



Indra Ganesan

COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING





DEPARTMENT OF ELECTRICAL AND ELECTRIC ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

1.2 Academic Flexibility (30)

1.2.1 Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

1.2.2 Percentage of students enrolled in Certificate/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

| | | | | | |
|------------------------------|--|------------------|-------------------|------------------------------------|-----------------|
| VAC Title: | SMART GRID TECHNOLOGY | | | | |
| Resource Person: | K. Marimuthu, Senior Project Trainer, Smart Power Care, Thillai Nagar, Trichy | | | | |
| Date of conduct from: | 20.07.2020 | To: | 24.07.2020 | Duration: | 30 Hours |
| Organized Department: | ELECTRICAL AND ELECTRIC ENGINEERING | | | | |
| Participant Year: | EEE- IV, III, II | Semester: | EVEN | No. of Students Registered: | 63 |
| Venue: | GOOGLE MEET | | | | |

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Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli - 620 012
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Department of Electrical and Electronics Engineering
Academic Year 2019-2020 –Even Semester

15.07.2020

DEPARTMENT CIRCULAR

Department of Electrical and Electronics Engineering and IQAC of IGCE in association with Smart Power Care is going to organize Value Added Course for all Second, Third and Final year students on “Smart Grid Technology” From 20.07.2020 to 24.07.2020. Certificates will be issued to the eligible participants at the end of the Course. This training will be conducted through online mode.

| | |
|------------------------|---|
| Resource Person Detail | 1. K. Marimuthu, Senior Project Trainer, Smart Power Care, Thillai Nagar, Trichy |
| Online Mode | Google Meet |

G. Ma lathi
HOD/EEE

[Signature]
PRINCIPAL

Cc:

- Principal office
- IQAC Co-Ordinator
- Class In charges - II, III & IV-Year
- II, III & IV-Year EEE Students
- Office File
- Notice Board

[Signature]
Dr. G. Balakrishnan, M.E., Ph.D.,
Principal
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Value Added Course

"Smart Grid Technology"

SYLLABUS

| S.NO | TOPIC COVERED | DURATION (in hours) | DATE |
|--------------------------------------|---|------------------------|------------|
| 1 | Introduction to Smart Grid, Architecture, Standards and Elements and Technologies of Smart Grid System. | 3 | 20.07.2020 |
| 2 | Distributed Generation Resources | 3 | 20.07.2020 |
| 3 | Introduction to energy storage devices. Analytical modelling of energy storage devices | 3 | 21.07.2020 |
| 4 | Wide area Monitoring Systems | 3 | 21.07.2020 |
| 5 | Smart Grid Protection | 3 | 22.07.2020 |
| 6 | Modelling of DC smart grid components Operation and control of AC Microgrid | 3 | 22.12.2019 |
| 7 | Operation and control of AC-DC hybrid Microgrid | 3 | 23.12.2019 |
| 8 | Phasor measurement unit placement Cyber security and resiliency Virtual inertia and ancillary support | 3 | 23.12.2019 |
| 9 | Simulation and case study of AC Microgrid Simulation and case study of DC Microgrid Simulation and case study of AC-DC Hybrid Microgrid Demonstration of parallel inverter operation in AC Microgrid | 3 | 24.12.2019 |
| 10 | Design of Smart Grid and Practical Smart Grid Case Study, System Analysis of AC/DC Smart Grid | 3 | 24.12.2019 |
| 11 | Exam | 1 | 24.12.2019 |
| Total Hours (Excluding Test) | | 30 | - |

VAC Coordinator

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Value Added Course

“Smart Grid Technology”

STUDENTS PARTICIPATION LIST

| S.NO | REG NO | STUDENTS NAME | YEAR/ BRANCH |
|------|--------------|-------------------|-----------------|
| 1 | 811216105001 | ATTCHAYA A K | IV/EEE |
| 2 | 811216105003 | BENAZIR M | IV/EEE |
| 3 | 811216105004 | GUNA SEELAN D | IV/EEE |
| 4 | 811216105005 | HARI GOWTHAM M | IV/EEE |
| 5 | 811216105006 | HARIHARAN B | IV/EEE |
| 6 | 811216105007 | ISWARYA K | IV/EEE |
| 7 | 811216105008 | KALISTA P | IV/EEE |
| 8 | 811216105009 | KHAJAMOINUDEEN S | IV/EEE |
| 9 | 811216105010 | KIRUTHIKA B | IV/EEE |
| 10 | 811216105011 | LOURDHU MARY D | IV/EEE |
| 11 | 811216105012 | MARIA SHOBANA J | IV/EEE |
| 12 | 811216105014 | MERLIN REETA P | IV/EEE |
| 13 | 811216105015 | NIROSHINI R | IV/EEE |
| 14 | 811216105016 | NITHING A | IV/EEE |
| 15 | 811216105017 | PAVENTHAN A | IV/EEE |
| 16 | 811216105018 | PRAVEEN KUMAR M | IV/EEE |
| 17 | 811216105019 | PRISILLA PRIYANKA | IV/EEE |
| 18 | 811216105020 | RAJA V | IV/EEE |
| 19 | 811216105021 | RATHINA RAJ R | IV/EEE |

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| SNO | REG NO | STUDENTS NAME | YEAR/ BRANCH |
|-----|--------------|------------------|-----------------|
| 20 | 811216105023 | RESHMI D | IV/EEE |
| 21 | 811216105024 | ROOBINI S | IV/EEE |
| 22 | 811216105025 | SURESH K | IV/EEE |
| 23 | 811216105026 | SURIYA PRAKASH K | IV/EEE |
| 24 | 811216105027 | TAMILARASAN M | IV/EEE |
| 25 | 811216105028 | TAMILAZHAGAN M | IV/EEE |
| 26 | 811216105029 | VINOTH R | IV/EEE |
| 27 | 811216105302 | PARKAVI S | IV/EEE |
| 28 | 811217105005 | ARUL JOY ASHA A | III/EEE |
| 29 | 811217105006 | ARUN SEBASTIN P | III/EEE |
| 30 | 811217105007 | BHARTHASARATHI M | III/EEE |
| 31 | 811217105008 | CHITHRA P | III/EEE |
| 32 | 811217105009 | DEEPIKA G | III/EEE |
| 33 | 811217105010 | EZHUMALAI A | III/EEE |
| 34 | 811217105011 | GAYATHRI K | III/EEE |
| 35 | 811217105012 | GAYATHRI S | III/EEE |
| 36 | 811217105013 | KANIMOZHI S | III/EEE |
| 37 | 811217105014 | KEERTHANA S | III/EEE |
| 38 | 811217105015 | KUMARIVALLI T | III/EEE |
| 39 | 811217105016 | MADHUMITHA S | III/EEE |
| 40 | 811217105017 | MANO K | III/EEE |
| 41 | 811217105018 | MEKALA M | III/EEE |
| 42 | 811217105020 | PAVITHRA S | III/EEE |
| 43 | 811217105021 | PRAVEEN RAJ R | III/EEE |
| 44 | 811217105022 | RAJASEKAR.N V | III/EEE |



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| S.NO | REG NO | STUDENTS NAME | YEAR/ BRANCH |
|------|--------------|--------------------|-----------------|
| 45 | 811217105023 | REVATHI P | III/EEE |
| 46 | 811217105024 | RISHON GURU M | III/EEE |
| 47 | 811217105026 | SANTHOSH K | III/EEE |
| 48 | 811217105027 | SRIKUMAR M S | III/EEE |
| 49 | 811217105028 | SRI LOGESH C | III/EEE |
| 50 | 811217105029 | SUBHA T | III/EEE |
| 51 | 811217105031 | VALARMATHI C | III/EEE |
| 52 | 811217105032 | VISWANATH R | III/EEE |
| 53 | 811217105301 | SANJEEV KUMAR R | III/EEE |
| 54 | 811218105001 | ARUN PRAVEEN RAJ A | II/EEE |
| 55 | 811218105002 | HARIHARAN M | II/EEE |
| 56 | 811218105003 | INBARAJ A | II/EEE |
| 57 | 811218105004 | JEYA STEPHEN S | II/EEE |
| 58 | 811218105005 | MANIKANDAN N | II/EEE |
| 59 | 811218105006 | PADMANABAN A | II/EEE |
| 60 | 811218105007 | SASIKUMAR R | II/EEE |
| 61 | 811218105008 | SIVAKUMAR P | II/EEE |
| 62 | 811218105009 | VEERA RAGAVAN A | II/EEE |
| 63 | 811218105010 | YUVARAJ S | II/EEE |


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HOD/EEE

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Department of Electrical and Electronics Engineering

Academic Year 2019-2020 – Even Semester

STUDENTS ATTENDANCE LIST

Value Added Course

“Smart Grid Technology”

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| S.NO | REG NO | STUDENTS NAME | YEAR/ BRANCH | 20.07.2020 | | 21.07.2020 | | 22.07.2020 | | 23.07.2020 | | 24.07.2020 | | NO OF SESSIONS ATTENDED | SIGNATURE OF THE STUDENT |
|------|--------------|------------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-------------------------------|--------------------------------|
| | | | | FN | AN | FN | AN | FN | AN | FN | AN | FN | AN | | |
| 1 | 811216105001 | ATTCHAYA A K | IV/EEE | P | P | P | P | P | P | A | P | P | P | 9 | ONLINE |
| 2 | 811216105003 | BENAZIR M | IV/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
| 3 | 811216105004 | GUNA SEELAN D | IV/EEE | P | A | P | P | P | P | P | P | P | P | 9 | |
| 4 | 811216105005 | HARI GOWTHAM M | IV/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
| 5 | 811216105006 | HARIHARAN B | IV/EEE | A | P | P | P | P | P | P | P | P | P | 9 | |
| 6 | 811216105007 | ISWARYA K | IV/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
| 7 | 811216105008 | KALISTA P | IV/EEE | P | P | A | P | P | P | P | P | P | P | 9 | |
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| 10 | 811216105011 | LOURDHU MARY D | IV/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
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| 14 | 811216105016 | NITHING A | IV/EEE | P | A | P | P | P | P | P | P | P | P | 9 | ONLINE |
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| 18 | 811216105020 | RAJA V | IV/EEE | P | P | P | P | P | A | P | P | P | P | 9 | |
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| 32 | 811217105009 | DEEPIKA G | III/EEE | P | P | P | P | P | P | P | A | P | P | 9 | |
| 33 | 811217105010 | EZHUMALAI A | III/EEE | P | P | P | P | P | A | P | A | P | P | 8 | |
| 34 | 811217105011 | GAYATHRI K | III/EEE | P | P | P | P | P | P | P | A | P | P | 9 | |

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| 56 | 811218105003 | INBARAJ A | II/EEE | P | P | P | P | P | P | A | P | P | P | 9 | ONLINE |
| 57 | 811218105004 | JEYA STEPHEN S | II/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
| 58 | 811218105005 | MANIKANDAN N | II/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
| 59 | 811218105006 | PADMANABAN A | II/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |
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| 62 | 811218105009 | VEERA RAGAVAN A | II/EEE | P | P | P | P | P | P | A | P | P | P | 9 | |
| 63 | 811218105010 | YUVARAJ S | II/EEE | P | P | P | P | P | P | P | P | P | P | 10 | |

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G. Malathi
HoD/EEE



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Name of the Student:

Year/Sem:

AU Register Number:

Value Added Course

“Smart Grid Technology”

Multiple Choice Questions (25X1 = 25 Marks)

1. **Power quality monitoring and analysis in the smart grid is done using**
 - a) past time data
 - b) utilizes real - time data
 - c) uses off line data
 - d) does not need any data
2. **One Nation, One Grid, One _____.**
 - a) Current
 - b) Frequency
 - c) Phase
 - d) Voltage
3. **Among the following, what is not the function of Smart grid.**
 - a) Interoperability is achieved smoothly among the grid
 - b) Real time monitoring of Grid conditions
 - c) Solve automatically grid disturbances
 - d) Plug and Play ability to connect new generation plants to the grid
4. **In relation to Smart home and building Automation, BAC is _____.**
 - a) Building Automation and control systems
 - b) Bus Architecture for Communication
 - c) Basic Automation and Communication
 - d) Broad Area Communication
5. **The _____ provides framework and roadmap for smart grid interoperability standards.**
 - a) National Institute of Smart Grid
 - b) National Institute of Micro grid
 - c) National Institute of Standard and Technology
 - d) National Institute of Electrical and Electronic Advancements

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6. Following are some Smart Home and Building Automation standards
- a) SPBRG, PS, PIC18, ATMEL, SCADA, PLC, ES
 - b) ZHA, BACnet, KNX, LonWorks, OneNet, X10, INSTEON
 - c) Zigbee, LAN, MAN, WAN, HAN, DG, COAXLine
 - d) TCP/IP, IITC, COXZa, COHA, multiSIM, Netauto, I-on
7. Following is NOT a type of IED.
- a) Protective Relaying Device
 - b) Circuit Breaker Controllers
 - c) Capacitor Bank Switches
 - d) microcontroller based embedded systems
8. WAMS is _____.
- a) Wide area Automation and Management System
 - b) Wide Area Measurement System
 - c) Wide Area Management System
 - d) West Automatic Management System
9. Recloser Controller and voltage regulators are _____.
- a) LEDs
 - b) MCDs
 - c) IEDs
 - d) FASs
10. Pumped Hydro power stations are looked as
- a) Frequency regulators for the grid
 - b) voltage regulators for the grid
 - c) bulk power suppliers
 - d) conventional generating stations
11. Pumped Hydro power stations are treated as
- a) reserve power capacities
 - b) voltage regulators for the grid
 - c) bulk power suppliers
 - d) conventional generating stations
12. _____ is the condition in which a distributed generator (DG) continues to power a location even though electrical grid power is no longer present.
- a) Islanding
 - b) Anti-islanding
 - c) Microgridding
 - d) Brown out


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13. Which of the following is true in the grid connected operation of the AC Microgrid?
- Battery charging, PV at MPPT, diesel generator regulating the voltage and frequency
 - Battery charging, PV at off MPPT, diesel generator regulating the voltage and frequency
 - Battery charging, PV at MPPT, diesel generator off
 - diesel generator regulating the voltage and frequency
14. VAR compensators are treated as
- simply as active power controller
 - simply as reactive power controller
 - enhancing the power flow controller
 - one of the power conditioning technology for improvement in power quality
15. For power quality and reliability, fast response, soft transfer, isolation
- are the requirements of distributed generation integration
 - are the requirements of conventional generation
 - are not the requirements of distributed generation integration
 - are not the requirements of PSS for distributed generation integration
16. _____ is a one that is able to tolerate a fault and continue generating powered with a certain degree of power quality even when dealing with some typical faults such as dip voltage.
- Self-healing system
 - Flexible AC transmission system
 - Resilient system
 - outage management system
17. Isolation transformers, voltage regulators are treated as
- Power conditioning equipment's
 - disturbing network power quality equipment's
 - simply as equipment's serving their purpose
 - simply as source of power

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18. The main responsibility of Application layer in TCP/IP protocol architecture is
- routing packets from source to destination across multiple layers
 - allow users to access network resources
 - transmits raw bits as signals between nodes
 - provides reliable and application independent process to process delivery of messages
19. The main responsibility of Network layer in TCP/IP protocol architecture is
- encapsulation of IP packets coming from the internet layer into frames, frame synchronization
 - allow users to access network resources
 - transmits raw bits as signals between nodes
 - provides reliable and application independent process to process delivery of messages
20. The Smart Grid domains and sub domains use variety of private and non-private _____ communication channels
- Wired
 - Wireless
 - wired and wireless
 - optical and coaxial
21. In DC voltage bus the following parameter is known
- DC power
 - Voltage
 - Reactive power
 - Frequency
22. Full form of the SCADA is
- Supervisory control and digital acquisition
 - Supervisory control and data acquisition
 - Supplementary control and data acquisition
 - Supplementary control and digital acquisition
23. Renewable energy is generated from
- Natural resources
 - Artificial resources
 - Nuclear resources
 - does not require any source


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24. **Power quality is the ability of a system**
- a) to operate causing disturbance or damage to loads and components
 - b) to operate without causing disturbance or damage to loads and components
 - c) to lose synchronism of the synchronous machines
 - d) None of the above
25. **Which statement from the following is not true for OMS,**
- a) Prediction of location of transformer, fused, recloser or breaker that opened upon failure.
 - b) Prioritizing restoration efforts and managing resources based upon criteria such as locations of emergency facilities, size of outages, and duration of outages.
 - c) Providing information on extent of outages and number of customers impacted to management, media and regulators.
 - d) It is a networking system using mesh topology to interact with consumers and utilities.


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Value Added Course

“Smart Grid Technology”

ANSWER KEY

| | | | | | | | | | |
|---|---|----|---|----|---|----|---|----|---|
| 1 | d | 6 | b | 11 | b | 16 | a | 21 | d |
| 2 | c | 7 | b | 12 | b | 17 | b | 22 | a |
| 3 | c | 8 | c | 13 | d | 18 | b | 23 | a |
| 4 | a | 9 | b | 14 | c | 19 | a | 24 | c |
| 5 | c | 10 | a | 15 | b | 20 | b | 25 | c |


VAC Coordinator


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Smart Grid Technology

- 1) (d) does not need any data
- 2) (c) Phase
- 3) (c) Solve automatically grid disturbances
- 4) (a) Building Automation and control systems
- 5) (a) National Institute of Smart grid
- 6) (a) SPBRG, PS, PIC18, ATMEZ, SCADA, PLC, ES.
- 7) (b) Circuit Breaker controllers
- 8) (e) Wide Area Management Systems
- 9) (b) MCDs
- 10) (a) bulk power suppliers.
- 11) (b) Voltage regulators for the grid
- 12) (b) Anti-islanding
- 13) (d) diesel generator resulting the Voltage and frequency.

20
25

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generation

- 16) (a) Self-healing System
- 17) (b) disturbing network power quality equipments
- 18) (b) allow users to access network resources
- 19) (b) allow users to access network resources
- 20) (b) Wireless ✓
- 21) (d) Frequency ✓
- 22) (a) Supervisory control and digital acquisition ✓
- 23) (a) Natural resources
- 24) (c) to lose synchronism of the synchronous machines
- 25) (d) It is a networking system consisting mesh topology to interact with consumers and utilities.

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14.7.2020

Smart Grid Technology

S. Keerthana

III / VI

1. d) does not need any data
2. c) Phase
3. c) solve automatically grid disturbances
4. d) Broad Area communication
5. a) National Institute of Smart grid
6. b) ZNA, BACnet, KNX, Lon works, one net, X10, Insteon
7. b) circuit Breaker controllers
8. c) wide Area management System
9. b) MCOs
10. a) Frequency regulators for the grid
11. b) voltage regulators for the grid
12. b) Anti-islanding

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13. d) diesel generator regulating the voltage and frequency

14. c) enhancing the power flow controller

15. b) are the requirements of conventional generation

16. b) Resilient System

17. d) simply as source of power

18. b) allow users to access network resources

19. b) allow users to access network resources

20. b) wireless

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21. d) Frequency

22. a) supervisory control and digital acquisition

23. a) Natural resources

24. c) to lose synchronism of the synchronous machines

25. a) Prediction of location of transformer, fused, recloser or break that opened upon failure.



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Department of Electrical and Electronics Engineering

Academic Year 2019-2020 – Even Semester

VALUE ADDED COURSE ASSESMENT SHEET

“Smart Grid Technology”

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| S.NO | REG NO | STUDENTS NAME | YEAR/ BRANCH | Attendance Details | | VAC-MCQ TEST | | OVERALL MARK(100) (50% of A + 50% of B) |
|------|--------------|------------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|--|
| | | | | No. of Hours Attended | Attendance Mark(100) (A) | No of Correct Answers | MCQ Mark(100) (B) | |
| 1 | 811216105001 | ATTCHAYA A K | IV/EEE | 27 | 90 | 23 | 92 | 91 |
| 2 | 811216105003 | BENAZIR M | IV/EEE | 30 | 100 | 21 | 84 | 92 |
| 3 | 811216105004 | GUNA SEELAN D | IV/EEE | 27 | 90 | 22 | 88 | 89 |
| 4 | 811216105005 | HARI GOWTHAM M | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 5 | 811216105006 | HARIHARAN B | IV/EEE | 27 | 90 | 21 | 84 | 87 |
| 6 | 811216105007 | ISWARYA K | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 7 | 811216105008 | KALISTA P | IV/EEE | 27 | 90 | 21 | 84 | 87 |
| 8 | 811216105009 | KHAJAMOINUDEEN S | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 9 | 811216105010 | KIRUTHIKA B | IV/EEE | 30 | 100 | 19 | 76 | 88 |
| 10 | 811216105011 | LOURDHU MARY D | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 11 | 811216105012 | MARIA SHOBANA J | IV/EEE | 30 | 100 | 21 | 84 | 92 |



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Manikandam, Trichy-620 012.

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|------|--------------|-------------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|--|
| | | | | No. of Hours Attended | Attendance Mark(100) (A) | No of Correct Answers | MCQ Mark(100) (B) | |
| 12 | 811216105014 | MERLIN REETA P | IV/EEE | 27 | 90 | 20 | 80 | 85 |
| 13 | 811216105015 | NIROSHINI R | IV/EEE | 27 | 90 | 19 | 76 | 83 |
| 14 | 811216105016 | NITHING A | IV/EEE | 27 | 90 | 19 | 76 | 83 |
| 15 | 811216105017 | PAVENTHAN A | IV/EEE | 27 | 90 | 19 | 76 | 83 |
| 16 | 811216105018 | PRAVEEN KUMAR M | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 17 | 811216105019 | PRISILLA PRIYANKA | IV/EEE | 27 | 90 | 21 | 84 | 87 |
| 18 | 811216105020 | RAJA V | IV/EEE | 27 | 90 | 22 | 88 | 89 |
| 19 | 811216105021 | RATHINA RAJ R | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 20 | 811216105023 | RESHMI D | IV/EEE | 27 | 90 | 21 | 84 | 87 |
| 21 | 811216105024 | ROOBINI S | IV/EEE | 27 | 90 | 20 | 80 | 85 |
| 22 | 811216105025 | SURESH K | IV/EEE | 27 | 90 | 21 | 84 | 87 |
| 23 | 811216105026 | SURIYA PRAKASH K | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 24 | 811216105027 | TAMILARASAN M | IV/EEE | 30 | 100 | 21 | 84 | 92 |
| 25 | 811216105028 | TAMILAZHAGAN M | IV/EEE | 30 | 100 | 20 | 80 | 90 |
| 26 | 811216105029 | VINOTH R | IV/EEE | 30 | 100 | 21 | 84 | 92 |
| 27 | 811216105302 | PARKAVI S | IV/EEE | 27 | 90 | 20 | 80 | 85 |
| 28 | 811217105005 | ARUL JOY ASHA A | III/EEE | 27 | 90 | 19 | 76 | 83 |



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|------|--------------|------------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|--|
| | | | | No. of Hours Attended | Attendance Mark(100) (A) | No of Correct Answers | MCQ Mark(100) (B) | |
| 29 | 811217105006 | ARUN SEBASTIN P | III/EEE | 27 | 90 | 19 | 76 | 83 |
| 30 | 811217105007 | BHARTHASARATHI M | III/EEE | 27 | 90 | 20 | 80 | 85 |
| 31 | 811217105008 | CHITHRA P | III/EEE | 30 | 100 | 21 | 84 | 92 |
| 32 | 811217105009 | DEEPIKA G | III/EEE | 27 | 90 | 22 | 88 | 89 |
| 33 | 811217105010 | EZHUMALAI A | III/EEE | 24 | 80 | 21 | 84 | 82 |
| 34 | 811217105011 | GAYATHRI K | III/EEE | 27 | 90 | 20 | 80 | 85 |
| 35 | 811217105012 | GAYATHRI S | III/EEE | 30 | 100 | 21 | 84 | 92 |
| 36 | 811217105013 | KANIMOZHI S | III/EEE | 27 | 90 | 19 | 76 | 83 |
| 37 | 811217105014 | KEERTHANA S | III/EEE | 30 | 100 | 19 | 76 | 88 |
| 38 | 811217105015 | KUMARIVALLI T | III/EEE | 30 | 100 | 20 | 80 | 90 |
| 39 | 811217105016 | MADHUMITHA S | III/EEE | 30 | 100 | 21 | 84 | 92 |
| 40 | 811217105017 | MANO K | III/EEE | 27 | 90 | 21 | 84 | 87 |
| 41 | 811217105018 | MEKALA M | III/EEE | 27 | 90 | 20 | 80 | 85 |
| 42 | 811217105020 | PAVITHRA S | III/EEE | 27 | 90 | 21 | 84 | 87 |
| 43 | 811217105021 | PRAVEEN RAJ R | III/EEE | 30 | 100 | 20 | 80 | 90 |
| 44 | 811217105022 | RAJASEKAR.N V | III/EEE | 27 | 90 | 19 | 76 | 83 |
| 45 | 811217105023 | REVATHI P | III/EEE | 30 | 100 | 21 | 84 | 92 |



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| S.NO | REG NO | STUDENTS NAME | YEAR/ BRANCH | Attendance Details | | VAC-MCQ TEST | | OVERALL MARK(100) (50% of A + 50% of B) |
|------|--------------|--------------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|--|
| | | | | No. of Hours Attended | Attendance Mark(100) (A) | No of Correct Answers | MCQ Mark(100) (B) | |
| 46 | 811217105024 | RISHON GURU M | III/EEE | 30 | 100 | 21 | 84 | 92 |
| 47 | 811217105026 | SANTHOSH K | III/EEE | 27 | 90 | 22 | 88 | 89 |
| 48 | 811217105027 | SRIKUMAR M S | III/EEE | 27 | 90 | 20 | 80 | 85 |
| 49 | 811217105028 | SRI LOGESH C | III/EEE | 27 | 90 | 20 | 80 | 85 |
| 50 | 811217105029 | SUBHA T | III/EEE | 27 | 90 | 21 | 84 | 87 |
| 51 | 811217105031 | VALARMATHI C | III/EEE | 30 | 100 | 22 | 88 | 94 |
| 52 | 811217105032 | VISWANATH R | III/EEE | 27 | 90 | 19 | 76 | 83 |
| 53 | 811217105301 | SANJEEV KUMAR R | III/EEE | 30 | 100 | 21 | 84 | 92 |
| 54 | 811218105001 | ARUN PRAVEEN RAJ A | II/EEE | 27 | 90 | 20 | 80 | 85 |
| 55 | 811218105002 | HARIHARAN M | II/EEE | 30 | 100 | 21 | 84 | 92 |
| 56 | 811218105003 | INBARAJ A | II/EEE | 27 | 90 | 20 | 80 | 85 |
| 57 | 811218105004 | JEYA STEPHEN S | II/EEE | 30 | 100 | 19 | 76 | 88 |
| 58 | 811218105005 | MANIKANDAN N | II/EEE | 30 | 100 | 20 | 80 | 90 |
| 59 | 811218105006 | PADMANABAN A | II/EEE | 30 | 100 | 21 | 84 | 92 |
| 60 | 811218105007 | SASIKUMAR R | II/EEE | 27 | 90 | 21 | 84 | 87 |
| 61 | 811218105008 | SIVAKUMAR P | II/EEE | 27 | 90 | 20 | 80 | 85 |
| 62 | 811218105009 | VEERA RAGAVAN A | II/EEE | 27 | 90 | 21 | 84 | 87 |



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| S.NO | REG NO | STUDENTS NAME | YEAR/ BRANCH | Attendance Details | | VAC-MCQ TEST | | OVERALL MARK(100) (50% of A + 50% of B) |
|------|--------------|---------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|--|
| | | | | No. of Hours Attended | Attendance Mark(100) (A) | No of Correct Answers | MCQ Mark(100) (B) | |
| 63 | 811218105010 | YUVARAJ S | II/EEE | 30 | 100 | 20 | 80 | 90 |


VAC Coordinator


HoD/EEE


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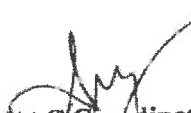




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| Report on Value Added Course | | | | | |
|--|--|--|------------|-----------|----------|
| Title: | "Smart Grid Technology" | | | | |
| Resource Persons: | K. Marimuthu, Senior Project Trainer, Smart Power Care, Thillai Nagar, Trichy. | | | | |
| Date of conduct from : | 20.07.2020 | To: | 24.07.2020 | Duration: | 30 Hours |
| Organized Department : | Electrical and Electronics Engineering | | | | |
| Participant Year: | 2,3,4 | No. of Students Registered : | 63 | | |
| Venue: | online mode Google Meet: https://meet.google.com/hbp-aczr-dge | | | | |
| Outcome of Value Added Course (VAC): At the end of the Course, Students can able to | | | | | |
| <ol style="list-style-type: none">1. Know the fundamental element of the smart grid and power grid.2. Understand different communication technologies used in smart grids.3. Get accustomed with the fundamentals of SCADA and IED4. Understand the Importance of Automation in Substation and substation Automation.5. Understand the Energy management systems in era of smart grid.6. Understand the distribution automation for smart grid development. | | | | | |
| Assessment Process | | | | | |
| <ul style="list-style-type: none">• Students, who are securing more than 70% on total score and secured more than 75% in attendance is eligible to receive the certificate for the VAC course conducted• Total Score = (0.5 * Attendance in VAC out of 100 percentage + 0.5 * Test mark in VAC out of 100 marks) | | | | | |
|  VAC Coordinator |  HoD/EEE |  Principal | | | |

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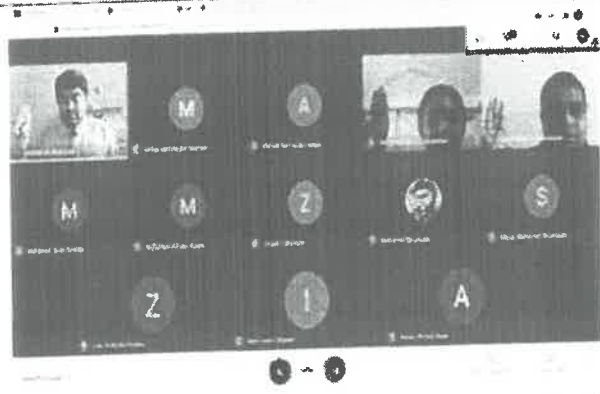





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| Sample Photos of Value Added Course | | | |
|--|--|--|--------------------|
| Title: | "Smart Grid Technology" | | |
| Resource Persons: | K. Marimuthu, Senior Project Trainer, Smart Power Care, Thillai Nagar, Trichy. | | |
| Date of conduct from : | 20.07.2020 | To: 24.07.2020 | Duration: 30 Hours |
| Organized Department : | Electrical and Electronics Engineering | | |
| Participant Year: | 2,3,4 | No. of Students Registered : | 63 |
| Venue: | online mode Google Meet: https://meet.google.com/hbp-aczr-dge | | |
| Sample Photos | | | |
|  | | | |
|  KAC Coordinator |  HoD/EEE |  Principal | |

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CERTIFICATE OF PARTICIPATION

This is to certify that Ms. PARKAVI S, IV Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


Smart Power Care
Mr. R. BHASKAR
Chief Executive Officer.


Dr. G. Balakrishnan, M.E., Ph.D.,
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This is to certify that Ms. ATTCHAYA A K, IV Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.

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This is to certify that Ms. KIRUTHIKA B, IV Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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IGCE




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This is to certify that Ms. LOURDHU MARY D, IV Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Mr. TAMILARASAN M, IV Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.

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Mr. R. BHASKAR

Chief Executive Officer.

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This is to certify that Ms. MEKALA M, III Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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Principal
IGCE





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CERTIFICATE OF PARTICIPATION

This is to certify that Ms. ARUL JOY ASHA A, III Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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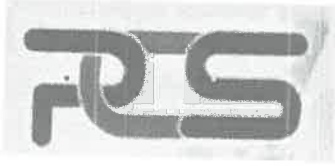
CERTIFICATE OF PARTICIPATION

This is to certify that Ms. CHITHRA P, III Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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CERTIFICATE OF PARTICIPATION

This is to certify that Ms. GAYATHRI K, III Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


Smart Power Care
Mr. R. BHASKAR
Chief Executive Officer.


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This is to certify that Ms. KUMARIVALLI T, III Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Mr. SANJEEV KUMAR R, III Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Mr. JEYA STEPHEN S, II Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Mr. PADMANABAN A, II Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Mr. YUVARAJ S, II Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Mr. ARUN PRAVEEN RAJ A, II Year, EEE has successfully completed the Value Added Course on “Smart Grid Technology” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Smart Power Care from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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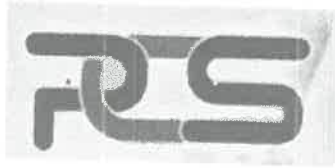
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This is to certify that Mr. INBARAJ A, II Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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This is to certify that Ms. MEKALA M, II Year, EEE has successfully completed the Value Added Course on “**Smart Grid Technology**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with **Smart Power Care** from 20th July 2020 to 24th July 2020 (5days) during the Academic year 2019-2020.


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