANTH KUMAR A | 30 | 24 | 80 |
| 21 | 20181EEE0025 | K SHRAVAN KUMAR | 30 | 25 | 83 |
| 22 | 20181EEE0034 | MOHAMMED NASIR | 30 | 24 | 80 |
| 23 | 20181EEE0038 | PALLAVI R | 30 | 27 | 90 |
| 24 | 20191LEE0001 | NIHARIKA H | 30 | 28 | 93 |
| 25 | 20191LEE0003 | BASAVAKUMAR S HIREHAL | 30 | 24 | 80 |
| 26 | 20191LEE0006 | DHEERAJ C | 30 | 26 | 87 |

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| | | | | | |
|---|---|---|---|---|---|
| **27** | 20181EEE0039 | PANDLA GURU SAI GOUD | 30 | 28 | 93 |
| **28** | 20181EEE0048 | RITHIK R K | 30 | 27 | 90 |
| **29** | 20181EEE0053 | SAMI UL ARFAATH | 30 | 27 | 90 |
| **30** | 20181EEE0059 | SONU B M | 30 | 24 | 80 |
| **31** | 20181EEE0064 | SURABHI M Y | 30 | 26 | 87 |
| **32** | 20181EEE0070 | WASEELKHAN WASEELKHAN | 30 | 26 | 87 |
| **33** | 20181EEE0074 | POOJA B S PATEL | 30 | 26 | 87 |
| **34** | 20191LEE0008 | PANCHENDRA H D | 30 | 26 | 87 |
| **35** | 20191LEE0012 | ARJUN CHHETRY | 30 | 22 | 73 |
| **36** | 20191EEE0014 | KRUTHIKA R | 30 | 16 | 55 |
| **37** | 20191EEE0034 | S R METHESWAR | 30 | 14 | 48 |
| **38** | 20191EEE0053 | RAHUL RAMESH PAMMAR | 30 | 14 | 48 |
| **39** | 20191EEE0060 | NAVEEN NELSON W | 30 | 21 | 70 |
| **Signature of Course Instructor** | | | | | |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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**School of Engineering**

**Department of Electrical & Electronics Engineering**

**Value Added Course Marksheet**

| Course Code : | EEEV010 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Pulse Width Modulation for Multilevel Converters | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Dr. Snehaprabha T.V | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV00488 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2016EEE002 | SHIVASAGAR M | SoE | 77 | 69 | Y | |
| 2 | 2016EEE010 | GAGAN R B | SoE | 70 | 63 | Y | |
| 3 | 2016EEE025 | ANAS SHAIKH MAHMOOD | SoE | 90 | 81 | Y | |
| 4 | 2017LEE002 | SANJAY MALLIK | SoE | 77 | 69 | Y | |
| 5 | 20171EEE0007 | AKSHAY B | SoE | 87 | 78 | Y | |
| 6 | 20171EEE0008 | AKSHAY KUMAR J UPARKAR | SoE | 70 | 63 | N | Not Eligible for certificatae |
| 7 | 20171EEE0020 | HARPREET SINGH | SoE | 87 | 78 | Y | |
| 8 | 20171EEE0032 | MD AFFAN KHAN | SoE | 67 | 60 | Y | |
| 9 | 20171EEE0040 | NAVEEN KUMAR A | SoE | 100 | 90 | Y | |
| 10 | 20171EEE0052 | RAKSHITH T | SoE | 70 | 63 | N | Not Eligible for certificatae |
| 11 | 20171EEE0066 | SOPHIE SALINS | SoE | 93 | 84 | Y | |
| 12 | 20171EEE0070 | SYED MUIZZ AHMED | SoE | 77 | 69 | Y | |
| 13 | 20171EEE0077 | DUDEKULA BASHEER BABA | SoE | 83 | 75 | Y | |
| 14 | 20171EEE0082 | VARSHA A | SoE | 83 | 75 | Y | |
| 15 | 20181EEE0003 | HEMANTH KUMAR M L | SoE | 87 | 78 | Y | |
| 16 | 20181EEE0016 | SACHIN SANGAMESH DIVATAGI | SoE | 77 | 69 | Y | |
| 17 | 20181EEE0001 | ABHINAV SURESH | SoE | 90 | 81 | Y | |
| 18 | 20181EEE0007 | ARVINDGOWDA C N | SoE | 90 | 81 | Y | |

REGISTRAR

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 19 | 20181EEE0014 | DEEKSHITHA N | SoE | 80 | 72 | Y | |
| 20 | 20181EEE0019 | HANUMANTH KUMAR A | SoE | 80 | 72 | Y | |
| 21 | 20181EEE0025 | K SHRAVAN KUMAR | SoE | 83 | 75 | Y | |
| 22 | 20181EEE0034 | MOHAMMED NASIR | SoE | 80 | 72 | Y | |
| 23 | 20181EEE0038 | PALLAVI R | SoE | 90 | 81 | Y | |
| 24 | 20191LEE0001 | NIHARIKA H | SoE | 93 | 84 | Y | |
| 25 | 20191LEE0003 | BASAVAKUMAR S HIREHAL | SoE | 80 | 72 | Y | |
| 26 | 20191LEE0006 | DHEERAJ C | SoE | 87 | 78 | Y | |
| 27 | 20181EEE0039 | PANDLA GURU SAI GOUD | SoE | 93 | 84 | Y | |
| 28 | 20181EEE0048 | RITHIK R K | SoE | 90 | 81 | Y | |
| 29 | 20181EEE0053 | SAMI UL ARFAATH | SoE | 90 | 81 | Y | |
| 30 | 20181EEE0059 | SONU B M | SoE | 80 | 72 | Y | |
| 31 | 20181EEE0064 | SURABHI M Y | SoE | 87 | 78 | Y | |
| 32 | 20181EEE0070 | WASEELKHAN WASEELKHAN | SoE | 87 | 78 | Y | |
| 33 | 20181EEE0074 | POOJA B S PATEL | SoE | 87 | 78 | Y | |
| 34 | 20191LEE0008 | PANCHENDRA H D | SoE | 87 | 78 | Y | |
| 35 | 20191LEE0012 | ARJUN CHHETRY | SoE | 73 | 66 | N | Not Eligible for certificatae |
| 36 | 20191EEE0014 | KRUTHIKA R | SoE | 70 | 63 | N | Not Eligible for certificatae |
| 37 | 20191EEE0034 | S R METHESWAR | SoE | 73 | 66 | N | Not Eligible for certificatae |
| 38 | 20191EEE0053 | RAHUL RAMESH PAMMAR | SoE | 70 | 63 | N | Not Eligible for certificatae |
| 39 | 20191EEE0060 | NAVEEN NELSON W | SoE | 70 | 63 | N | Not Eligible for certificatae |

**Name of Course Instructor :** Dr. Snehaprabha T.V

**Employee ID of Course Instructor:** PUNIV00488

PRESIDENCY UNIVERSITY IQAC BANGALORE

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru

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GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

# PRESIDENCY UNIVERSITY

(Private University Estd. in Karnataka State by Act No. 41 of 2013)

## PU-SoE-EEE 2019-20

Ref. No. PU/ SoE/ EEE /2019-20/VAC/CIR/02 11-05-2020

## CIRCULAR

**Sub: VALUE ADDED COURSES – OFFERED BY THE DEPT. OF EEE**

This is to inform all the students of the 4th, 6th, and 8th semesters of B. Tech (EEE), the following value-added courses will be offered by the department during the AY 2019-20 (Winter Semester):

| Sl. No | Course Code | Course Name | Name of the Faculty |
|---|---|---|---|
| 1. | EEEV001 | Introduction to Multilevel Inverters | Dr. Snehaprabha T V & Mr. Sarin M V |
| 2. | EEEV002 | Renewable Energy and Green Building Entrepreneurship | Dr. V Joshi Manohar |
| 3. | EEEV003 | MATLAB Programming and Simulink for Power Electronic converters | Mr.K.Sreekanth Reddy |
| 4. | EEEV005 | AutoCAD for Electrical Engineers | Mr. Ravi V Angadi |
| 5. | EEEV006 | Solar Cells - Past, Present and Future | Ms.Ramya K |
| 6. | EEEV008 | Hybrid Energy Storage System | Mr. Nageswara Rao A |
| 7. | EEEV009 | Fundamentals of Electric and Hybrid Electric Vehicles | Ms. Ragasudha C P |
| 8. | EEEV010 | Pulse Width Modulation For Multilevel Converter | Mr. Sarin M V |

All are informed to contact the respective course ICs of VAC based on your choice. The duration of the course is 30 hours. All the students are encouraged to attend VAC as per the course instructor's schedule. A certificate will be awarded after successful completion of the course.

PRESIDENCY UNIVERSITY IQAC BANGALORE

Dr. Shilpa Mehta
HOD - EEE

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PRESIDENCY UNIVERSITY Registrar BANGALORE

# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Even Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV001 |
| **Course Name:** | Introduction to Multilevel Inverters |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | This course contains a detailed explanation of Basics of Inverters, Principles of operation of single-phase and three-phase DC-AC inverters, Space phasors and alpha-beta reference frame, Space vector modulation for three-phase inverters, Current control mode of inverters. Modeling and Control of Grid-Connected Inverters. Modeling of three-phase grid-connected inverters, Closed-loop control of<br>three-phase inverters. Multilevel Converters Basics of multilevel converters, Various multilevel converter topologies, Modular Multilevel Converters. Basics of cascaded half-bridge and full-bridge modules, Control aspects of the modular multilevel converter, Circulating current control. Control of Grid-Connected Modular Multilevel Converters Control of grid-connected modular multilevel converter, Control of the MMC for High-Voltage DC (HVDC) transmission |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. The basics of operation and modulation techniques of various DC-AC voltage-sourced<br>converters (VSCs), e.g., the conventional two-level converter and<br>various multi-level VSCs.<br>CO.2. How to develop closed-loop control strategies for proper operation of various<br>grid-connected VSCs under both steady-state and transient operating conditions<br>CO.3. Ways to recognize the salient features of the Modular Multilevel Converter (MMC) as compared with other multilevel VSCs.<br>CO.4. The operational/control challenges associated with the MMC |
| **Course Content:** | **Module 1:** Basics of Inverters<br>Principles of operation of single-phase and three-phase DC-AC inverters, Space phasors and alpha-beta reference frame, Space vector modulation for three-phase inverters, Current control mode of inverters<br>**Module 2:** Modeling and Control of Grid-Connected Inverters<br>Modeling of three-phase grid-connected inverters, Closed-loop control of three-phase inverters<br>**Module 3:** Multilevel Converters<br>Basics of multilevel converters, Various multilevel converter topologies<br>**Module 4:** Modular Multilevel Converters<br>Basics of cascaded half-bridge and full-bridge modules, Control aspects of the modular multilevel converter, Circulating current control<br>**Module 5:** Control of Grid-Connected Modular Multilevel Converters<br>Control of grid-connected modular multilevel converter, Control of the MMC for High-Voltage DC (HVDC) transmission |
| **Instructor In-charge:** | Mr. Sarin MV, Dr. Sneha Prabha T V |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# School of Engineering
## Department of Electrical & Electronics Engineering
### AY 2019-20 (Even Sem)
### Value added Course(VAC) Name and Code: Introduction to Multilevel Inverters & EEEV001
### Name of the Instructor: Mr. Sarin MV, Dr. Sneha Prabha T V
## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE006 | TALANK S | 30 | 22 | 73 |
| 2 | 2016EEE014 | ASHISH PANDIT R | 30 | 20 | 67 |
| 3 | 2016EEE021 | RANGASWAMY H | 30 | 26 | 87 |
| 4 | 2016EEE031 | MERIGA MAMATHA | 30 | 22 | 73 |
| 5 | 20171EEE0003 | ADIL JEBRAN | 30 | 25 | 83 |
| 6 | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | 30 | 20 | 67 |
| 7 | 20171EEE0024 | KEERTHANA D | 30 | 25 | 83 |
| 8 | 20171EEE0035 | MELVIN MOSES YOUNG | 30 | 19 | 63 |
| 9 | 20171EEE0042 | NEERUGATTI SUNIL | 30 | 29 | 97 |
| 10 | 20171EEE0049 | PUNEETH KUMAR C | 30 | 20 | 67 |
| 11 | 20171EEE0057 | S SHALINI | 30 | 27 | 90 |
| 12 | 20181LEE0010 | CHENTHOTI BHANUPRAKASH | 30 | 22 | 73 |
| 13 | 20181LEE0018 | KAVYA M | 30 | 24 | 80 |
| 14 | 20181EEE0004 | AMULYA A PUROHIT | 30 | 24 | 80 |
| 15 | 20181EEE0010 | BATHALA PRASHANTH | 30 | 25 | 83 |
| 16 | 20181EEE0016 | G SAIKUMAR | 30 | 22 | 73 |
| 17 | 20181EEE0021 | JAHNAVI J P | 30 | 26 | 87 |
| 18 | 20181EEE0028 | KESHAV GANESH | 30 | 26 | 87 |
| 19 | 20181EEE0037 | PALLA REDDAIAH | 30 | 23 | 77 |
| 20 | 20181EEE0044 | PREETHAM HIMAKAR | 30 | 23 | 77 |
| 21 | 20181EEE0055 | SATISH KUMAR | 30 | 24 | 80 |
| 22 | 20181EEE0067 | TEJAS GOWDA M | 30 | 23 | 77 |
| 23 | 20191EEE0015 | MANDADI KARTHIKEYAN REDDY | 30 | 11 | 36 |
| 24 | 20191EEE0035 | SAGAR B | 30 | 8 | 26 |
| 25 | 20191EEE0057 | ZAID AHMED ZAUED HAMADAH | 30 | 14 | 46 |

**Signature of Course Instructor**

REGISTRAR

# School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV001 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Introduction to Multilevel Inverters | | Semester : | | | Even Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. Sarin MV, Dr. Sneha Prabha T V | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01347 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
| 1 | 2016EEE006 | TALANK S | SoE | 73 | 67 | N0 | Not Eligible for Certificate |
| 2 | 2016EEE014 | ASHISH PANDIT R | SoE | 67 | 61 | N0 | Not Eligible for Certificate |
| 3 | 2016EEE021 | RANGASWAMY H | SoE | 87 | 79 | Yes | |
| 4 | 2016EEE031 | MERIGA MAMATHA | SoE | 73 | 67 | N0 | Not Eligible for Certificate |
| 5 | 20171EEE0003 | ADIL JEBRAN | SoE | 83 | 76 | Yes | |
| 6 | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | SoE | 67 | 61 | N0 | Not Eligible for Certificate |
| 7 | 20171EEE0024 | KEERTHANA D | SoE | 83 | 76 | Yes | |
| 8 | 20171EEE0035 | MELVIN MOSES YOUNG | SoE | 63 | 58 | N0 | Not Eligible for Certificate |
| 9 | 20171EEE0042 | NEERUGATTI SUNIL | SoE | 97 | 88 | Yes | |
| 10 | 20171EEE0049 | PUNEETH KUMAR C | SoE | 67 | 61 | N0 | Not Eligible for Certificate |
| 11 | 20171EEE0057 | S SHALINI | SoE | 90 | 82 | Yes | |
| 12 | 20181LEE0010 | CHENTHOTI BHANUPRAKASH | SoE | 73 | 67 | N0 | Not Eligible for Certificate |
| 13 | 20181LEE0018 | KAVYA M | SoE | 80 | 73 | Yes | |
| 14 | 20181EEE0004 | AMULYA A PUROHIT | SoE | 80 | 73 | Yes | |
| 15 | 20181EEE0010 | BATHALA PRASHANTH | SoE | 83 | 76 | Y | |
| 16 | 20181EEE0016 | G SAIKUMAR | SoE | 73 | 67 | N0 | Not Eligible for Certificate |
| 17 | 20181EEE0021 | JAHNAVI J P | SoE | 87 | 79 | Yes | |
| 18 | 20181EEE0028 | KESHAV GANESH | SoE | 87 | 79 | Yes | |
| 19 | 20181EEE0037 | PALLA REDDAIAH | SoE | 77 | 70 | Yes | |
| 20 | 20181EEE0044 | PREETHAM HIMAKAR | SoE | 77 | 70 | Yes | |

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|---|---|---|---|---|---|---|---|
| **21** | 20181EEE0055 | SATISH KUMAR | SoE | 80 | 73 | Yes | |
| **22** | 20181EEE0067 | TEJAS GOWDA M | SoE | 77 | 70 | Yes | |
| **23** | 20191EEE0015 | MANDADI KARTHIKEYAN REDDY | SoE | 36 | 67 | N0 | Not Eligible for Certificate |
| **24** | 20191EEE0035 | SAGAR B | SoE | 26 | 61 | N0 | Not Eligible for Certificate |
| **25** | 20191EEE0057 | ZAID AHMED ZAUED HAMADAH | SoE | 46 | 67 | N0 | Not Eligible for Certificate |

**Name of Course Instructor :** Mr. Sarin MV, Dr. Sneha Prabha T V

**Employee ID of Course Instructor:** PUNIV01347

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Kajarukunte, Yelahanka, Bengaluru -64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

## Department of Electrical & Electronics Engineering

### Value Added Courses to be offered during the EVEN Semester Break 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV002 |
| **Course Name:** | Renewable Energy and green building Entreprenuership |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | This course explains various business opportunities in renewable energy and green building. This course presents the significant growth in the renewable energy and green building sectors, challenges and criticisms of both sectors, along with counterpoints and solutions. It also presents the road map for entrepreneurship |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>1. List out the renewable energy sources<br>2. Describe the concept of green building<br>3. Explain the process of the bussiness model<br>4. Develop a project using real time data |
| **Course Content:** | **Module No 1:** Introduction to Green Building: Reviews of various renewable energy sources and the concept of green building, [8- Hours]<br>**Module No 2:** Start Ups in opportunities renewable energy sector and case study of solar plant **start up.** Take real world first steps towards launching a new business or corporate initiative [10 Hours]<br>**Module No 3:** Identification of any two problems with either renewable energy or green building products or services. - Plan for engaging with investors who might finance a new business[12 Hours] |
| **Instructor In-charge:** | Dr Joshi Manohar V |

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# Presidency University, Bengaluru

## Department of Electrical and Electronics Engineering

## School of Engineering

**VAC DETAILS**
**Total number of hours:30**
**AY 2019-20 Even Semester**
**Value added Course(VAC) Name and Code:VAC Student list for RENEWABLE ENERGY AND GREEN BUILDING ENTREPRENUERSHIP & EEEV002**
**Name of the Instructor:Dr. V Joshi Manohar**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 20171EEE0027 | KUSUMA A | 30 | 22 | 73.33 |
| 2 | 20171EEE0037 | MOHAMMED SALEHA RAFI | 30 | 27 | 90.00 |
| 3 | 20171EEE0038 | MS SANJAY | 30 | 23 | 76.67 |
| 4 | 20171EEE0051 | RAKESH G | 30 | 26 | 86.67 |
| 5 | 20171EEE0064 | SONAM PAL A | 30 | 27 | 90.00 |
| 6 | 20171EEE0069 | SURAJ J R | 30 | 25 | 83.33 |
| 7 | 20171EEE0076 | YUKESH M | 30 | 21 | 70.00 |
| 8 | 20181EEE0055 | SATISH KUMAR | 30 | 25 | 83.33 |
| 9 | 20181EEE0056 | SHARON PRANATHI M | 30 | 22 | 73.33 |
| 10 | 20181EEE0057 | SHREE LAKSHMI G D | 30 | 24 | 80.00 |
| 11 | 20181EEE0059 | SONU B M | 30 | 27 | 90.00 |
| 12 | 20181EEE0060 | SOUMYA T | 30 | 27 | 90.00 |
| 13 | 20181EEE0061 | SREEVATSA P M | 30 | 24 | 80.00 |
| 14 | 20181EEE0063 | SUMITH J JADHAV | 30 | 24 | 80.00 |
| 15 | 20181EEE0064 | SURABHI M Y | 30 | 26 | 86.67 |
| 16 | 20181EEE0069 | VISHNU T S | 30 | 22 | 73.33 |
| 17 | 20181EEE0070 | WASEELKHAN WASEELKHAN | 30 | 19 | 63.33 |
| 18 | 20181EEE0071 | YAMAVARAM MADHU SUDHAN | 30 | 24 | 80.00 |
| 19 | 20181EEE0072 | YASSER AHAMED KHAISAR | 30 | 23 | 76.67 |
| 20 | 20181EEE0073 | DILIP YADAV N | 30 | 25 | 83.33 |
| 21 | 20191EEE0006 | ASHISH SINGH BHUMIJ | 30 | 19 | 63.33 |
| 22 | 20191EEE0026 | PERAM BHARGAV REDDY | 30 | 15 | 50.33 |
| 23 | 20191EEE0045 | SIVA PRASAD L | 30 | 19 | 63.33 |
| 24 | 20191LEE0002 | SHIVACHANDAN D L | 30 | 19 | 63.33 |
| 25 | 20171EEE0047 | PRIYA S | 30 | 15 | 50.33 |

**Signature of Course Instructor**

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# Presidency University, Bengaluru
## Value Added Course Marksheet
## School of Engineering

| Course Code : | EEEV002 | Academic Year : | 2019-20 |
|---|---|---|---|
| Course Name : | RENEWABLE ENERGY AND GREEN BUILDING ENTREPRENUERSHIP | Semester : | Even Semester |
| | | Instructor-in-Charge Name : | Dr V Joshi Manohar |
| | | Instructor-in-Charge Employee ID | PUNIV01153 |

| S. No | UID No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | | 20171EEE0027 | KUSUMA A | SoE | 73.33 | 65 | Yes | |
| 2 | | 20171EEE0037 | MOHAMMED SALEHA RAFI | SoE | 90.00 | 90 | Yes | |
| 3 | | 20171EEE0038 | MS SANJAY | SoE | 82.14 | 85 | Yes | |
| 4 | | 20171EEE0051 | RAKESH G | SoE | 86.67 | 65 | Yes | |
| 5 | | 20171EEE0064 | SONAM PAL A | SoE | 90.00 | 74 | Yes | |
| 6 | | 20171EEE0069 | SURAJ J R | SoE | 83.33 | 56 | Yes | |
| 7 | | 20171EEE0076 | YUKESH M | SoE | 70.00 | 89 | Yes | |
| 8 | | 20181EEE0055 | SATISH KUMAR | SoE | 83.33 | 76 | Yes | |
| 9 | | 20181EEE0056 | SHARON PRANATHI M | SoE | 73.33 | 54 | Yes | |
| 10 | | 20181EEE0057 | SHREE LAKSHMI G D | SoE | 80.00 | 43 | Yes | |
| 11 | | 20181EEE0059 | SONU B M | SoE | 90.00 | 57 | Yes | |
| 12 | | 20181EEE0060 | SOUMYA T | SoE | 90.00 | 60 | Yes | |
| 13 | | 20181EEE0061 | SREEVATSA P M | SoE | 80.00 | 78 | Yes | |
| 14 | | 20181EEE0063 | SUMITH J JADHAV | SoE | 80.00 | 76 | Yes | |
| 15 | | 20181EEE0064 | SURABHI M Y | SoE | 86.67 | 80 | Yes | |
| 16 | | 20181EEE0069 | VISHNU T S | SoE | 73.33 | 66 | Yes | |
| 17 | | 20181EEE0070 | WASEELKHAN WASEELKHAN | SoE | 63.33 | AB | NO | |
| 18 | | 20181EEE0071 | YAMAVARAM MADHU SUDHAN | SoE | 82.76 | 78 | Yes | |
| 19 | | 20181EEE0072 | YASSER AHAMED KHAISAR | SoE | 76.67 | 87 | Yes | |
| 20 | | 20181EEE0073 | DILIP YADAV N | SoE | 86.21 | 78 | Yes | |
| 21 | | 20191EEE0006 | ASHISH SINGH BHUMIJ | SoE | 63.33 | AB | NO | |
| 22 | | 20191EEE0026 | PERAM BHARGAV REDDY | SoE | 50.33 | 10 | NO | |
| 23 | | 20191EEE0045 | SIVA PRASAD L | SoE | 63.33 | 20 | NO | |
| 24 | | 20191LEE0002 | SHIVACHANDAN D L | SoE | 63.33 | 23 | NO | |
| 25 | | 20171EEE0047 | PRIYA S | SoE | 50.33 | 25 | NO | |

**Name of Course Instructor 1:** Dr. V Joshi Manohar

**Employee ID of Course Instructor 1:** PUNIV01153

**Signature of Instructor-in-Charge**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Itgalur, Yelahanka, Bengaluru -64

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# PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

## School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Even Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV003 |
| **Course Name:** | MATLAB Programming and Simulink for Power Electronic converters |
| **Area of Specialization:** | Electrcal Engineering |
| **Course Description:** | MATLAB is a leading software in numerical computing, building algorithms and Simulink tool for simulating the converters. In this will introduce some Elementary Mathematics Problems, Matrices, data import analysis, the simulation of different power converter circuits and modelling of motors using MATLAB Simulink. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br><br>01. Recognize the importance of MATLAB and Its capabilities<br><br>02. Explain the simulation of AC-DC circuits using Simulink in MATLAB<br><br>03. Demonstrate the simulation AC-AC converters as single phase AC choppers using Simulink in MATLAB<br><br>04. Show the model of DC machine using MATLAB Simulink |
| **Course Content:** | **Module 1:** Introduction To Array Programming, Creating Vectors & Matrices, Basic Operations, Arithmetic Operations In MATLAB, Import Spreadsheets from Excel To MATLAB, Differentiation and integration In MATLAB, Solving One Non Linear Equation In MATLAB Using zero Function [10 hrs]<br>**Module 2:** Simulation Of Bridge Controlled Rectifier, Simulation Of Buck and Boost regulator [8 hrs]<br>**Module 3:** Simulation Of Single Phase and three phase Bridge Inverter, Simulation Of Charging And Discharging Capacitor DC Motor Modelling At No Load Using Simulink In MATLAB.[12 hrs] |
| **Instructor In-charge:** | Mr. K Sreekanth Reddy |

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# School of Engineering
## Department of Electrical & Electronics Engineering
**AY 2019-20 (Even Sem)**

**Value added Course(VAC) Name and Code: MATLAB Programming and Simulink for Power Electronic converters & EEEV003**

**Name of the Instructor: Mr. K Sreekanth Reddy**

## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE003 | ISMAIL ZAIN S A | 30 | 25 | 83.33 |
| 2 | 2016EEE011 | SHALIZA KAUSHAL | 30 | 27 | 90.00 |
| 3 | 2016EEE018 | DHINU S | 30 | 25 | 83.33 |
| 4 | 2016EEE026 | CHAGI ANIRUDH | 30 | 27 | 90.00 |
| 5 | 2016EEE036 | NITISH K A | 30 | 28 | 93.33 |
| 6 | 2017LEE003 | SUNNY KUMAR | 30 | 16 | 53.33 |
| 7 | 20171EEE0009 | ANUSHA DESHPANDE S | 30 | 26 | 86.67 |
| 8 | 20171EEE0046 | PATAN ISMAIL ALLI KHAN | 30 | 25 | 83.33 |
| 9 | 2016EEE005 | KANTESH BASVANTAPPA OLEKAR | 30 | 24 | 80.00 |
| 10 | 2016EEE013 | BHARATH V | 30 | 17 | 56.67 |
| 11 | 2016EEE020 | KEERTHI P | 30 | 28 | 93.33 |
| 12 | 2016EEE028 | MAHANTESH M | 30 | 28 | 93.33 |
| 13 | 20171EEE0002 | ABHISHEK B N | 30 | 24 | 80.00 |
| 14 | 20171EEE0013 | BISHWAKARMA KUMAR | 30 | 24 | 80.00 |
| 15 | 20191EEE0012 | KOMALA M E | 30 | 17 | 56.67 |
| 16 | 20191EEE0016 | MOHAMMAD JAMEEL | 30 | 17 | 56.67 |
| 17 | 20191EEE0032 | R S SHARUKH | 30 | 16 | 53.33 |
| 18 | 20191EEE0036 | SAMBHRAM P TAILANG | 30 | 17 | 56.67 |
| 19 | 20191EEE0051 | YASHASH N | 30 | 16 | 53.33 |
| 20 | 20191EEE0058 | TOUFEEQ | 30 | 17 | 56.67 |

**Signature of Course Instructor**

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## School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV003 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | MATLAB Programming and Simulink for Power Electronic converters | | Semester : | | | Even Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. K Sreekanth Reddy | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV00489 | |
| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remarks |
| 1 | 2016EEE003 | ISMAIL ZAIN S A | SoE | 83.33 | 66 | Yes | |
| 2 | 2016EEE011 | SHALIZA KAUSHAL | SoE | 90 | 63 | Yes | |
| 3 | 2016EEE018 | DHINU S | SoE | 83.33 | 57 | Yes | |
| 4 | 2016EEE026 | CHAGI ANIRUDH | SoE | 90 | 59 | Yes | |
| 5 | 2016EEE036 | NITISH K A | SoE | 93.33 | 52 | Yes | |
| 6 | 2017LEE003 | SUNNY KUMAR | SoE | 53.33 | 20 | No | Not Eligible for Certificate |
| 7 | 20171EEE0009 | ANUSHA DESHPANDE S | SoE | 86.67 | 62 | Yes | |
| 8 | 20171EEE0046 | PATAN ISMAIL ALLI KHAN | SoE | 83.33 | 66 | Yes | |
| 9 | 2016EEE005 | KANTESH BASVANTAPPA OLEKAR | SoE | 80 | 67 | Yes | |
| 10 | 2016EEE013 | BHARATH V | SoE | 56.67 | 24 | No | Not Eligible for Certificate |
| 11 | 2016EEE020 | KEERTHI P | SoE | 93.33 | 60 | Yes | |
| 12 | 2016EEE028 | MAHANTESH M | SoE | 93.33 | 75 | Yes | |
| 13 | 20171EEE0002 | ABHISHEK B N | SoE | 80 | 60 | Yes | |
| 14 | 20171EEE0013 | BISHWAKARMA KUMAR | SoE | 80 | 52 | Yes | |
| 15 | 20191EEE0012 | KOMALA M E | SoE | 56.67 | 27 | No | Not Eligible for Certificate |
| 16 | 20191EEE0016 | MOHAMMAD JAMEEL | SoE | 53.33 | 32 | No | Not Eligible for Certificate |

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|---|---|---|---|---|---|---|---|
| 17 | 20191EEE0032 | R S SHARUKH | SoE | 56.67 | 21 | No | Not Eligible for Certificate |
| 18 | 20191EEE0036 | SAMBHRAM P TAILANG | SoE | 53.33 | AB | No | Not Eligible for Certificate |
| 19 | 20191EEE0051 | YASHASH N | SoE | 56.67 | 35 | No | Not Eligible for Certificate |
| 20 | 20191EEE0058 | TOUFEEQ | SoE | 53.33 | 33 | No | Not Eligible for Certificate |

**Name of Course Instructor :** Mr. K Sreekanth Reddy

**Employee ID of Course Instructor:** PUNIV00489

K Sreekanth Reddy

**Signature of Instructor-in-charge**

**Signature of HoD**
Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Kajarukande, Yelahanka, Bengaluru -64

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Even Semester 2019-20

| | |
|---|---|
| **Course Code:** | EEEV005 |
| **Course Name:** | Auto CAD for Electrical Engineers |
| **Area of Specialization:** | Electrcal Engineering |
| **Course Description:** | This course contains a detailed explanation of AutoCAD Electrical tools and features. Every tool and feature is thoroughly explained with the help of examples. After going through this course, you will be able to create professional electrical control drawings with ease such as ladder diagrams, schematic drawings, panel drawings, parametric and nonparametric PLC modules, point-to-point wiring diagrams, report generation, creation of symbols, Circuit Builder, Terminal symbols, and so on. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. Explain all AutoCAD Electrical tools and features<br>CO.2. Develop professional electrical control drawings with ease.<br>CO.3. Create a Panel Drawings, Wiring Diagram and creation of symbol.<br>CO.4. Explain the various types of wire selection and PLC selection in CAD. |
| **Course Content:** | **Module No 1:** Basics Of Electrical Drawings: Introduction, Need of Drawings, Electrical Drawings, Common Symbols in Electrical Drawings, Wire and its Types, Labeling. [5- Hours]<br>**Module No 2:** Introduction to AutoCAD Electrical and Interface: Introduction, System Requirement, Starting AutoCAD Electrical/AutoCAD, Creating A New Drawing Document, Meaning of Default templates, Electrical Templates, Application Menu. Starting Drawing, Open Options, Opening Drawing File Save, Applying Password on File, Save As, Export, Publish, Print Drawing Tab Bar, Drawing Area, Command Window, Bottom Bar, Drafting Settings dialog box [8- Hours]<br>**Module No 3:** Project Management: Introduction, Project Management, Workflow in AutoCAD Electrical, Starting a New Project, Changing Properties of a project, Adding drawings in the project, Retagging and renumbering ladders in the drawings of project, Plotting/publishing project files, INSERTING COMPONENTS: Inserting Components using Icon menu, Inserting Components using Catalog Browser, Inserting Components using User Defined list, Inserting Components using Equipment list, Inserting Components using Panel list, Inserting Components using Terminal (Panel list), Pneumatic, Hydraulic, and P&ID components [9- Hours]<br>**Module No 4:** Wires, Circuits, and Ladders: Inserting Wires, Applying wire numbers, Inserting user defined circuits, Inserting ladders, Cable Markers, Circuit Builders. Plcs and Components: Introduction, Application of PLCs in manufacturing process, Inserting Parametric PLCs, Inserting PLCs (Full Unit), Inserting Connectors, Inserting Terminals. [8- Hours] |
| **Instructor In-charge:** | Mr. Ravi V Angadi |

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# School of Engineering
## Department of Electrical & Electronics Engineering
**AY 2019-20 (Even Sem)**

**Value added Course(VAC) Name and Code: Auto CAD for Electrical Engineers & EEEV005**

**Name of the Instructor: Mr. Ravi V Angadi**

## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE001 | MOHAN KUMAR M | 30 | 26 | 86.67 |
| 2 | 2016EEE002 | SHIVASAGAR M | 30 | 23 | 76.67 |
| 3 | 2016EEE004 | PREETI KUMARI R | 30 | 25 | 83.33 |
| 4 | 2016EEE005 | KANTESH BASVANTAPPA OLEKAR | 30 | 24 | 80.00 |
| 5 | 2016EEE006 | TALANK S | 30 | 29 | 96.67 |
| 6 | 2016EEE009 | RAJA R | 30 | 25 | 83.33 |
| 7 | 2016EEE011 | SHALIZA KAUSHAL | 30 | 24 | 80.00 |
| 8 | 2016EEE012 | SHAJINA BEGUM | 30 | 24 | 80.00 |
| 9 | 2016EEE017 | MOHAMMED TAUSIF T L | 30 | 18 | 60.00 |
| 10 | 2016EEE020 | KEERTHI P | 30 | 23 | 76.67 |
| 11 | 2016EEE021 | RANGASWAMY H | 30 | 26 | 86.67 |
| 12 | 2016EEE024 | MADANKUMAR S | 30 | 25 | 83.33 |
| 13 | 2016EEE027 | MAHESH E | 30 | 20 | 66.67 |
| 14 | 2016EEE028 | MAHANTESH M | 30 | 25 | 83.33 |
| 15 | 2016EEE031 | MERIGA MAMATHA | 30 | 24 | 80.00 |
| 16 | 2016EEE036 | NITISH K A | 30 | 16 | 53.33 |
| 17 | 2017LEE002 | SANJAY MALLIK | 30 | 23 | 76.67 |
| 18 | 2017LEE003 | SUNNY KUMAR | 30 | 24 | 80.00 |
| **Signature of Course Instructor** | | | | | |

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## School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV005 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | AutoCAD for Electrical Engineers | | Semester : | | | Even Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. Ravi V Angadi | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01021 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2016EEE001 | MOHAN KUMAR M | SoE | 86.67 | 50 | Yes | |
| 2 | 2016EEE002 | SHIVASAGAR M | SoE | 76.67 | 77.5 | Yes | |
| 3 | 2016EEE004 | PREETI KUMARI R | SoE | 83.33 | 55 | Yes | |
| 4 | 2016EEE005 | KANTESH BASVANTAPPA OLEKAR | SoE | 80.00 | 65 | Yes | |
| 5 | 2016EEE006 | TALANK S | SoE | 96.67 | 75 | Yes | |
| 6 | 2016EEE009 | RAJA R | SoE | 83.33 | 82.5 | Yes | |
| 7 | 2016EEE011 | SHALIZA KAUSHAL | SoE | 80.00 | 77.5 | Yes | |
| 8 | 2016EEE012 | SHAJINA BEGUM | SoE | 80.00 | 52.5 | Yes | |
| 9 | 2016EEE017 | MOHAMMED TAUSIF T L | SoE | 60.00 | Ab | No | Not Eligible for Certificate |
| 10 | 2016EEE020 | KEERTHI P | SoE | 76.67 | 60 | Yes | |
| 11 | 2016EEE021 | RANGASWAMY H | SoE | 86.67 | 58 | Yes | |
| 12 | 2016EEE024 | MADANKUMAR S | SoE | 83.33 | 90 | Yes | |
| 13 | 2016EEE027 | MAHESH E | SoE | 66.67 | Ab | No | Not Eligible for Certificate |
| 14 | 2016EEE028 | MAHANTESH M | SoE | 83.33 | 72 | Yes | |
| 15 | 2016EEE031 | MERIGA MAMATHA | SoE | 80.00 | 60 | Yes | |
| 16 | 2016EEE036 | NITISH K A | SoE | 53.33 | Ab | No | Not Eligible for Certificate |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17 | 2017LEE002 | SANJAY MALLIK | SoE | 76.67 | 42.5 | Yes | |
| 18 | 2017LEE003 | SUNNY KUMAR | SoE | 80.00 | 69 | Yes | |

**Name of Course Instructor :** Mr. Ravi V Angadi

**Employee ID of Course Instructor:** PUNIV01021

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Even Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV006 |
| **Course Name:** | Solar Cells - Past, Present and Future |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | This course introduces the innovation in solar technology which continued to improve its efficiency, size and cost by making it more pervasive throughout society compared with past. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. Describe the importance of conveters in Power Electronics<br>CO.2. Illustrate the power from solar cell and modelling a solar cell<br>CO.3. Calculate the efficiency and performance of solar cells<br>CO.4. Explain the types of solar cells |
| **Course Content:** | **Module No 1:** How do solar cells work, why do we need, and how can we measure their efficiency?. [5- Hours]<br>**Module No 2:** In this module we will introduce an equivalent circuit of a solar cell and use it to explain key concepts including short circuit current, open circuit voltage, parasitic resistances, and more. We will also talk about connected solar cells, and their behavior in shaded conditions. [8- Hours]<br>**Module No 3:** With a knowledge of the working principles of solar cells, we are now ready to apply this knowledge to understand why there are limits to the efficiency of solar cells. We will also briefly look into loss mechanisms that limit the practical efficiency. [9- Hours]<br>**Module No 4:** In our final module of this course we will look into a selection of solar cell technologies and its types and spend some time comparing all the different solar cell technologies. [8- Hours] |
| **Instructor In-charge:** | Ms. Ramya K |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# School of Engineering
## Department of Electrical & Electronics Engineering
### AY 2019-20 (Even Sem)
### Value added Course(VAC) Name and Code: Solar Cells - Past, Present and Future & EEEV006
### Name of the Instructor: Ms. Ramya K
## Attendance Sheet

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE006 | TALANK S | 30 | 22 | 73.33 |
| 2 | 2016EEE014 | ASHISH PANDIT R | 30 | 27 | 90.00 |
| 3 | 2016EEE021 | RANGASWAMY H | 30 | 16 | 53.33 |
| 4 | 2016EEE031 | MERIGA MAMATHA | 30 | 26 | 86.67 |
| 5 | 20171EEE0003 | ADIL JEBRAN | 30 | 27 | 90.00 |
| 6 | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | 30 | 25 | 83.33 |
| 7 | 20171EEE0024 | KEERTHANA D | 30 | 22 | 73.33 |
| 8 | 20171EEE0035 | MELVIN MOSES YOUNG | 30 | 25 | 83.33 |
| 9 | 20171EEE0042 | NEERUGATTI SUNIL | 30 | 23 | 76.67 |
| 10 | 20171EEE0049 | PUNEETH KUMAR C | 30 | 24 | 80.00 |
| 11 | 20171EEE0057 | S SHALINI | 30 | 27 | 90.00 |
| 12 | 20181LEE0010 | CHENTHOTI BHANUPRAKASH | 30 | 27 | 90.00 |
| 13 | 20181LEE0018 | KAVYA M | 30 | 24 | 80.00 |
| 14 | 20181EEE0004 | AMULYA A PUROHIT | 30 | 24 | 80.00 |
| 15 | 20181EEE0010 | BATHALA PRASHANTH | 30 | 26 | 86.67 |
| 16 | 20181EEE0016 | G SAIKUMAR | 30 | 22 | 73.33 |
| 17 | 20181EEE0021 | JAHNAVI J P | 30 | 24 | 80.00 |
| 18 | 20181EEE0028 | KESHAV GANESH | 30 | 24 | 80.00 |
| 19 | 20181EEE0037 | PALLA REDDAIAH | 30 | 23 | 76.67 |
| 20 | 20181EEE0044 | PREETHAM HIMAKAR | 30 | 25 | 83.33 |
| 21 | 20181EEE0053 | SATISH KUMAR | 30 | 24 | 80.00 |
| 22 | 20181EEE0067 | TEJAS GOWDA M | 30 | 24 | 80.00 |

**Signature of Course Instructor**

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# School of Engineering
## Department of Electrical & Electronics Engineering
## Value Added Course Marksheet

| Course Code : | EEEV006 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Solar Cells - Past, Present and Future | | Semester : | | | Even Semester | |
| | | | Instructor-in-Charge Name: | | | Ms. Ramya K | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01211 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2016EEE006 | TALANK S | SoE | 73.33 | 65 | Yes | |
| 2 | 2016EEE014 | ASHISH PANDIT R | SoE | 90.00 | 75 | Yes | |
| 3 | 2016EEE021 | RANGASWAMY H | SoE | 53.33 | Ab | NO | Not Eligible for Certificate |
| 4 | 2016EEE031 | MERIGA MAMATHA | SoE | 86.67 | 77.5 | Yes | |
| 5 | 20171EEE0003 | ADIL JEBRAN | SoE | 90.00 | 52.5 | Yes | |
| 6 | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | SoE | 83.33 | 57.5 | Yes | |
| 7 | 20171EEE0024 | KEERTHANA D | SoE | 73.33 | 60 | Yes | |
| 8 | 20171EEE0035 | MELVIN MOSES YOUNG | SoE | 83.33 | 58 | Yes | |
| 9 | 20171EEE0042 | NEERUGATTI SUNIL | SoE | 76.67 | 90 | Yes | |
| 10 | 20171EEE0049 | PUNEETH KUMAR C | SoE | 50.00 | Ab | NO | Not Eligible for Certificate |
| 11 | 20171EEE0057 | S SHALINI | SoE | 90.00 | 72 | Yes | |
| 12 | 20181LEE0010 | CHENTHOTI BHANUPRAKASH | SoE | 90.00 | 60 | Yes | |
| 13 | 20181LEE0018 | KAVYA M | SoE | 80.00 | 67 | Yes | |
| 14 | 20181EEE0004 | AMULYA A PUROHIT | SoE | 80.00 | 42.5 | Yes | |
| 15 | 20181EEE0010 | BATHALA PRASHANTH | SoE | 86.67 | 69 | Yes | |
| 16 | 20181EEE0016 | G SAIKUMAR | SoE | 73.33 | 58 | Yes | |

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|---|---|---|---|---|---|---|---|
| 17 | 20181EEE0021 | JAHNAVI J P | SoE | 80.00 | 78 | Yes | |
| 18 | 20181EEE0028 | KESHAV GANESH | SoE | 62.758 62069 | Ab | NO | Not Eligible for Certificate |
| 19 | 20181EEE0037 | PALLA REDDAIAH | SoE | 66.666 66667 | Ab | NO | Not Eligible for Certificate |
| 20 | 20181EEE0044 | PREETHAM HIMAKAR | SoE | 86.21 | 72.5 | Yes | |
| 21 | 20181EEE0055 | SATISH KUMAR | SoE | 80.00 | 79 | Yes | |
| 22 | 20181EEE0067 | TEJAS GOWDA M | SoE | 80.00 | 50 | Yes | |

**Name of Course Instructor :** Ms. Ramya K

**Employee ID of Course Instructor:** PUNIV01211

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru -64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Even Semester 2019-2020

| | |
|---|---|
| **Course Code:** | **EEEV008** |
| **Course Name:** | Hybrid Energy Storage System |
| **Area of Specialization:** | Power and Energy System |
| **Course Description:** | This course introduces students to energy storage systems and provides a broad understanding and appreciation of the scientific principles that underpin the operation of such systems. The emphasis is on grid-scale (or utility-scale) energy storage as a means of addressing the intermittency of renewable energy components (e.g. solar or wind power systems) of modern electricity networks. Smaller energy storage systems are also discussed for benchmarking and comparisons. Topics covered include electrical, chemical, thermal, mechanical, electrochemical, thermochemical and thermomechanical energy storage systems as well as grid integration issues |
| **Course Outcome:** | **On successful completion of the course the students shall be able to:**<br>1. Discuss the scientific principles underpinning the operation of energy storage systems.<br>2. Assess the need for introducing energy storage within a closed energy system;<br>3. Suggest suitable methods and technologies for energy storage units in a given system;<br>4. Summarize the demand for further development, potential improvements and possibilities for innovative solutions in the energy storage subject field; |
| **Course Content:** | **Module No 1:** This course introduces students to energy storage systems and provides a broad understanding and appreciation of the scientific principles that underpin the operation of such systems. [8- Hours]<br>**Module No 2:** The emphasis is on grid-scale (or utility-scale) energy storage as a means of addressing the intermittency of renewable energy components (e.g. solar or wind power systems) of modern electricity networks.. [8- Hours]<br>**Module No 3:** Smaller energy storage systems are also discussed for benchmarking and comparisons. [8- Hours]<br>**Module No 4:** Topics covered include electrical, chemical, thermal, mechanical, electrochemical, thermochemical and thermomechanical energy storage systems as well as grid integration issues.<br>[6- Hours] |
| **Instructor In-charge:** | Mr. Nageswara Rao A |

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# School of Engineering

**Department of Electrical & Electronics Engineering**

**AY 2019-20 (Even Sem)**

**Value added Course(VAC) Name and Code: Hybrid Energy Storage System & EEEV008**

**Name of the Instructor: Mr. Nageswara Rao A**

**Attendance Sheet**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 20171EEE0023 | JYOTHI T | 30 | 26 | 80.00 |
| 2 | 20171EEE0034 | MD RASHIDUL ISLAM KHAN | 30 | 25 | 80.00 |
| 3 | 20171EEE0041 | NAVEEN P | 30 | 26 | 86.67 |
| 4 | 20171EEE0048 | HATEM ATA TAHER ABDULAZIZ ATA | 30 | 17 | 73.33 |
| 5 | 20171EEE0056 | S HARIVIGNESH | 30 | 24 | 80.00 |
| 6 | 20181LEE0007 | GANESH KUMAR SINGH | 30 | 13 | 43.33 |
| 7 | 20181LEE0017 | RAVANA K N | 30 | 20 | 76.67 |
| 8 | 20181EEE0002 | ABHISHEK R BHARADWAJ | 29 | 25 | 86.21 |
| 9 | 20181EEE0008 | B H LAVANYA | 30 | 24 | 80.00 |
| 10 | 20181EEE0015 | FARHAN MUKHTIAR ABDUL Late | 30 | 24 | 80.00 |
| 11 | 20181EEE0020 | HARIKRISHN V | 29 | 24 | 75.86 |
| 12 | 20191EEE0010 | EASHWAR V | 30 | 13 | 43.33 |
| 13 | 20191EEE0030 | PRATHVIRAJ | 30 | 20 | 66.67 |
| 14 | 20191EEE0049 | VARSHA B N | 30 | 17 | 56.67 |
| 15 | 20181LEE0007 | GANESH KUMAR SINGH | 30 | 13 | 43.33 |
| **Signature of Course Instructor** | | | | | |

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**School of Engineering**

**Department of Electrical & Electronics Engineering**

**Value Added Course Marksheet**

| Course Code : | EEEV008 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Hybrid Energy Storage System | | Semester : | | | Odd Semester | |
| | | | Instructor-in-Charge Name: | | | Mr. Nageswara Rao A | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01282 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 20171EEE0023 | JYOTHI T | SoE | 86.67 | 82 | Yes | Eligible for Certificate |
| 2 | 20171EEE0034 | MD RASHIDUL ISLAM KHAN | SoE | 83.33 | 84 | Yes | Eligible for Certificate |
| 3 | 20171EEE0041 | NAVEEN P | SoE | 86.67 | 78 | Yes | Eligible for Certificate |
| 4 | 20171EEE0048 | HATEM ATA TAHER ABDULAZIZ ATA | SoE | 56.67 | 37 | No | Not Eligible for Certificate |
| 5 | 20171EEE0056 | S HARIVIGNESH | SoE | 80.00 | 95 | Yes | Eligible for Certificate |
| 6 | 20181LEE0007 | GANESH KUMAR SINGH | SoE | 43.33 | 58 | No | Not Eligible for Certificate |
| 7 | 20181LEE0017 | RAVANA K N | SoE | 66.67 | 49 | No | Not Eligible for Certificate |
| 8 | 20181EEE0002 | ABHISHEK R BHARADWAJ | SoE | 86.21 | 92 | Yes | Eligible for Certificate |
| 9 | 20181EEE0008 | B H LAVANYA | SoE | 80.00 | 88 | Yes | Eligible for Certificate |
| 10 | 20181EEE0015 | FARHAN MUKHTIAR ABDUL Late | SoE | 80.00 | 85 | Yes | Eligible for Certificate |
| 11 | 20181EEE0000 | HARIKRISHN V | SoE | 82.76 | 82 | Yes | Eligible for Certificate |
| 12 | 20191EEE0010 | EASHWAR V | SoE | 93.33 | 20 | No | Not Eligible for Certificate |
| 13 | 20191EEE0030 | PRATHVIRAJ | SoE | 86.67 | 34 | No | Not Eligible for |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | Certificate |
| 14 | 20191EEE0049 | VARSHA B N | SoE | 73.33 | 26 | **No** | Not Eligible for Certificate |
| 15 | 20181LEE0007 | GANESH KUMAR SINGH | SoE | 63.33 | 30 | No | Not Eligible for Certificate |

**Name of Course Instructor:Mr.Nageswa Rao A**

**Employee ID of Course Instructor:** PUNIV01282

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru-64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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# PRESIDENCY UNIVERSITY

(Established under the Presidency University Act, 2013 of the Karnataka Act 41 of 2013)

## School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course offered during the Even Semester 2019-2020

| | |
|---|---|
| **Course Code:** | EEEV009 |
| **Course Name:** | Fundamentals of Electric and Hybrid Electric Vehicles |
| **Area of Specialization:** | Electrical Engineering |
| **Course Description:** | The course will be a first level course on electric and hybris electric vehicles. Students will be able to understand the operation of Electric Vehicles. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>CO.1. Explain the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamentals<br>CO.2. Discuss the fundamentals of vehicle dynamics<br>CO.3. Analyse the use of different powere electronic devices and electrical machines in hybrid electric vehicles<br>CO.4. Discuss different energy storage technologies used for hybrid electric vehicles |
| **Course Content:** | **Module No 1: Different types of Electric** vehicles Types of EVs, Hybrid Electric Drive-train, Tractive effort in normal driving, Energy consumption Concept of Hybrid Electric Drive Trains, Architecture of Hybrid Electric Drive Trains, Series Hybrid Electric Drive Trains, Parallel hybrid electric drive trains, [10- Hours]<br>**Module No 2: vehicle dynamics Electric Propulsion** unit, Configuration and control of DC Motor drives, Induction Motor drives, Permanent Magnet Motor drives, switched reluctance motor, Introduction to Energy Storage. [10-Hours]<br>**Module No 3**: **Requirements in Hybrid and Electric Vehicles** Battery based energy storage and its analysis, Fuel Cell based energy storage and its analysis, Hybridization of different energy storage devices. Sizing the drive system, Design of Hybrid Electric Vehicle and Plug-in Electric Vehicle, Energy Management Strategies, Automotive networking and communication, EV and EV charging standards, V2G, G2V, V2B, V2H [10- Hours] |
| **Instructor In-charge:** | Ms. Ragasudha C P |

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# School of Engineering

**Department of Electrical & Electronics Engineering**
**AY 2019-20 (Even Sem)**
**Value added Course(VAC) Name and Code: Fundamentals of Electric and Hybrid Electric Vehicles & EEEV009**
**Name of the Instructor: Ms. Ragasudha C P**

**Attendance Sheet**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 20171EEE9003 | SYEDA NEHA | 30 | 26 | 86.67 |
| 2 | 20181LEE0015 | AKSHAY KUMAR K B | 30 | 23 | 76.67 |
| 3 | 20181LEE0020 | MD ZAFER EQBAL | 30 | 18 | 60.00 |
| 4 | 20181EEE0006 | ARSHAD SALEEM | 30 | 24 | 80.00 |
| 5 | 20181EEE0013 | CHARAN KUMAR N | 30 | 29 | 96.67 |
| 6 | 20181EEE0018 | GATE MOHAMMAD SHADAB | 30 | 25 | 83.33 |
| 7 | 20181EEE0023 | JAYASHREE V | 30 | 24 | 80.00 |
| 8 | 20181EEE0032 | MANISH KUMAR | 30 | 24 | 80.00 |
| 9 | 20181EEE9002 | HEMANTH H L | 30 | 25 | 83.33 |
| 10 | 20191LEE0005 | KUSHAL S | 30 | 23 | 76.67 |
| 11 | 20181EEE9008 | BHARATH S | 30 | 26 | 86.67 |
| 12 | 20181EEE0047 | RAJATH KRISHNA R | 30 | 26 | 86.67 |
| 13 | 20181EEE0052 | SAICHARAN T A | 30 | 23 | 76.67 |
| 14 | 20181EEE0057 | SHREE LAKSHMI G D | 30 | 25 | 83.33 |
| 15 | 20181EEE0063 | SUMITH J JADHAV | 30 | 24 | 80.00 |
| 16 | 20181EEE0069 | VISHNU T S | 30 | 24 | 80.00 |
| 17 | 20181EEE0073 | DILIP YADAV N | 30 | 16 | 53.33 |
| 18 | 20181EEE9006 | KRUTHAN KRISHNA SWAMY | 30 | 24 | 80.00 |
| 19 | 20191LEE0011 | RAKESH C S | 30 | 24 | 80.00 |
| 20 | 20191EEE0017 | MOHAMMAD ZAID FAROOQ | 30 | 18 | 60.00 |

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|---|---|---|---|---|---|
| **21** | 20191EEE0037 | SANJAY B | 30 | 16 | 53.33 |
| **22** | 20191EEE0059 | SHABBEER AHMAD MUJAVAR | 30 | 18 | 60.00 |
| **23** | 20171EEE0055 | ROHITH PRAKASH | 30 | 16 | 53.33 |
| **Signature of Course Instructor** | | |  | | |

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# School of Engineering

## Department of Electrical & Electronics Engineering

### Value Added Course Marksheet

| Course Code : | EEEV009 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Fundamentals of Electric and Hybrid Electric Vehicles | | Semester : | | | Even Semester | |
| | | | Instructor-in-Charge Name: | | | Ms. Ragasudha C P | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV01324 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 20171EEE9003 | SYEDA NEHA | SoE | 86.67 | 76 | Y | |
| 2 | 20181LEE0015 | AKSHAY KUMAR K B | SoE | 76.67 | 85 | Y | |
| 3 | 20181LEE0020 | MD ZAFER EQBAL | SoE | 60.00 | 38 | N | No Passing marks in Test |
| 4 | 20181EEE0006 | ARSHAD SALEEM | SoE | 80.00 | 67 | Y | |
| 5 | 20181EEE0013 | CHARAN KUMAR N | SoE | 96.67 | 78 | Y | |
| 6 | 20181EEE0018 | GATE MOHAMMAD SHADAB | SoE | 83.33 | 76 | Y | |
| 7 | 20181EEE0023 | JAYASHREE V | SoE | 80.00 | 89 | Y | |
| 8 | 20181EEE0032 | MANISH KUMAR | SoE | 80.00 | 78 | Y | |
| 9 | 20181EEE9002 | HEMANTH H L | SoE | 83.33 | 86 | Y | |
| 10 | 20191LEE0005 | KUSHAL S | SoE | 76.67 | 76 | Y | |
| 11 | 20181EEE9008 | BHARATH S | SoE | 86.67 | 89 | Y | |
| 12 | 20181EEE0047 | RAJATH KRISHNA R | SoE | 86.67 | 89 | Y | |
| 13 | 20181EEE0052 | SAICHARAN T A | SoE | 76.67 | 90 | Y | |
| 14 | 20181EEE0057 | SHREE LAKSHMI G D | SoE | 83.33 | 98 | Y | |
| 15 | 20181EEE0063 | SUMITH J JADHAV | SoE | 80.00 | 67 | Y | |

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|---|---|---|---|---|---|---|---|
| **16** | 20181EEE0069 | VISHNU T S | SoE | 80.00 | 95 | Y | |
| **17** | 20181EEE0073 | DILIP YADAV N | SoE | 53.33 | AB | N | Absent in Test, Less attendance |
| **18** | 20181EEE9006 | KRUTHAN KRISHNA SWAMY | SoE | 80.00 | 89 | Y | |
| **19** | 20191LEE0011 | RAKESH C S | SoE | 80.00 | 85 | Y | |
| **20** | 20191EEE0017 | MOHAMMAD ZAID FAROOQ | SoE | 60.00 | 20 | N | |
| **21** | 20191EEE0037 | SANJAY B | SoE | 53.33 | 15 | N | |
| **22** | 20191EEE0059 | SHABBEER AHMAD MUJAVAR | SoE | 60.00 | 26 | N | |
| **23** | 20171EEE0055 | ROHITH PRAKASH | SoE | 60.00 | 27 | N | |

**Name of Course Instructor :** **Ms. Ragasudha C P**

**Employee ID of Course Instructor:** PUNIV01324

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
PRESIDENCY UNIVERSITY
Rajanukunte, Yelahanka, Bengaluru-64

PRESIDENCY UNIVERSITY IQAC BANGALORE

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**School of Engineering**

**Department of Electrical & Electronics Engineering**

**Value Added Course offered during the Even Semester AY 2019-20**

| | |
|---|---|
| **Course Code:** | EEEV010 |
| **Course Name:** | Pulse Width Modulation for Multilevel Converters |
| **Area of Specialization:** | Power Electronics |
| **Course Description:** | The course is a tour through the fundamental disciplines including Pulse width Modulation and its importance in power electronic converters. At the end of the course you will have gained a fundamental understanding of the field. This will allow you to identify the most interesting or relevant aspects to be pursued in your future studies or in your professional career. |
| **Course Outcome:** | On successful completion of the course, the student shall be able to:<br>**01** Describe the importance of Multilevel conveters in Power Electronics<br>**02** Discuss the generation of PWMs.<br>**03** Explain the types of pulse width modulation techniques<br>**04** Analyse the performance of differenct PWMs. |
| **Course Content:** | **Module 1:** Introduction to Multilevel ConvertersOverview of power electronics and its applicationsIntroduction to multilevel converters and their advantagesTypes of multilevel converters (Diode-Clamped, Flying Capacitor, Cascaded H-Bridge, etc.)Comparison between conventional two-level converters and multilevel converters [10 Hours]<br>**Module 2:** Basics of Pulse Width Modulation (PWM), Principles of Pulse Width Modulation, Modulation index and its significance, PWM techniques (Sinusoidal PWM, Space Vector PWM, Carrier-Based PWM), Performance metrics of PWM techniques (THD, Switching frequency, etc.) [10 Hours]<br>**Module 3:** Multilevel Inverter Topologies, Diode-Clamped Multilevel Inverter (Neutral Point Clamped), Flying Capacitor Multilevel Inverter, Cascaded H-Bridge Multilevel Inverter, Comparison of various multilevel inverter topologies [10 Hours] |
| **Instructor In-charge:** | Dr. Snehaprabha T.V |

PRESIDENCY UNIVERSITY IQAC BANGALORE

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**School of Engineering**

**Department of Electrical & Electronics Engineering**

**AY 2019-20 (Even Sem)**

**Value added Course(VAC) Name and Code: Pulse Width Modulation for Multilevel Converters & EEEV010**

**Name of the Instructor: Dr. Snehaprabha T.V**

**Attendance Sheet**

| S.No. | STUDENT ID NO | STUDENT NAME | Total classes conducted | Total classes attended | Percentage attended |
|---|---|---|---|---|---|
| 1 | 2016EEE006 | TALANK S | 30 | 22 | 73 |
| 2 | 2016EEE014 | ASHISH PANDIT R | 30 | 20 | 67 |
| 3 | 2016EEE021 | RANGASWAMY H | 30 | 26 | 87 |
| 4 | 2016EEE031 | MERIGA MAMATHA | 30 | 22 | 73 |
| 5 | 20171EEE0003 | ADIL JEBRAN | 30 | 25 | 83 |
| 6 | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | 30 | 20 | 67 |
| 7 | 20171EEE0024 | KEERTHANA D | 30 | 25 | 83 |
| 8 | 20171EEE0035 | MELVIN MOSES YOUNG | 30 | 19 | 63 |
| 9 | 20171EEE0042 | NEERUGATTI SUNIL | 30 | 29 | 97 |
| 10 | 20171EEE0049 | PUNEETH KUMAR C | 30 | 20 | 67 |
| 11 | 20171EEE0057 | S SHALINI | 30 | 27 | 90 |
| 12 | 20181LEE0010 | CHENTHOTI BHANUPRAKASH | 30 | 22 | 73 |
| 13 | 20181LEE0018 | KAVYA M | 30 | 24 | 80 |
| 14 | 20181EEE0004 | AMULYA A PUROHIT | 30 | 24 | 80 |
| 15 | 20181EEE0010 | BATHALA PRASHANTH | 30 | 25 | 83 |
| 16 | 20181EEE0016 | G SAIKUMAR | 30 | 22 | 73 |
| 17 | 20181EEE0021 | JAHNAVI J P | 30 | 26 | 87 |
| 18 | 20181EEE0028 | KESHAV GANESH | 30 | 26 | 87 |
| 19 | 20181EEE0037 | PALLA REDDAIAH | 30 | 23 | 77 |
| 20 | 20181EEE0044 | PREETHAM HIMAKAR | 30 | 23 | 77 |
| 21 | 20181EEE0055 | SATISH KUMAR | 30 | 24 | 80 |
| 22 | 20181EEE0067 | TEJAS GOWDA M | 30 | 23 | 77 |
| 23 | 2016EEE006 | TALANK S | 30 | 13 | 43 |
| 24 | 2016EEE014 | ASHISH PANDIT R | 30 | 12 | 41 |
| 25 | 2016EEE021 | RANGASWAMY H | 30 | 12 | 41 |
| 26 | 2016EEE031 | MERIGA MAMATHA | 30 | 12 | 41 |

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|---|---|---|---|---|---|
| **27** | 20171EEE0003 | ADIL JEBRAN | 30 | 13 | 43 |
| **28** | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | 30 | 11 | 41 |
| **29** | 20171EEE0024 | KEERTHANA D | 30 | 12 | 41 |
| **Signature of Course Instructor** | | | | | |

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**School of Engineering**

**Department of Electrical & Electronics Engineering**

**Value Added Course Marksheet**

| Course Code : | EEEV010 | | Academic Year : | | | 2019-20 | |
|---|---|---|---|---|---|---|---|
| Course Name : | Pulse Width Modulation for Multilevel Converters | | Semester : | | | Even Semester | |
| | | | Instructor-in-Charge Name: | | | Dr. Snehaprabha T.V | |
| | | | Instructor-in-Charge Employee ID : | | | PUNIV00488 | |

| S. No | Roll No | Name | School (e.g. SoE/SoL etc) | Attendance (in %) | Marks | Eligible for Certificate (Y/N) | Remark |
|---|---|---|---|---|---|---|---|
| 1 | 2016EEE006 | TALANK S | SoE | 73 | 67 | N | Not Eligible for Certificate |
| 2 | 2016EEE014 | ASHISH PANDIT R | SoE | 67 | 61 | N | Not Eligible for Certificate |
| 3 | 2016EEE021 | RANGASWAMY H | SoE | 87 | 79 | Y | |
| 4 | 2016EEE031 | MERIGA MAMATHA | SoE | 73 | 67 | N | Not Eligible for Certificate |
| 5 | 20171EEE0003 | ADIL JEBRAN | SoE | 83 | 76 | Y | |
| 6 | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | SoE | 67 | 61 | N | Not Eligible for Certificate |
| 7 | 20171EEE0024 | KEERTHANA D | SoE | 83 | 76 | Y | |
| 8 | 20171EEE0035 | MELVIN MOSES YOUNG | SoE | 63 | 58 | N | Not Eligible for Certificate |
| 9 | 20171EEE0042 | NEERUGATTI SUNIL | SoE | 97 | 88 | Y | |
| 10 | 20171EEE0049 | PUNEETH KUMAR C | SoE | 67 | 61 | N | Not Eligible for Certificate |
| 11 | 20171EEE0057 | S SHALINI | SoE | 90 | 82 | Y | |
| 12 | 20181LEE0010 | CHENTHOTI BHANUPRAKASH | SoE | 73 | 67 | N | Not Eligible for Certificate |
| 13 | 20181LEE0018 | KAVYA M | SoE | 80 | 73 | Y | |
| 14 | 20181EEE0004 | AMULYA A PUROHIT | SoE | 80 | 73 | Y | |
| 15 | 20181EEE0017 | BATHALA PRASHANTH | SoE | 83 | 76 | Y | |
| 16 | 20181EEE0016 | G SAIKUMAR | SoE | 73 | 67 | N | Not Eligible for Certificate |
| 17 | 20181EEE0021 | JAHNAVI J P | SoE | 87 | 79 | Y | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **18** | 20181EEE0028 | KESHAV GANESH | SoE | 87 | 79 | Y | |
| **19** | 20181EEE0037 | PALLA REDDAIAH | SoE | 77 | 70 | Y | |
| **20** | 20181EEE0044 | PREETHAM HIMAKAR | SoE | 77 | 70 | Y | |
| **21** | 20181EEE0055 | SATISH KUMAR | SoE | 80 | 73 | Y | |
| **22** | 20181EEE0067 | TEJAS GOWDA M | SoE | 77 | 70 | Y | |
| **23** | 2016EEE006 | TALANK S | SoE | 43 | 20 | N | Not Eligible for Certificate |
| **24** | 2016EEE014 | ASHISH PANDIT R | SoE | 41 | 30 | N | Not Eligible for Certificate |
| **25** | 2016EEE021 | RANGASWAMY H | SoE | 41 | 25 | N | Not Eligible for Certificate |
| **26** | 2016EEE031 | MERIGA MAMATHA | SoE | 41 | 31 | N | Not Eligible for Certificate |
| **27** | 20171EEE0003 | ADIL JEBRAN | SoE | 43 | 22 | N | Not Eligible for Certificate |
| **28** | 20171EEE0014 | DEVARAKONDA HARSHAVARDHAN | SoE | 41 | 15 | N | Not Eligible for Certificate |
| **29** | 20171EEE0024 | KEERTHANA D | SoE | 41 | 19 | N | Not Eligible for Certificate |

**Name of Course Instructor :** Dr. Snehaprabha T.V

**Employee ID of Course Instructor:** PUNIV00488

**Signature of Instructor-in-charge**

**Signature of HoD**

Head of the Department
Electrical and Electronics Engineering
School of Engineering
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PRESIDENCY UNIVERSITY BANGALORE Registrar