



# 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 – 2

## TEACHING-LEARNING AND EVALUATION

SUBMITTED BY

# IQAC

INTERNAL QUALITY ASSURANCE CELL

## INDRA GANESAN COLLEGE OF ENGINEERING





**Criteria2**

**Teaching-Learning and Evaluation**

**350**

**KeyIndicator-2.3.Teaching-Learning Process (40)**

**2022-2023**

## **PARTICIPATIVE LEARNING**

### **ELECTRICAL AND ELECTRONICS ENGINEERING**

| Activity                | Number of Students Attended | Page No. |
|-------------------------|-----------------------------|----------|
| Value Added Course(VAC) | 64                          | 3        |
| TOTAL STUDENTS ATTENDED | 64                          | -        |



|                  |                                         |            |
|------------------|-----------------------------------------|------------|
| <b>Criteria2</b> | <b>Teaching-Learning and Evaluation</b> | <b>350</b> |
|------------------|-----------------------------------------|------------|

## **KeyIndicator-2.3.Teaching-LearningProcess(40)**

**2022-2023**

**ELECTRICAL AND ELECTRONICS ENGINEERING**

**PARTICIPATIVE LEARNING**

**VALUE ADDED COURSE**



# Indra Ganesan

## COLLEGE OF ENGINEERING

Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli - 620 012  
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**Department of Electrical and Electronics Engineering**

**Academic Year 2022-2023 –Odd Semester**

25.01.2023

**DEPARTMENT CIRCULAR**

Department of Electrical and Electronics Engineering and IQAC of IGCE in association with Startus Electric, Trichy is going to organize Value Added Course for all second, Third and Final year students on “Power Grid Protection” from 30.01.2023 to 03.02.2023. Certificates will be issued to the eligible participants at the end of the Course. This training is to be provided in our campus.

|                        |                                                                 |
|------------------------|-----------------------------------------------------------------|
| Resource Person Detail | 1. Mr.M.Elangovan,<br>Trainer,<br>Startus Electric ,<br>Trichy. |
| Venue                  | EEE III yr Classroom, IGCE                                      |

*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

Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.



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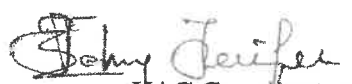


### Value Added Course

### "Power Grid Protection"

#### SYLLABUS

| S.NO                         | TOPIC COVERED                                                                        | DURATION<br>(in hours) | DATE       |
|------------------------------|--------------------------------------------------------------------------------------|------------------------|------------|
| 1                            | Fundamentals of Power System                                                         | 3                      | 30.01.2023 |
| 2                            | Fundamentals of Protective Relaying                                                  | 3                      | 30.01.2023 |
| 3                            | Current based Relaying Scheme                                                        | 3                      | 31.01.2023 |
| 4                            | Protection of Transmission Lines using Distance Relays                               | 3                      | 31.01.2023 |
| 5                            | Carrier Aided Schemes for Transmission Lines and Auto-reclosing and Synchronizing    | 3                      | 01.02.2023 |
| 6                            | Protection of Generators, Transformers, Induction Motors and Bus bars                | 3                      | 01.02.2023 |
| 7                            | Protection against Transients and Surges along with System Response to Severe Upsets | 3                      | 02.02.2023 |
| 8                            | Arc Interruption Theory in Circuit Breaker,                                          | 3                      | 02.02.2023 |
| 9                            | Types of Circuit Breakers and their Testing                                          | 3                      | 03.02.2023 |
| 10                           | Testing, Commissioning and Maintenance of Relays                                     | 3                      | 03.02.2023 |
| 11                           | Exam                                                                                 | 1                      | 03.02.2023 |
| Total Hours (Excluding Exam) |                                                                                      | 30                     | -          |

  
JAC Coordinator

  
HoD/EEE

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### Value Added Course

“Power Grid Protection”

### STUDENTS PARTICIPATION LIST

| S.N<br>O | Register<br>Number | Name            | Department |
|----------|--------------------|-----------------|------------|
| 1        | 811219105002       | M.BARATH        | IV/EEE     |
| 2        | 811219105003       | A.MANIKANDAN    | IV/EEE     |
| 3        | 811219105005       | C.PONNALAGU     | IV/EEE     |
| 4        | 811219105006       | A.SALAMON       | IV/EEE     |
| 5        | 811219105007       | M.SARAVANAKUMAR | IV/EEE     |
| 6        | 811219105008       | K.SOLAIMATHI    | IV/EEE     |
| 7        | 813919105001       | P.DHEVENTHIRAN  | IV/EEE     |
| 8        | 811219105301       | A. VENKATRAMAN  | IV/EEE     |
| 9        | 811220105001       | ABINESH T       | III/EEE    |
| 10       | 811220105002       | ALEX IMMANVEL S | III/EEE    |
| 11       | 811220105006       | BALAMURUGAN A   | III/EEE    |
| 12       | 811220105011       | DIVYA B         | III/EEE    |
| 13       | 811220105013       | GAYATHRI M      | III/EEE    |
| 14       | 811220105017       | KARTHIK D       | III/EEE    |
| 15       | 811220105019       | LATCHIYA K      | III/EEE    |
| 16       | 811220105022       | MANIKANDAN K    | III/EEE    |
| 17       | 811220105023       | MOHANDOSS S     | III/EEE    |

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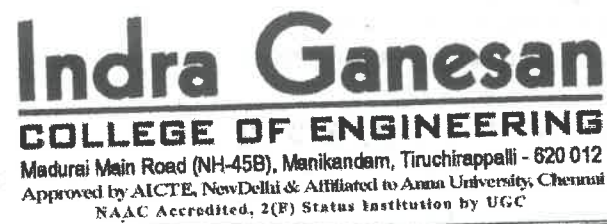
| S.N<br>O | Register<br>Number | Name              | Department |
|----------|--------------------|-------------------|------------|
| 18       | 811220105024       | NAVEEN R          | III/EEE    |
| 19       | 811220105031       | SANDURU K         | III/EEE    |
| 20       | 811220105032       | SANTHIYA A        | III/EEE    |
| 21       | 811220105035       | SHANMUGAM S       | III/EEE    |
| 22       | 811220105037       | SNEKA T           | III/EEE    |
| 23       | 811220105038       | SOPHIYA K         | III/EEE    |
| 24       | 811220105301       | AARTHI S          | III/EEE    |
| 25       | 811220105303       | THIRUNAVUKARASU M | III/EEE    |
| 26       | 811220105305       | VENKATESHWARAN.A  | III/EEE    |
| 27       | 811220105306       | DIVYA BHARATHI    | III/EEE    |
| 28       | 811220105307       | SATHEESH KUMAR    | III/EEE    |
| 29       | 811221105012       | HARIHARAN E       | II/EEE     |
| 30       | 811221105018       | LINGESWARAN R     | II/EEE     |
| 31       | 811221105027       | SANGILI S         | II/EEE     |
| 32       | 811221105039       | SRIKANTH M        | II/EEE     |

  
VAC Coordinator

  
HoD/EEE

  
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**Department of Electrical and Electronics Engineering**

**Academic Year 2022-2023 – Odd Semester**

## STUDENTS ATTENDANCE LIST

## Value Added Course

## “Power Grid Protection”

**Dr. G. Balakrishnan, M.E., Ph.D.,**

## Principal

**Indra Ganesan College of Engineering**  
**IG Valley, Madurai Main Road**  
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| S.NO | Register Number | Name              | YEAR/<br>BRANCH | 30.01.2023 |    | 31.01.2023 |    | 01.02.2023 |    | 02.02.2023 |    | 03.02.2023 |    | NO OF<br>SESSIONS<br>ATTENDED | SIGNA<br>OF THE<br>STUDENT |
|------|-----------------|-------------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-------------------------------|----------------------------|
|      |                 |                   |                 | FN         | AN | FN         | AN | FN         | AN | FN         | AN | FN         | AN |                               |                            |
| 14   | 811220105017    | KARTHIK D         | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | Karthik D                  |
| 15   | 811220105019    | LATCHIYA K        | III/EEE         | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Latchiya                   |
| 16   | 811220105022    | MANIKANDAN K      | III/EEE         | ✓          | ✓  | ✓          | ✓  | a          | a  | ✓          | ✓  | ✓          | ✓  | 8                             | Manikanda                  |
| 17   | 811220105023    | MOHANDOSS S       | III/EEE         | a          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 8                             | Mohandoss                  |
| 18   | 811220105024    | NAVEEN R          | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | 9                             | Naveen R                   |
| 19   | 811220105031    | SANDURU K         | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | Sanduru                    |
| 20   | 811220105032    | SANTHIYA A        | III/EEE         | ✓          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Santhiya                   |
| 21   | 811220105035    | SHANMUGAM S       | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | 8                             | Shanmugam                  |
| 22   | 811220105037    | SNEKA T           | III/EEE         | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Sneka                      |
| 23   | 811220105038    | SOPHIYA K         | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | Sophiya                    |
| 24   | 811220105301    | AARTHI S          | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | AARTHI S                   |
| 25   | 811220105303    | THIRUNAVUKARASU M | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | Thirunavukarasu            |
| 26   | 811220105305    | VENKATESHWARAN.A  | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | Venkat                     |
| 27   | 811220105306    | DIVYA BHARATHI    | III/EEE         | a          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Divya                      |
| 28   | 811220105307    | SATHEESH KUMAR    | III/EEE         | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Satheesh                   |
| 29   | 811221105012    | HARIHARAN E       | II/EEE          | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Harihara                   |
| 30   | 811221105018    | LINGESWARAN R     | II/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | 9                             | Lingeswar                  |
| 31   | 811221105027    | SANGILI S         | II/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | Sangili                    |
| 32   | 811221105039    | SRIKANTH M        | II/EEE          | ✓          | ✓  | ✓          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Srikanth                   |

*Devi Sree*  
VAC Coordinator

*Dr. G. Balakrishnan*, M.E., Ph.D.,  
Principal

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*Gr. Ma Lathi*  
HOD/EEE



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Name of the Student:

Year/Sem:

AU Register Number:

### Value Added Course

“Power Grid Protection”

#### MULTIPLE CHOICE QUESTIONS (25X1 = 25 Marks)

- Which of the following circuit breakers has the lowest operating voltage?  
(a) SF6 gas. (b) Air-break. (c) Air-blast. (d) Minimum oil.
- Which of the following circuit breakers produce the least arc energy?  
(a) Plain oil. (b) Minimum oil. (c) Air-blast. (d) Air break.
- Which of the following circuit breakers has high reliability and negligible maintenance?  
(a) Air-blast. (b) SF6 (c) Oil. (d) Vacuum.
- Which of the following circuit breakers take minimum time in installation?  
(a) Air-blast. (b) Minimum oil. (c) Bulk oil. (d) SF6
- Where voltages are high and current to be interrupted is low, the circuit breaker preferred is.....one.  
(a) air-break (b) vacuum (c) oil (d) air-blast
- For rural electrification in a country like India with complex network, the circuit breaker preferred is.....one.  
(a) air-break (b) oil (c) vacuum (d) minimum oil

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
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7. The most suitable circuit breaker for short line fault without switching resistor is.....one.

- (a) Minimum oil      (b) air-blast      (c) SF<sub>6</sub>      (d) air-break

8. The rating of a circuit breaker is usually determined on the basis of.....fault.

- (a) Symmetrical      (b) line to line  
(c) single line to ground      (d) double line to ground

9. The transient phenomenon lasts in a power system for a period ranging from

- (a) Few ms to 1 s      (b) 1 s to 2 s      (c) 2 s to 3 s      (d) greater than 3 s.

10. Circuit breakers usually operate under

- (a) Steady short-circuits current.      (b) Sub-transient state of short-circuit current.  
(c) Transient state of short-circuit current.      (d) None of these

11. The restriking voltage is measured in

- (a) RMS value.      (b) Peak value.      (c) Instantaneous value.      (d) Average value.

12. The making and breaking currents of 3-phase ac circuit breakers in power system are respectively in what form?

- (a) rms value, rms value.      (b) Instantaneous value, rms value.  
(c) rms value.      (d) Instantaneous value, instantaneous value.

13. The making to breaking current ratio for an EHV circuit breaker is

- (a) More than 1.      (b) Equal to 1.      (c) Less than 1.      (d) A negative number.

14. The making capacity of a circuit breaker is

- (a) Less than the asymmetrical breaking capacity of the breaker.  
(b) Greater than the asymmetrical breaking capacity of the breaker.  
(c) Equal to the symmetrical breaking capacity of the breaker.  
(d) Equal to the asymmetrical breaking capacity.

  
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15. Which of the following statements is not correct?

- (a) Arc chutes are used in air break circuit breakers.
- (b) Air-blast circuit breakers are employed for high voltage traction system.
- (c) Resistance switching is employed for overcoming current chopping.
- (d) Linear resistors are used in resistance switching.

16. Capacitor switching in 33 kV power systems is better done with.....circuit breakers.

- (a) air-blast
- (b) minimum oil
- (c) vacuum

17. The probable cause(s) for fall in insulation resistance between phase terminal and earthed frame could be

- (a) Dirty insulation surface.
- (b) Ingress of moisture.
- (c) Sticking of carbon or copper particles to the internal surface.
- (d) all of the above.

18. The probable cause(s) for failure of a circuit breaker on electrical compound could be

- (a) Trip circuit open.
- (b) Trip latch defective.
- (c) Spring defective.
- (d) Any of the above.

19. An isolator is installed

- (a) To isolate one portion of the circuit from another.
- (b) Usually on both sides of a circuit breaker.
- (c) As a substitute for a circuit breaker.
- (d) Both (a) and (b).

20. Current rating is not necessary in case of

- (a) Isolators.
- (b) Circuit breakers.
- (c) Load break switches.
- (d) Circuit breakers and load break switches.

  
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21. An isolator is meant for

- (a) Breaking abnormal current.
- (b) Making under fault condition.
- (c) Breaking the circuit under no-load condition.
- (d) None of the above.

22. Isolators used in transmission lines are capable of breaking:

- (a) Fault current.
- (b) No current.
- (c) Charging current.
- (d) All the above

23. For a fault at the terminals of synchronous generator, the fault current is maximum for a

- (a) 3-phase fault.
- (b) 3-phase to ground fault.
- (c) line-to-ground fault.
- (d) line-to-line fault.

24. If all the sequence voltages at the fault point in a power system are equal, then the fault is a

- (a) three-phase fault.
- (b) line-to ground fault.
- (c) line-to-line fault.
- (d) double-line-to ground fault.

25. The material used in liquid fuses is

- (a) SF<sub>6</sub>
- (b) distilled water.
- (c) Carbon tetra chloride.
- (d) Transformer oil.

  
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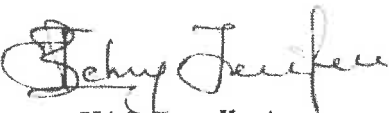


### Value Added Course

“Power Grid Protection”

#### Answer Key

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

  
VAC Coordinator

  
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IG Valley, Madurai Main Road

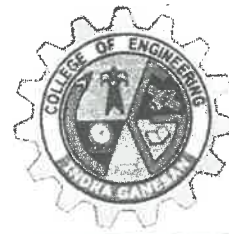
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Name of the Student: M. Barath

Year/Sem: IV / VII

AU Register Number: 811219105002

20  
25

## Value Added Course

"Power Grid Protection"

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**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
Indra Ganesan College of Engineering  
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# Indra Ganesan

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**Dr. G. Balakrishnan, M.E., Ph.D.,**

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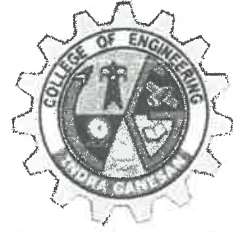
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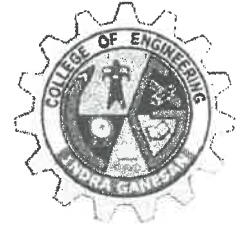
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Name of the Student: HARIHARAN.E

Year/Sem: II/III

AU Register Number: 811221105012

19/25

### Value Added Course

“Power Grid Protection”

#### MULTIPLE CHOICE QUESTIONS (25X1 = 25 Marks)

- Which of the following circuit breakers has the lowest operating voltage?  
(a) SF6 gas. (b) Air-break. (c) Air-blast. (d) Minimum oil.
- Which of the following circuit breakers produce the least arc energy?  
(a) Plain oil. (b) Minimum oil. (c) Air-blast. (d) Air break.
- Which of the following circuit breakers has high reliability and negligible maintenance?  
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- Which of the following circuit breakers take minimum time in installation?  
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- Where voltages are high and current to be interrupted is low, the circuit breaker preferred is.....one.  
(a) air-break (b) vacuum (c) oil (d) air-blast
- For rural electrification in a country like India with complex network, the circuit breaker preferred is.....one.  
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7. The most suitable circuit breaker for short line fault without switching resistor is.....one.

- (a) Minimum oil      (b) air-blast      ☒ (c) SF<sub>6</sub>      (d) air-break

8. The rating of a circuit breaker is usually determined on the basis of.....fault.

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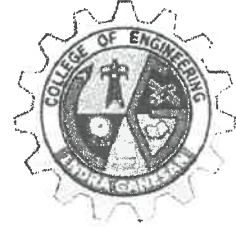
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Name of the Student: B. DIVYA

Year/Sem: III / V

AU Register Number: 811220105011

20  
25

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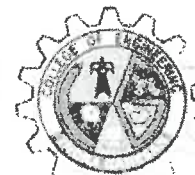
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### Department of Electrical and Electronics Engineering

Academic Year 2022-2023 – Odd Semester

### VALUE ADDED COURSE ASSESMENT SHEET

“Power Grid Protection”

Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.

| S.NO | Register Number | Name            | YEAR/<br>BRANCH | Attendance Details          |                                | VAC-MCQ TEST                |                         | OVERALL MARK<br>(100)       |
|------|-----------------|-----------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|-----------------------------|
|      |                 |                 |                 | No. of<br>Hours<br>Attended | Attendance<br>Mark(100)<br>(A) | No of<br>Correct<br>Answers | MCQ<br>Mark(100)<br>(B) | (50% of A<br>+ 50% of<br>B) |
| 1    | 811219105002    | M.BARATH        | IV/EEE          | 30                          | 100                            | 20                          | 80                      | 90                          |
| 2    | 811219105003    | A.MANIKANDAN    | IV/EEE          | 30                          | 100                            | 20                          | 80                      | 90                          |
| 3    | 811219105005    | C.PONNALAGU     | IV/EEE          | 27                          | 90                             | 21                          | 84                      | 87                          |
| 4    | 811219105006    | A.SALAMON       | IV/EEE          | 27                          | 90                             | 21                          | 84                      | 87                          |
| 5    | 811219105007    | M.SARAVANAKUMAR | IV/EEE          | 27                          | 90                             | 22                          | 88                      | 89                          |
| 6    | 811219105008    | K.SOLAIMATHI    | IV/EEE          | 27                          | 90                             | 19                          | 76                      | 83                          |
| 7    | 813919105001    | P.DHEVENTHIRAN  | IV/EEE          | 30                          | 100                            | 20                          | 80                      | 90                          |
| 8    | 811219105301    | A. VENKATRAMAN  | IV/EEE          | 27                          | 90                             | 23                          | 92                      | 91                          |
| 9    | 811220105001    | ABINESH T       | III/EEE         | 27                          | 90                             | 19                          | 76                      | 83                          |
| 10   | 811220105002    | ALEX IMMANVEL S | III/EEE         | 27                          | 90                             | 19                          | 76                      | 83                          |
| 11   | 811220105006    | BALAMURUGAN A   | III/EEE         | 30                          | 100                            | 21                          | 84                      | 92                          |



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| 12   | 811220105011    | DIVYA B           | III/EEE         | 27                          | 90                             | 20                          | 80                      | 85                          |
| 13   | 811220105013    | GAYATHRI M        | III/EEE         | 30                          | 100                            | 21                          | 84                      | 92                          |
| 14   | 811220105017    | KARTHIK D         | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 15   | 811220105019    | LATCHIYA K        | III/EEE         | 27                          | 90                             | 19                          | 76                      | 83                          |
| 16   | 811220105022    | MANIKANDAN K      | III/EEE         | 24                          | 80                             | 20                          | 80                      | 80                          |
| 17   | 811220105023    | MOHANDOSS S       | III/EEE         | 24                          | 80                             | 21                          | 84                      | 82                          |
| 18   | 811220105024    | NAVEEN R          | III/EEE         | 27                          | 90                             | 22                          | 88                      | 89                          |
| 19   | 811220105031    | SANDURU K         | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 20   | 811220105032    | SANTHIYA A        | III/EEE         | 27                          | 90                             | 21                          | 84                      | 87                          |
| 21   | 811220105035    | SHANMUGAM S       | III/EEE         | 24                          | 80                             | 20                          | 80                      | 80                          |
| 22   | 811220105037    | SNEKA T           | III/EEE         | 27                          | 90                             | 21                          | 84                      | 87                          |
| 23   | 811220105038    | SOPHIYA K         | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 24   | 811220105301    | AARTHI S          | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 25   | 811220105303    | THIRUNAVUKARASU M | III/EEE         | 30                          | 100                            | 21                          | 84                      | 92                          |
| 26   | 811220105305    | VENKATESHWARAN.A  | III/EEE         | 30                          | 100                            | 21                          | 84                      | 92                          |



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| 27   | 811220105306    | DIVYA BHARATHI | III/EEE         | 27                          | 90                             | 22                          | 88                      | 89                          |
| 28   | 811220105307    | SATHEESH KUMAR | III/EEE         | 27                          | 90                             | 20                          | 80                      | 85                          |
| 29   | 811221105012    | HARIHARAN E    | II/EEE          | 27                          | 90                             | 19                          | 76                      | 83                          |
| 30   | 811221105018    | LINGESWARAN R  | II/EEE          | 27                          | 90                             | 21                          | 84                      | 87                          |
| 31   | 811221105027    | SANGILI S      | II/EEE          | 30                          | 100                            | 22                          | 88                      | 94                          |
| 32   | 811221105039    | SRIKANTH M     | II/EEE          | 27                          | 90                             | 20                          | 80                      | 85                          |

  
VAC Coordinator

  
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HoD/EEE



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### REPORT ON VALUE ADDED COURSE

|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                              |                              |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------|------------|
| Title:                                                                                                                                                                                                                                                                                                                                                                                                        | "Power Grid Protection"                                      |                              |            |
| Resource Persons:                                                                                                                                                                                                                                                                                                                                                                                             | Mr.M.Elangovan,<br>Trainer.<br>Startus Electric ,<br>Trichy. |                              |            |
| Date of conduct from :                                                                                                                                                                                                                                                                                                                                                                                        | 30.01.2023                                                   | To:                          | 03.02.2023 |
| Duration:                                                                                                                                                                                                                                                                                                                                                                                                     | 30 Hours                                                     |                              |            |
| Organized Department :                                                                                                                                                                                                                                                                                                                                                                                        | Electrical and Electronics Engineering                       |                              |            |
| Participant Year:                                                                                                                                                                                                                                                                                                                                                                                             | 2,3,4                                                        | No. of Students Registered : | 32         |
| Venue:                                                                                                                                                                                                                                                                                                                                                                                                        | EEE III yr Classroom                                         |                              |            |
| <b>Outcome of Value Added Course (VAC): At the end of the Course, Students can able to</b>                                                                                                                                                                                                                                                                                                                    |                                                              |                              |            |
| <ul style="list-style-type: none"><li>● Learn the basic concepts of power system protection and relays.</li><li>● Design the relevant protection systems for the main elements of a power system.</li><li>● Learn the theory of arcing phenomenon.</li><li>● Analyze the purpose and working principle of different circuit breakers and tests.</li></ul>                                                     |                                                              |                              |            |
| <b>Assessment Process</b>                                                                                                                                                                                                                                                                                                                                                                                     |                                                              |                              |            |
| <ul style="list-style-type: none"><li>● 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</li><li>● Total Score = (0.5 *Attendance in VAC out of 100 percentage + 0.5 *Test mark in VAC out of 100 marks)</li></ul>                                                                         |                                                              |                              |            |
| <div style="display: flex; justify-content: space-between;"><div><br/>VAC Coordinator</div><div><br/>HoD/EEE</div><div><br/>Principal</div></div> |                                                              |                              |            |

Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.



# Indra Ganesan

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### SAMPLE PHOTOS OF VALUE ADDED COURSE

Title: "Power Grid Protection"

Resource Persons:

Mr.M.Elangovan,  
Trainer.  
Startus Electric ,  
Trichy.

Date of conduct from : 30.01.2023

To: 03.02.2023

Duration: 30 Hours

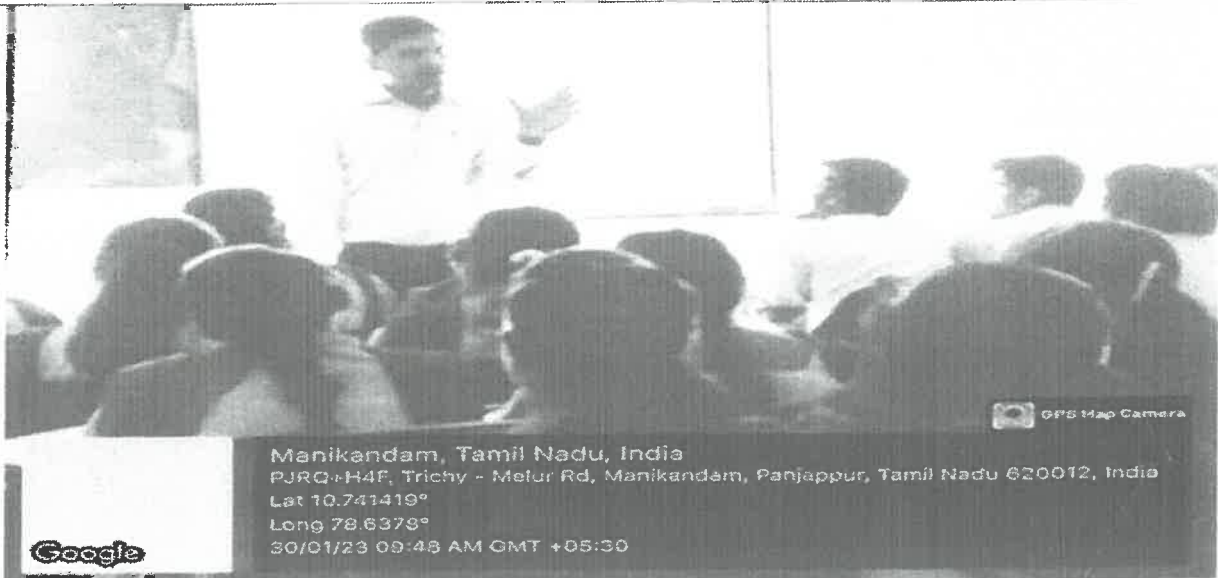
Organized Department : Electrical and Electronics Engineering

Participant Year: 2,3,4

No. of Students Registered : 32

Venue: EEE III yr Classroom

### SAMPLE PHOTOS



*Behmy Jeyaraj*  
VAC Coordinator

*G. Mani Latha*  
HoD/EEE

*Indra*  
Principal

Dr. G. Balakrishnan, M.E., Ph.D.,  
Principal

Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.



# Indra Ganesan

COLLEGE OF ENGINEERING  
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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr. SANDURU K, III Year, EEE has successfully completed the Value Added Course on “Power Grid Protection” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Startus Electric from 30<sup>th</sup> January 2023 to 3<sup>rd</sup> January 2023 (5days) during the Academic year 2022-2023.

**Startus Electric**

**Mr.L.Ramesh**

**Chief Executive Officer.**

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

**Principal**

**IGCE**



**Indra Ganesan**  
**COLLEGE OF ENGINEERING**  
Madurai Main Road (NH 45B), Manikandam, Trichy - 12.  
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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr. NAVEEN R, III Year, EEE has successfully completed the Value Added Course on "Power Grid Protection" organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Startus Electric from 30<sup>th</sup> January 2023 to 3<sup>rd</sup> January 2023 (5days) during the Academic year 2022-2023.

**Startus Electric**  
**Mr.L.Ramesh**  
**Chief Executive Officer.**

**Principal**  
**IGCE**

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.



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**COLLEGE OF ENGINEERING**  
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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr. SRIKANTH M, III Year, EEE has successfully completed the Value Added Course on “Power Grid Protection” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with Startus Electric from 30<sup>th</sup> January 2023 to 3<sup>rd</sup> January 2023 (5days) during the Academic year 2022-2023.

**Startus Electric**  
**Mr.L.Ramesh**  
**Chief Executive Officer.**

**Principal**  
**IGCE**

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
**Principal**  
**Indra Ganesan College of Engineering**  
**IG Valley, Madurai Main Road**  
**Manikandam, Trichy-620 012.**



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**Department of Electrical and Electronics Engineering**

**Academic Year 2022-2023 –Even Semester**

26.07.2023

**DEPARTMENT CIRCULAR**

Department of Electrical and Electronics Engineering and IQAC of IGCE in association with NoviTech R&D Pvt Ltd is going to organize Value Added Course for all Second, Third and Final year students on “Electrical safety & maintenance” from 01.08.2023 to 05.08.2023. Certificates will be issued to the eligible participants at the end of the Course. This training is to be provided in our campus

|                        |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Resource Person Detail | 1. Mr.S.Sathiyan,<br>Trainer,<br>NoviTech R&D Pvt Ltd<br>Coimbatore, Tamilnadu. |
| Venue                  | EEE III yr Classroom, IGCE                                                      |

*G. Ma lathi*

HOD/EEE

*Principal*

Principal

Cc:

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

*Dr. G. Balakrishnan, M.E., Ph.D.,*

Principal

Indra Ganesan College of Engineering  
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### Value Added Course

“Electrical safety & maintenance”

#### SYLLABUS

| S.NO                        | TOPIC COVERED                                                                                                                          | DURATION<br>(in hours) | DATE       |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|
| 1                           | Elementary Electrical - Basics of Electricity                                                                                          | 3                      | 01.08.2023 |
| 2                           | Exposure to General Tools and Tackle<br>Testing of wiring Installation                                                                 | 3                      | 01.08.2023 |
| 3                           | Electrical Power System :Overview<br>Quality of Electrical supply<br>Power Distribution System –<br>Basics Distribution Line equipment | 3                      | 02.08.2023 |
| 4                           | Transformers Major Substation<br>Equipment Operation &<br>Maintenance Practices                                                        | 3                      | 02.08.2023 |
| 5                           | Earthing                                                                                                                               | 3                      | 03.08.2023 |
| 6                           | Electrical System Protection                                                                                                           | 3                      | 03.08.2023 |
| 7                           | Important Electricity Rules Related to<br>Safety                                                                                       | 3                      | 04.08.2023 |
| 8                           | Electrical Safety                                                                                                                      | 3                      | 04.08.2023 |
| 9                           | Accident Prevention & Protection,<br>First Aid                                                                                         | 3                      | 05.08.2023 |
| 10                          | Disaster Management                                                                                                                    | 3                      | 05.08.2023 |
| 11                          | Exam                                                                                                                                   | 1                      | 05.08.2023 |
| Total Hours(Excluding Exam) |                                                                                                                                        | 30                     | -          |

  
VAC Coordinator



  
HoD/EEE

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
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Manikandam, Trichy-620 012.



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### Value Added Course

“Electrical safety & maintenance”

### STUDENTS PARTICIPATION LIST

| S.No | Reg.No       | Student Name    | Year/ Branch |
|------|--------------|-----------------|--------------|
| 1    | 811219105002 | M.BARATH        | IV/EEE       |
| 2    | 811219105003 | A.MANIKANDAN    | IV/EEE       |
| 3    | 811219105005 | C.PONNALAGU     | IV/EEE       |
| 4    | 811219105006 | A.SALAMON       | IV/EEE       |
| 5    | 811219105007 | M.SARAVANAKUMAR | IV/EEE       |
| 6    | 811219105008 | K.SOLAIMATHI    | IV/EEE       |
| 7    | 813919105001 | P.DHEVENTHIRAN  | IV/EEE       |
| 8    | 811219105301 | A. VENKATRAMAN  | IV/EEE       |
| 9    | 811220105001 | ABINESH T       | IV/EEE       |
| 10   | 811220105002 | ALEX IMMANVEL S | III/EEE      |
| 11   | 811220105006 | BALAMURUGAN A   | III/EEE      |
| 12   | 811220105011 | DIVYA B         | III/EEE      |
| 13   | 811220105013 | GAYATHRI M      | III/EEE      |
| 14   | 811220105017 | KARTHIK D       | III/EEE      |
| 15   | 811220105019 | LATCHIYA K      | III/EEE      |
| 16   | 811220105022 | MANIKANDAN K    | III/EEE      |
| 17   | 811220105023 | MOHANDOSS S     | III/EEE      |
| 18   | 811220105024 | NAVEEN R        | III/EEE      |
| 19   | 811220105031 | SANDURU K       | III/EEE      |



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| S.No | Reg.No       | Student Name      | Year/ Branch |
|------|--------------|-------------------|--------------|
| 20   | 811220105032 | SANTHIYA A        | III/EEE      |
| 21   | 811220105035 | SHANMUGAM S       | III/EEE      |
| 22   | 811220105037 | SNEKA T           | III/EEE      |
| 23   | 811220105038 | SOPHIYA K         | III/EEE      |
| 24   | 811220105301 | AARTHI S          | III/EEE      |
| 25   | 811220105303 | THIRUNAVUKARASU M | IV/EEE       |
| 26   | 811220105305 | VENKATESHWARAN.A  | III/EEE      |
| 27   | 811220105306 | DIVYA BHARATHI    | III/EEE      |
| 28   | 811220105307 | SATHEESH KUMAR    | III/EEE      |
| 29   | 811221105012 | HARIHARAN E       | II/EEE       |
| 30   | 811221105018 | LINGESWARAN R     | II/EEE       |
| 31   | 811221105027 | SANGILI S         | II/EEE       |
| 32   | 811221105039 | SRIKANTH M        | II/EEE       |

S.Vf

VAC Coordinator

Gr. Malathi

HoD/EEE

(Signature)

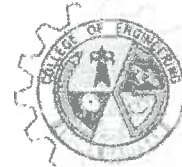
Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.



**Academic Year 2022-2023 – Even Semester**

## STUDENTS ATTENDANCE LIST

## Value Added Course

## “Electrical safety & maintenance”

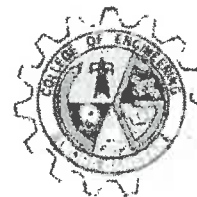
| S.NO | Register Number | NAME            | YEAR/<br>BRANCH | 01.08.2023 |    | 02.08.2023 |    | 03.08.2023 |    | 04.08.2023 |    | 05.08.2023 |    | NO OF<br>SESSIONS<br>ATTENDED | SIGN OF<br>THE<br>STUDENT |
|------|-----------------|-----------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-------------------------------|---------------------------|
|      |                 |                 |                 | FN         | AN | FN         | AN | FN         | AN | FN         | AN | FN         | AN |                               |                           |
| 1    | 811219105002    | M.BARATH        | IV/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | M. Barath                 |
| 2    | 811219105003    | A.MANIKANDAN    | IV/EEE          | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | A. Manikandan             |
| 3    | 811219105005    | C.PONNALAGU     | IV/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | C. Ponnalagu              |
| 4    | 811219105006    | A.SALAMON       | IV/EEE          | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | A. Salamon                |
| 5    | 811219105007    | M.SARAVANAKUMAR | IV/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | M. Saravanan              |
| 6    | 811219105008    | K.SOLAIMATHI    | IV/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | K. Solaimathi             |
| 7    | 813919105001    | P.DHEVENTHIRAN  | IV/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | P. Dheventhiran           |
| 8    | 811219105301    | A. VENKATRAMAN  | IV/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | 9                             | A. Venkatarman            |
| 9    | 811220105001    | ABINESH T       | III/EEE         | ✓          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | Abinest                   |
| 10   | 811220105002    | ALEX IMMANVEL S | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | 9                             | Alex Immanuel             |
| 11   | 811220105006    | BALAMURUGAN A   | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | B. Balamurugan            |
| 12   | 811220105011    | DIVYA B         | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | 9                             | D. Divya                  |
| 13   | 811220105013    | GAYATHRI M      | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | M. Gayathri               |
| 14   | 811220105017    | KARTHIK D       | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | D. Karthik                |



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| S.NO | Register Number | NAME              | YEAR/<br>BRANCH | 01.08.2023 |    | 02.08.2023 |    | 03.08.2023 |    | 04.08.2023 |    | 05.08.2023 |    | NO OF<br>SESSIONS<br>ATTENDED | SIGN OF<br>THE<br>STUDENT |
|------|-----------------|-------------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-------------------------------|---------------------------|
|      |                 |                   |                 | FN         | AN | FN         | AN | FN         | AN | FN         | AN | FN         | AN |                               |                           |
| 15   | 811220105019    | LATCHIYA K        | III/EEE         | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | K. Latchya                |
| 16   | 811220105022    | MANIKANDAN K      | III/EEE         | ✓          | ✓  | ✓          | ✓  | a          | a  | ✓          | ✓  | ✓          | ✓  | 08                            | K. Manikandan             |
| 17   | 811220105023    | MOHANDOSS S       | III/EEE         | ✓          | ✓  | a          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | 08                            | S. Mohandoss              |
| 18   | 811220105024    | NAVEEN R          | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | a          | ✓  | ✓          | ✓  | 9                             | R. Naveen                 |
| 19   | 811220105031    | SANDURU K         | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | K. Sanduru                |
| 20   | 811220105032    | SANTHIYA A        | III/EEE         | ✓          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 09                            | A. Santhiya               |
| 21   | 811220105035    | SHANMUGAM S       | III/EEE         | ✓          | ✓  | ✓          | ✓  | a          | ✓  | a          | ✓  | ✓          | ✓  | 8                             | S. Shanmugam              |
| 22   | 811220105037    | SNEKA T           | III/EEE         | ✓          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | T. Sneka                  |
| 23   | 811220105038    | SOPHIYA K         | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | K. Sophia                 |
| 24   | 811220105301    | AARTHI S          | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | S. Arthi                  |
| 25   | 811220105303    | THIRUNAVUKARASU M | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | M. Thirunavukarasu        |
| 26   | 811220105305    | VENKATESHWARAN.A  | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | A. Venkateshwaran         |
| 27   | 811220105306    | DIVYA BHARATHI    | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | 9                             | D. Divya                  |
| 28   | 811220105307    | SATHEESH KUMAR    | III/EEE         | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | K. Satheesh               |
| 29   | 811221105012    | HARIHARAN E       | II/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | 9                             | E. Hariharan              |
| 30   | 811221105018    | LINGESWARAN R     | II/EEE          | ✓          | ✓  | ✓          | a  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | R. Lingeswaran            |
| 31   | 811221105027    | SANGILI S         | II/EEE          | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | ✓          | ✓  | 10                            | S. Sangili                |
| 32   | 811221105039    | SRIKANTH M        | II/EEE          | ✓          | ✓  | ✓          | ✓  | a          | ✓  | ✓          | ✓  | ✓          | ✓  | 9                             | M. Srikanth               |

S. Vignesh  
VAC Coordinator

Dr. G. Balakrishnan, M.E., Ph.D.,  
Principal  
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IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

G. Ma Lathi  
HoD/EEE



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Name of the Student:

Year/Sem:

AU Register Number:

### Value Added Course

**"Electrical safety & maintenance"**

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal

Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

### MULTIPLE CHOICE QUESTIONS (25X1 = 25 Marks)

- Which of these can be used as insulating live-line tools for electrical protection?  
(A) Shotgun sticks (B) Switch sticks (C) Hot sticks  
(D) None of the above (E) a, b, and c
- A Safety Electrical One Line Diagram should be used to \_\_\_\_\_ all sources of electrical energy.  
(A) Identify (B) Castigate (C) Evaluate (D) Modify
- The minimum allowable workspace around electrical equipment is \_\_\_\_\_ inches deep.  
A) 36 B) 48 C) 24 D) 30
- OSHA requires the testing of a voltmeter after a voltage test on voltage above \_\_\_\_\_.  
A) 120v B) 208v C) 277v D) 600v
- One of the three generally recognized hazards of electrical work is \_\_\_\_\_.  
A) Arc Flash B) Cuts C) Falls D) Concussion
- Gloves used for electrical protection must be electrically tested every \_\_\_\_\_ month.  
A) 3 months B) 6 months C) 12 months D) Never
- Which of these risks is associated with electricity?  
A) Shock B) Fire C) Explosion D) All of the above
- What's the first thing you should do if a co-worker is being electrocuted?  
A) Pull them free of the power source. B) Turn off the power source.  
C) Call 911 D) Alert a foreman



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9. GFCI stands for ground fault circuit interrupter.

- A) True.      B) False.

10. If you're working in a damp space, what do you need to do?

- A) Mop First.      B) Elevate the electrical outlets and wiring.  
C) Install and use ground fault circuit interrupter.      D) Use heaters to dry areas.

11. If you're servicing an appliance, what's the first thing you need to do?

- A) Expose the battery or motor.      B) Test to ensure it's de-powered.  
C) Inspect the power lines leading into it.      D) Remove any batteries

12. What is the name of the practice that involves locking down an electrical device and labeling it so others know who locked it and why?

- A) Lockout/Tagout      B) Lock and Label  
C) Go and Show      D) Stop/Gap

13. Ladders can be made from a variety of materials, but what material is best for an electrician's ladder?

- A) Fiberglass    B) Wood      C) Aluminium      D) All of the above

14. Which one of these would require that a device is replaced or repaired?

- A) Frayed wire      B) Cracked insulation      C) Broken plug      D) All of the above

15. Gloves should be made of what two materials when dealing with electricity?

- A) Cotton and polymers      B) Leather and rubber  
C) Cotton and rubber      D) Leather and cotton

16. How is IPE different from PPE?

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Dr. G. Balakrishnan, M.E., Ph.D.,  
Principal

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20. Do you know the minimum amount of clear working space needed in front of an electrical panel?
- A) 30 inches    B) 36 inches    C) 40 inches    D) 48 inches
21. There are three shock approach boundaries; do you know what they are?
- A) 1st, 2nd, and 3<sup>rd</sup>    B) Main, Secondary, Tertiary.  
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Value Added Course

**“Electrical safety & maintenance”**

**ANSWER KEY**

|   |   |    |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|----|---|
| 1 | E | 6  | B | 11 | B | 16 | B | 21 | D |
| 2 | A | 7  | D | 12 | A | 17 | A | 22 | A |
| 3 | D | 8  | B | 13 | A | 18 | C | 23 | A |
| 4 | D | 9  | A | 14 | D | 19 | D | 24 | B |
| 5 | A | 10 | C | 15 | B | 20 | A | 25 | D |

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VAC Coordinator



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Name of the Student: C. ponnalagan

Year/Sem: IV/VIII

AU Register Number: 811219105005

21/25

### Value Added Course

#### "Electrical safety & maintenance"

#### MULTIPLE CHOICE QUESTIONS (25X1 = 25 Marks)

- Which of these can be used as insulating live-line tools for electrical protection?  
(A) Shotgun sticks (B) Switch sticks (C) Hot sticks  
(D) None of the above ☒ D, b, and c
- A Safety Electrical One Line Diagram should be used to \_\_\_\_\_ all sources of electrical energy.  
☒ A) Identify (B) Castigate (C) Evaluate (D) Modify
- The minimum allowable workspace around electrical equipment is \_\_\_\_\_ inches deep.  
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- OSHA requires the testing of a voltmeter after a voltage test on voltage above \_\_\_\_\_.  
A) 120v B) 208v C) 277v ☒ D) 600v
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A) 3 months ☒ B) 6 months C) 12 months D) Never
- Which of these risks is associated with electricity?  
A) Shock B) Fire C) Explosion ☒ D) All of the above
- What's the first thing you should do if a co-worker is being electrocuted?  
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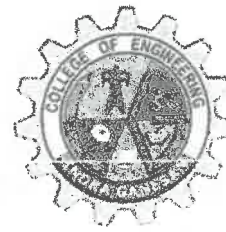
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9. GFCI stands for ground fault circuit interrupter.

☒ A) True.

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10. If you're working in a damp space, what do you need to do?

A) Mop First.

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Name of the Student: S. SANGILI

Year/Sem: 11/IV

AU Register Number: 811221105027

22  
25

### Value Added Course

**"Electrical safety & maintenance"**

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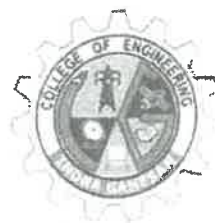
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Name of the Student: Naveen R

Year/Sem: III/VI

AU Register Number: 81220105024

22  
25

### Value Added Course

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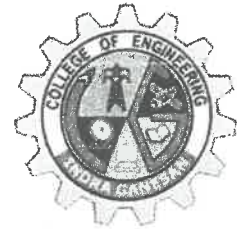
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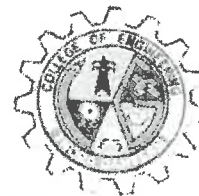
  
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### Department of Electrical and Electronics Engineering

Academic Year 2022-2023 – Even Semester

### VALUE ADDED COURSE ASSESMENT SHEET

“Electrical safety & maintenance”

  
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| S.NO | Register Number | Name            | YEAR/<br>BRANCH | Attendance Details          |                                | VAC-MCQ TEST                |                         | OVERALL<br>MARK<br>(100)<br><br>(50% of A<br>+ 50% of<br>B) |
|------|-----------------|-----------------|-----------------|-----------------------------|--------------------------------|-----------------------------|-------------------------|-------------------------------------------------------------|
|      |                 |                 |                 | No. of<br>Hours<br>Attended | Attendance<br>Mark(100)<br>(A) | No of<br>Correct<br>Answers | MCQ<br>Mark(100)<br>(B) |                                                             |
| 1    | 811219105002    | M.BARATH        | IV/EEE          | 30                          | 100                            | 20                          | 80                      | 90                                                          |
| 2    | 811219105003    | A.MANIKANDAN    | IV/EEE          | 27                          | 90                             | 21                          | 84                      | 87                                                          |
| 3    | 811219105005    | C.PONNALAGU     | IV/EEE          | 30                          | 100                            | 21                          | 84                      | 92                                                          |
| 4    | 811219105006    | A.SALAMON       | IV/EEE          | 27                          | 90                             | 20                          | 80                      | 85                                                          |
| 5    | 811219105007    | M.SARAVANAKUMAR | IV/EEE          | 30                          | 100                            | 21                          | 84                      | 92                                                          |
| 6    | 811219105008    | K.SOLAIMATHI    | IV/EEE          | 30                          | 100                            | 22                          | 88                      | 94                                                          |
| 7    | 813919105001    | P.DHEVENTHIRAN  | IV/EEE          | 30                          | 100                            | 20                          | 80                      | 90                                                          |
| 8    | 811219105301    | A. VENKATRAMAN  | IV/EEE          | 27                          | 90                             | 21                          | 84                      | 87                                                          |
| 9    | 811220105001    | ABINESH T       | III/EEE         | 27                          | 90                             | 19                          | 76                      | 83                                                          |
| 10   | 811220105002    | ALEX IMMANVEL S | III/EEE         | 27                          | 90                             | 19                          | 76                      | 83                                                          |



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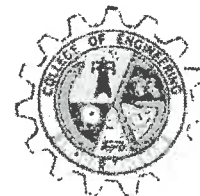
| S.NO | Register Number | Name              | YEAR/<br>BRANCH | Attendance Details          |                                | VAC-MCQ TEST                |                         | OVERALL MARK<br>(100)       |
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| 11   | 811220105006    | BALAMURUGAN A     | III/EEE         | 30                          | 100                            | 21                          | 84                      | 92                          |
| 12   | 811220105011    | DIVYA B           | III/EEE         | 27                          | 90                             | 20                          | 80                      | 85                          |
| 13   | 811220105013    | GAYATHRI M        | III/EEE         | 30                          | 100                            | 21                          | 84                      | 92                          |
| 14   | 811220105017    | KARTHIK D         | III/EEE         | 30                          | 100                            | 22                          | 88                      | 94                          |
| 15   | 811220105019    | LATCHIYA K        | III/EEE         | 27                          | 90                             | 19                          | 76                      | 83                          |
| 16   | 811220105022    | MANIKANDAN K      | III/EEE         | 24                          | 80                             | 20                          | 80                      | 80                          |
| 17   | 811220105023    | MOHANDOSS S       | III/EEE         | 24                          | 80                             | 21                          | 84                      | 82                          |
| 18   | 811220105024    | NAVEEN R          | III/EEE         | 27                          | 90                             | 22                          | 88                      | 89                          |
| 19   | 811220105031    | SANDURU K         | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 20   | 811220105032    | SANTHIYA A        | III/EEE         | 27                          | 90                             | 21                          | 84                      | 87                          |
| 21   | 811220105035    | SHANMUGAM S       | III/EEE         | 24                          | 80                             | 20                          | 80                      | 80                          |
| 22   | 811220105037    | SNEKA T           | III/EEE         | 27                          | 90                             | 21                          | 84                      | 87                          |
| 23   | 811220105038    | SOPHIYA K         | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 24   | 811220105301    | AARTHI S          | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |
| 25   | 811220105303    | THIRUNAVUKARASU M | III/EEE         | 30                          | 100                            | 20                          | 80                      | 90                          |



# Indra Ganesan

## COLLEGE OF ENGINEERING

Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli - 620 012  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai  
NAAC Accredited, 2(F) Status Institution by UGC



| S.NO | Register Number | Name             | YEAR/<br>BRANCH | Attendance Details    |                          | VAC-MCQ TEST          |                   | OVERALL MARK (100)    |
|------|-----------------|------------------|-----------------|-----------------------|--------------------------|-----------------------|-------------------|-----------------------|
|      |                 |                  |                 | No. of Hours Attended | Attendance Mark(100) (A) | No of Correct Answers | MCQ Mark(100) (B) | (50% of A + 50% of B) |
| 26   | 811220105305    | VENKATESHWARAN.A | III/EEE         | 30                    | 100                      | 21                    | 84                | 92                    |
| 27   | 811220105306    | DIVYA BHARATHI   | III/EEE         | 27                    | 90                       | 21                    | 84                | 87                    |
| 28   | 811220105307    | SATHEESH KUMAR   | III/EEE         | 30                    | 100                      | 22                    | 88                | 94                    |
| 29   | 811221105012    | HARIHARAN E      | II/EEE          | 27                    | 90                       | 20                    | 80                | 85                    |
| 30   | 811221105018    | LINGESWARAN R    | II/EEE          | 27                    | 90                       | 21                    | 84                | 87                    |
| 31   | 811221105027    | SANGILI S        | II/EEE          | 30                    | 100                      | 22                    | 88                | 94                    |
| 32   | 811221105039    | SRIKANTH M       | II/EEE          | 27                    | 90                       | 20                    | 80                | 85                    |

  
VAC Coordinator

  
Dr. G. Balakrishnan, M.E., Ph.D.,  
Principal

Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

  
HoD/EEE



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### REPORT ON VALUE ADDED COURSE

Title:

“ Electrical safety & maintenance ”

Resource Person:

Mr.S.Sathiyan, Trainer,  
NoviTech R&D Pvt Ltd,  
Coimbatore,  
Tamilnadu.

Date of conduct from :

01.08.2023

To:

05.08.2023

Duration:

30 Hours

Organized Department :

Electrical and Electronics Engineering

Participant Year:

2,3,4

No. of Students Registered :

32

Venue:

EEE III yr Classroom

#### Outcome of Value Added Course (VAC): At the end of the Course, Students can able to

- Learn electricity in the workplace.
- Learn the associated hazards and risks.
- Analyze the Standards and regulations.
- Find Qualified and unqualified worker.
- Find Effects of electricity on human body.
- Appreciate the need to isolate equipment and the techniques of safe isolation

#### Assessment Process

- 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 =  $(0.5 \times \text{Attendance in VAC out of 100 percentage} + 0.5 \times \text{Test mark in VAC out of 100 marks})$

S. Viji  
VAC Coordinator

Ge. Ma lathi  
HoD/EEE

Prasanth  
Principal

Dr. G. Balakrishnan, M.E., Ph.D.,  
Principal

Indra Ganesan College of Engineering  
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Manikandam, Trichy-620 012.



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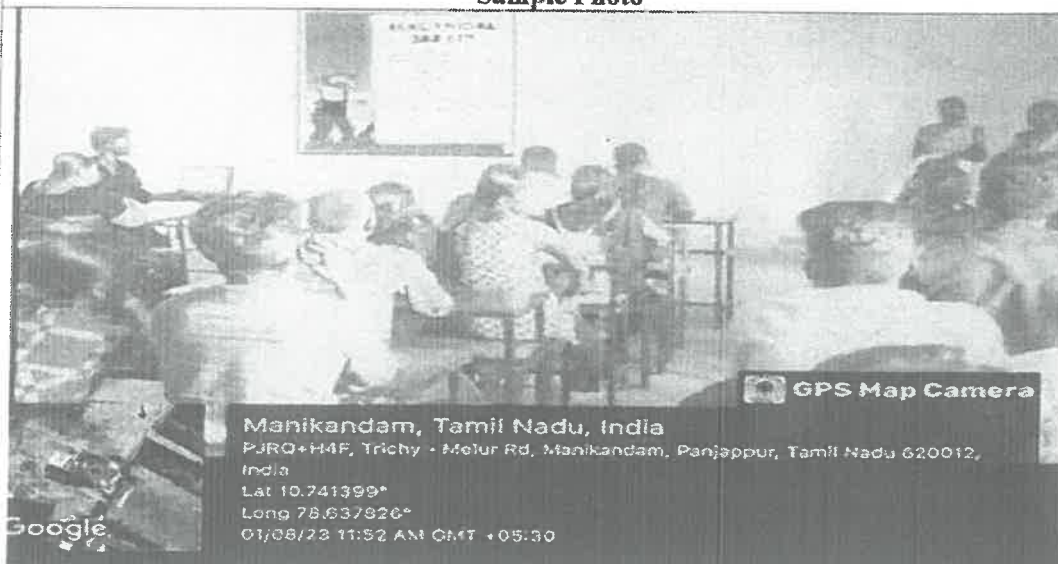
NAAC Accredited, 2(F) Status Institution by UGC



### Sample Photo of VALUE ADDED COURSE

|                        |                                                                               |     |                              |           |                 |
|------------------------|-------------------------------------------------------------------------------|-----|------------------------------|-----------|-----------------|
| Title:                 | <b>" Electrical safety &amp; maintenance "</b>                                |     |                              |           |                 |
| Resource Person:       | Mr.S.Sathiyan, Trainer,<br>NoviTech R&D Pvt Ltd,<br>Coimbatore,<br>Tamilnadu. |     |                              |           |                 |
| Date of conduct from : | 01.08.2023                                                                    | To: | 05.08.2023                   | Duration: | <b>30 Hours</b> |
| Organized Department : | <b>Electrical and Electronics Engineering</b>                                 |     |                              |           |                 |
| Participant Year:      | 2,3,4                                                                         |     | No. of Students Registered : | 32        |                 |
| Venue:                 | EEE III yr Classroom                                                          |     |                              |           |                 |

### Sample Photo



*S. Wj*  
VAC Coordinator

*G. Ma Lathi*  
HoD/EEE

*Indra*  
Principal

**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal

Indra Ganesan College of Engineering  
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**Indra Ganesan**  
**COLLEGE OF ENGINEERING**  
Madurai Main Road (NH 45B), Manikandam, Trichy 12.  
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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr.M.BARATH, IV Year, EEE has successfully completed the Value Added Course on “**Electrical safety & maintenance**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with NoviTech R&D Pvt Ltd from 1<sup>st</sup> August 2023 to 5<sup>th</sup> August 2023 (5days) during the Academic year 2022-2023.

  
**Micro win Automation**  
**Mr.N.Anand**  
**Manager.**

  
**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

  
**Principal**  
**IGCE**



**Indra Ganesan**  
**COLLEGE OF ENGINEERING**  
Madurai Main Road (NH 45B), Manikandam, Trichy 12.  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## CERTIFICATE OF PARTICIPATION

This is to certify that MS.GAYATHRI M, III Year, EEE has successfully completed the Value Added Course on “**Electrical safety & maintenance**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with NoviTech R&D Pvt Ltd from 1<sup>st</sup> August 2023 to 5<sup>th</sup> August 2023 (5days) during the Academic year 2022-2023.

  
**Micro with Automation**  
**Mr.N.Anand**  
**Manager.**

  
**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

  
**Principal**  
**IGCE**

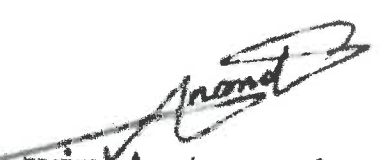


**Indra Ganesan**  
**COLLEGE OF ENGINEERING**  
Madurai Main Road (NH 45B), Manikandam, Trichy-12.  
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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr. LINGESWARAN R, II Year, EEE has successfully completed the Value Added Course on “**Electrical safety & maintenance**” organized by Department of Electrical & Electronics Engineering and IQAC of our Institution in Association with NoviTech R&D Pvt Ltd from 1<sup>st</sup> August 2023 to 5<sup>th</sup> August 2023 (5days) during the Academic year 2022-2023.

  
**Micro win Automation**  
**Mr.N.Anand**  
**Manager.**

  
**Dr. G. Balakrishnan, M.E., Ph.D.,**  
Principal  
Indra Ganesan College of Engineering  
IG Valley, Madurai Main Road  
Manikandam, Trichy-620 012.

  
**Principal**  
**IGCE**