

**Government College of Engineering, Karad**  
(An Autonomous Institute of Government of Maharashtra)

Programme: Electrical Engineering

**Structure for second year to fourth year of B. Tech**  
(Revised from A.Y.: 2017-18)

# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

**B. Tech. Second year - Electrical Engineering**

**Curriculum Structure (w.e.f. 2017-18)**

## Semester - III

| Sr. No. | Course Category | Course Code | Course Title                        | L  | T | P | Contact Hrs/Wk | Credits  | EXAM SCHEME |     |       |     |       |
|---------|-----------------|-------------|-------------------------------------|----|---|---|----------------|----------|-------------|-----|-------|-----|-------|
|         |                 |             |                                     |    |   |   |                |          | CT1         | CT2 | TA/CA | ESE | TOTAL |
| 1       | BS              | EE301       | Engineering Mathematics -III        | 4  | 1 | - | 5              | 5        | 15          | 15  | 10    | 60  | 100   |
| 2       | PC              | EE302       | Basic Circuit Theory                | 3  | 2 | - | 5              | 5        | 15          | 15  | 10    | 60  | 100   |
| 3       | PC              | EE303       | Industrial Management and Economics | 3  | - | - | 3              | 3        | 15          | 15  | 10    | 60  | 100   |
| 4       | ES              | EE304       | Signals and Systems                 | 4  | 1 | - | 5              | 5        | 15          | 15  | 10    | 60  | 100   |
| 5       | PC              | EE305       | Electronic Devices and Circuits     | 4  | - | - | 4              | 4        | 15          | 15  | 10    | 60  | 100   |
| 6       | PC              | EE306       | Basic Circuit Theory Lab            | -  | - | 2 | 2              | 1        | -           | -   | 50    | 50* | 100   |
| 7       | PC              | EE307       | Electronic Devices and Circuits Lab | -  | - | 2 | 2              | 1        | -           | -   | 50    | 50* | 100   |
| 8       | MC              | CC301       | Environmental Studies               | 3  | - | - | 3              | 0(Audit) | 15          | 15  | 10    | 60  | 100   |
|         |                 |             | Total                               | 21 | 4 | 4 | 29             | 24       | 90          | 90  | 160   | 460 | 800   |

CT1- Class Test 1      TA/CA- Teacher Assessment/Continuous Assessment

CT2- Class Test 2      ESE- End Semester Examination (For Laboratory: End Semester Performance)\* ESE in performance based practical examination

Credits distribution

| Course Category | HS (Hum. and So. Sci) | BS (Basic Sc.) | ES (Eng. Sc.) | PC (Programme Core) | PE (Programme Electives) | OE (Open Elective) | MC (Mandatory Course) |
|-----------------|-----------------------|----------------|---------------|---------------------|--------------------------|--------------------|-----------------------|
| Credits         | -                     | 5              | 5             | 14                  | -                        | -                  | -                     |
| Cumulative Sum  | 3                     | 22             | 33            | 14                  | -                        | -                  | -                     |

# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

**B. Tech. Second year - Electrical Engineering**

**Curriculum Structure (w.e.f. 2017-18)**

**Semester - IV**

| Sr. No. | Course Category | Course Code | Course Title                                     | L  | T | P  | Contact Hrs./Wk | Credits | EXAM SCHEME |     |       |     |       |
|---------|-----------------|-------------|--------------------------------------------------|----|---|----|-----------------|---------|-------------|-----|-------|-----|-------|
|         |                 |             |                                                  |    |   |    |                 |         | CT1         | CT2 | TA/CA | ESE | TOTAL |
| 1       | BS              | EE401       | Engineering Mathematics- IV                      | 3  | 1 | -  | 4               | 4       | 15          | 15  | 10    | 60  | 100   |
| 2       | PC              | EE402       | Electrical Measurements and Instrumentation      | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 3       | PC              | EE403       | Electrical Machines -I                           | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 4       | PC              | EE404       | Digital Electronics                              | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 5       | PC              | EE405       | Power System -I                                  | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 6       | PC              | EE406       | Electrical Measurements and Instrumentation -Lab | -  | - | 2  | 2               | 1       | -           | -   | 25    | 25* | 50    |
| 7       | PC              | EE407       | Electrical Machines –I Lab                       | -  | - | 2  | 2               | 1       | -           | -   | 25    | 25* | 50    |
| 8       | PC              | EE408       | Digital Electronics Lab                          | -  | - | 2  | 2               | 1       | -           | -   | 25    | 25* | 50    |
| 9       | PC              | EE409       | Power System –I Lab                              | -  | - | 2  | 2               | 1       |             |     | 50    | -   | 50    |
| 10      | ES              | EE410       | Scilab Lab                                       | -  | - | 2  | 2               | 1       | -           | -   | 50    | -   | 50    |
| 11      | HS              | HS002       | General Proficiency- II                          | 2  | - | 2  | 4               | 3       | -           | -   | 50    | -   | 50    |
|         |                 |             | Total                                            | 17 | 1 | 12 | 30              | 24      | 75          | 75  | 275   | 375 | 800   |

CT1- Class Test 1

TA/CA- Teacher Assessment/Continuous Assessment

CT2- Class Test 2

ESE- End Semester Examination (For Laboratory: End Semester Performance)

\* ESE in performance based practical examination

Credits distribution

| Course Category | HS (Hum. and So. Sci) | BS (Basic Sc.) | ES (Eng. Sc.) | PC (Programme Core) | PE (Programme Electives) | OE (Open Elective) | MC (Mandatory Course) |
|-----------------|-----------------------|----------------|---------------|---------------------|--------------------------|--------------------|-----------------------|
| Credits         | 3                     | 4              | 1             | 16                  | -                        | -                  | -                     |
| Cumulative Sum  | 6                     | 26             | 34            | 30                  | -                        | -                  | -                     |

# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

**B. Tech. Third year - Electrical Engineering**

**Curriculum Structure (w.e.f. 2017-18)**

**Semester - V**

| Sr. No. | Course Category | Course Code | Course Title                 | L  | T | P | Contact Hrs./Wk | Credits | EXAM SCHEME |     |       |     |       |
|---------|-----------------|-------------|------------------------------|----|---|---|-----------------|---------|-------------|-----|-------|-----|-------|
|         |                 |             |                              |    |   |   |                 |         | CT1         | CT2 | TA/CA | ESE | TOTAL |
| 1       | PC              | EE501       | Electromagnetics             | 3  | 1 | - | 4               | 4       | 15          | 15  | 10    | 60  | 100   |
| 2       | PC              | EE502       | Power System –II             | 4  | - | - | 4               | 4       | 15          | 15  | 10    | 60  | 100   |
| 3       | PC              | EE503       | Control System - I           | 3  | - | - | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 4       | PC              | EE504       | Electrical Machines-II       | 3  | 2 | - | 5               | 5       | 15          | 15  | 10    | 60  | 100   |
| 5       | PC              | EE505       | Computational Techniques     | 3  | - | - | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 6       | PC              | EE506       | Control System –I Lab        | -  | - | 2 | 2               | 1       | -           | -   | 50    | 50* | 100   |
| 7       | PC              | EE507       | Electrical Machines-II Lab   | -  | - | 2 | 2               | 1       | -           | -   | 50    | 50* | 100   |
| 8       | PC              | EE508       | Computational Techniques Lab | -  | - | 2 | 2               | 1       | -           | -   | 25    | 25* | 50    |
| 9       | HS              | HS003       | General Proficiency-III      | 2  | - | 2 | 4               | 3       | -           | -   | 50    | -   | 50    |
|         |                 |             | Total                        | 18 | 3 | 8 | 29              | 25      | 75          | 75  | 225   | 425 | 800   |

CT1- Class Test 1

TA/CA- Teacher Assessment/Continuous Assessment

CT2- Class Test 2

ESE- End Semester Examination (For Laboratory: End Semester Performance)

\* ESE on performance based practical examination

## Credits distribution

| Course Category | HS (Hum. and So. Sci) | BS (Basic Sc.) | ES (Eng. Sc.) | PC (Programme Core) | PE (Programme Electives) | OE (Open Elective) | MC (Mandatory Course) |
|-----------------|-----------------------|----------------|---------------|---------------------|--------------------------|--------------------|-----------------------|
| Credits         | 3                     | -              | -             | 22                  | -                        | -                  | -                     |
| Cumulative Sum  | 9                     | 26             | 34            | 52                  | -                        | -                  | -                     |

# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

**B. Tech. Third year - Electrical Engineering**

**Curriculum Structure (w.e.f. 2017-18)**

**Semester - VI**

| Sr. No. | Course Category | Course Code | Course Title                  | L  | T | P  | Contact Hrs./Wk | Credits | EXAM SCHEME |     |       |     |       |
|---------|-----------------|-------------|-------------------------------|----|---|----|-----------------|---------|-------------|-----|-------|-----|-------|
|         |                 |             |                               |    |   |    |                 |         | CT1         | CT2 | TA/CA | ESE | TOTAL |
| 1       | OE              | OE631       | Open Elective                 | 2  | - | 2  | 4               | 3       | -           | -   | 50    | 50* | 100   |
| 2       | PC              | EE602       | Optimization Techniques       | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 3       | PC              | EE603       | Power Electronics             | 4  | 1 | -  | 5               | 5       | 15          | 15  | 10    | 60  | 100   |
| 4       | PC              | EE604       | Control System –II            | 4  | 2 | -  | 6               | 6       | 15          | 15  | 10    | 60  | 100   |
| 5       | PC              | EE605       | Communication Engineering     | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 6       | PC              | EE606       | Power Electronics Lab         | -  | - | 2  | 2               | 1       | -           | -   | 25    | 50* | 75    |
| 7       | PC              | EE607       | Control System-II Lab         | -  | - | 2  | 2               | 1       | -           | -   | 25    | 50* | 75    |
| 8       | PC              | EE608       | Communication Engineering Lab | -  | - | 2  | 2               | 1       | -           | -   | 50    | -   | 50    |
| 9       | PC              | EE609       | Minor Project                 | -  | - | 2  | 2               | 2       | -           | -   | 50    | 50  | 100   |
|         |                 |             | Total                         | 16 | 3 | 10 | 29              | 25      | 60          | 60  | 240   | 440 | 800   |

**# Every Student will undergo Industrial Training of Two weeks in summer vacation after B. Tech. VI Sem. Examinations.**

CT1- Class Test 1

TA/CA- Teacher Assessment/Continuous Assessment

CT2- Class Test 2

ESE- End Semester Examination (For Laboratory: End Semester Performance)

\* ESE in performance based practical examination

## Credits distribution

| Course Category | HS (Hum. and So. Sci) | BS (Basic Sc.) | ES (Eng. Sc.) | PC (Programme Core) | PE (Programme Electives) | OE (Open Elective) | MC (Mandatory Course) |
|-----------------|-----------------------|----------------|---------------|---------------------|--------------------------|--------------------|-----------------------|
| Credits         | -                     | -              | -             | 22                  | -                        | 3                  | -                     |
| Cumulative Sum  | 9                     | 26             | 34            | 74                  | -                        | 3                  | -                     |

# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

## B. Tech. Fourth year - Electrical Engineering

### Curriculum Structure (w.e.f. 2017-18)

#### Semester - VII

| Sr. No. | Course Category | Course Code | Course Title                       | L  | T | P  | Contact Hrs./Wk | Credits | EXAM SCHEME |     |       |     |       |
|---------|-----------------|-------------|------------------------------------|----|---|----|-----------------|---------|-------------|-----|-------|-----|-------|
|         |                 |             |                                    |    |   |    |                 |         | CT1         | CT2 | TA/CA | ESE | TOTAL |
| 1       | PC              | EE701       | Power Electronics Applications     | 3  | 2 | -  | 5               | 5       | 15          | 15  | 10    | 60  | 100   |
| 2       | PC              | EE702       | Switchgear and Protection          | 3  | 1 | -  | 4               | 4       | 15          | 15  | 10    | 60  | 100   |
| 3       | PC              | EE703       | Microcontrollers                   | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 4       | PE              | EE704       | Elective-I                         | 3  | 1 | -  | 4               | 4       | 15          | 15  | 10    | 60  | 100   |
| 5       | PC              | EE705       | Power Electronics Applications Lab | -  |   | 2  | 2               | 1       | -           | -   | 50    | 50* | 100   |
| 6       | PC              | EE706       | Switchgear and Protection Lab      | -  | - | 2  | 2               | 1       | -           | -   | 50    | 25  | 75    |
| 7       | PC              | EE707       | Microcontrollers Lab               | -  | - | 2  | 2               | 1       | -           | -   | 50    | 25* | 75    |
| 8       | PC              | EE708       | Project - I                        | -  | - | 2  | 2               | 4       | -           | -   | 50    | 50  | 100   |
| 9       | PC              | EE709       | Seminar                            | -  | - | 1  | 1               | 1       | -           | -   | 25    | -   | 25    |
| 10      | PC              | EE710       | Industrial Training Presentation   | -  | - | 1  | 1               | 2       | -           | -   | 25    | -   | 25    |
|         |                 |             | Total                              | 12 | 4 | 10 | 26              | 26      | 60          | 60  | 290   | 390 | 800   |

There will be two presentations, first will be based on Industrial training and another on seminar topic to be selected in consultation with guide.

CT1- Class Test 1      TA/CA- Teacher Assessment/Continuous Assessment

CT2- Class Test 2      ESE- End Semester Examination (For Laboratory: End Semester Performance)\* ESE in performance based practical examination

Credits distribution

| Course Category | HS (Hum. and So. Sci) | BS (Basic Sc.) | ES (Eng. Sc.) | PC (Programme Core) | PE (Programme Electives) | OE (Open Elective) | MC (Mandatory Course) |
|-----------------|-----------------------|----------------|---------------|---------------------|--------------------------|--------------------|-----------------------|
| Credits         | -                     | -              | -             | 22                  | 4                        | -                  | -                     |
| Cumulative Sum  | 9                     | 26             | 34            | 96                  | 4                        | 3                  | -                     |

# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

**B. Tech. Fourth year - Electrical Engineering**

**Curriculum Structure (w.e.f. 2017-18)**

**Semester - VIII**

| Sr. No. | Course Category | Course Code | Course Title                                     | L  | T | P  | Contact Hrs./Wk | Credits | EXAM SCHEME |     |       |     |       |
|---------|-----------------|-------------|--------------------------------------------------|----|---|----|-----------------|---------|-------------|-----|-------|-----|-------|
|         |                 |             |                                                  |    |   |    |                 |         | CT1         | CT2 | TA/CA | ESE | TOTAL |
| 1       | PC              | EE801       | Electrical Utilization and Traction              | 3  | 2 | -  | 5               | 5       | 15          | 15  | 10    | 60  | 100   |
| 2       | PC              | EE802       | Computer aided Design of Electrical Machines     | 3  | 2 | -  | 5               | 5       | 15          | 15  | 10    | 60  | 100   |
| 3       | PE              | EE803*      | Elective-II                                      | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 4       | PE              | EE804*      | Elective-III                                     | 3  | - | -  | 3               | 3       | 15          | 15  | 10    | 60  | 100   |
| 5       | PC              | EE805       | Computer aided Design of Electrical Machines Lab | -  | - | 4  | 4               | 2       | -           | -   | 50    | 50  | 100   |
| 6       | PC              | EE806       | Project –II                                      | -  | - | 6  | 6               | 8       | -           | -   | 100   | 200 | 300   |
|         |                 |             | Total                                            | 12 | 4 | 10 | 26              | 26      | 60          | 60  | 190   | 490 | 800   |

\*Elective II and Elective III list is provided at the end of structure

CT1- Class Test 1

TA/CA- Teacher Assessment/Continuous Assessment

CT2- Class Test 2

ESE- End Semester Examination (For Laboratory: End Semester Performance)

Credits distribution

| Course Category | HS (Hum. and So. Sci) | BS (Basic Sc.) | ES (Eng. Sc.) | PC (Programme Core) | PE (Programme Electives) | OE (Open Elective) | MC (Mandatory Course) |
|-----------------|-----------------------|----------------|---------------|---------------------|--------------------------|--------------------|-----------------------|
| Credits         | -                     | -              | -             | 20                  | 6                        | -                  | -                     |
| Cumulative Sum  | 9                     | 26             | 34            | 116                 | 10                       | 3                  | -                     |

# **Government College of Engineering, Karad**

(An Autonomous Institute of Government of Maharashtra)

## **Program: Electrical Engineering**

### **List of Electives offered by Electrical Engineering Department**

| <b>Open Elective</b>                       | <b>Elective I</b>                                | <b>Elective II</b>                                      | <b>Elective III</b>                            |
|--------------------------------------------|--------------------------------------------------|---------------------------------------------------------|------------------------------------------------|
| <b>Semester VI</b>                         | <b>Semester VII</b>                              | <b>Semester VIII</b>                                    | <b>Semester VIII</b>                           |
| <b>OE631</b> Industrial Electrical Systems | <b>EE714</b> High Voltage DC Transmission (HVDC) | <b>EE813</b> Extra High Voltage AC Transmission (EHVAC) | <b>EE814</b> Restricted Power System           |
|                                            | <b>EE724</b> FACTS (Flexible AC Transmissions)   | <b>EE823</b> Wind & Solar Power                         | <b>EE824</b> Power Plant Engineering           |
|                                            | <b>EE734</b> Digital Signal Processing (DSP)     | <b>EE833</b> Robotics &Automation                       | <b>EE834</b> Neural Network                    |
|                                            | <b>EE744</b> Fuzzy Logic                         | <b>EE843</b> Sliding Mode Control                       | <b>EE844</b> Electrical Engineering Materials  |
|                                            | <b>EE754</b> Power System Operation & Control    | <b>EE853</b> Special Electrical Machines                | <b>EE854</b> Electrical Estimation and Costing |