# Government College of Engineering, Karad

(An Autonomous Institute of Government of Maharashtra)

## B. Tech. Second year - Electrical Engineering

## Curriculum Structure

## 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 | MC301 | 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

## 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

## 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

## 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. 2019-20)

## 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 | EE1701 | Electrical Drives | 3 | 2 | - | 5 | 5 | 15 | 15 | 10 | 60 | 100 |
| 2 | PC | EE1702 | Switchgear and Protection | 3 | 1 | - | 4 | 4 | 15 | 15 | 10 | 60 | 100 |
| 3 | PC | EE1703 | Microcontrollers | 3 | - | - | 3 | 3 | 15 | 15 | 10 | 60 | 100 |
| 4 | PE | EE1704 | Elective-I | 3 | 1 | - | 4 | 4 | 15 | 15 | 10 | 60 | 100 |
| 5 | PC | EE1705 | Electrical Drives Lab | - | | 2 | 2 | 1 | - | - | 50 | 50* | 100 |
| 6 | PC | EE1706 | Switchgear and Protection Lab | - | - | 2 | 2 | 1 | - | - | 50 | 25 | 75 |
| 7 | PC | EE1707 | Microcontrollers Lab | - | - | 2 | 2 | 1 | - | - | 50 | 25* | 75 |
| 8 | PC | EE1708 | Electrical Utilization And Traction | 3 | 2 | - | 5 | 5 | 15 | 15 | 10 | 60 | 100 |
| 9 | PC | EE1709 | Seminar / Project | - | - | 1 | 1 | 1 | - | - | 25 | - | 25 |
| 10 | PC | EE1710 | Industrial Training Presentation | - | - | 1 | 1 | 2 | - | - | 25 | - | 25 |
| | | | Total | 15 | 6 | 08 | 29 | 27 | 75 | 75 | 250 | 400 | 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 | - | - | - | 23 | 4 | - | - |
| Cumulative Sum | 9 | 26 | 34 | 97 | 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. 2019-20)

## Semester - VIII

(Academic track)

| 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 | EE1802 | Computer aided Design of Electrical Machines | 3 | 2 | - | 5 | 5 | 15 | 15 | 10 | 60 | 100 |
| 2 | PE | EE18*3 | Elective-II | 3 | - | - | 3 | 3 | 15 | 15 | 10 | 60 | 100 |
| 3 | PE | EE18*4 | Elective-III | 3 | - | - | 3 | 3 | 15 | 15 | 10 | 60 | 100 |
| 4 | PC | EE1805 | Computer aided Design of Electrical Machines Lab | - | - | 4 | 4 | 2 | - | - | 50 | 50 | 100 |
| 5 | PC | EE1807 | Project | - | - | 10 | 10 | 12 | - | - | 100 | 200 | 300 |
| | | | Total | 9 | 2 | 14 | 25 | 25 | 45 | 45 | 180 | 430 | 700 |

*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)

## B. Tech. Fourth year - Electrical Engineering

## Curriculum Structure (w.e.f. 2019-20)

## Semester - VIII

(Industry track)

| Sr. No. | Course Category | Course Code | Course Title | L | T | P | Contact Hrs./Wk. | Credits | EXAM SCHEME | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | CT1 | CT2 | TA/CA | ESE | TOTAL |
| 1 | PE | EE1801* | MOOC – 1 | | | | | 3 | | | | | |
| 2 | PE | EE1806* | MOOC – 2 | | | | | 3 | | | | | |
| 3 | PC | EE1808 | Industry Project | - | - | 25 | 25 | 19 | - | - | 100 | 200 | 300 |
| | | | Total | - | - | 25 | 25 | 25 | - | - | 100 | 200 | 300 |

*EE1801 and EE1806 Any subject related to project and approved by guide / department.

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

| Open Elective | Elective I | Elective II | Elective III |
|---|---|---|---|
| **Semester VI** | **Semester VII** | **Semester VIII** | **Semester VIII** |
| **OE1631** Industrial Electrical Systems | **EE1714** High Voltage DC Transmission (HVDC) | **EE1813** Extra High Voltage AC Transmission (EHVAC) | **EE1814** Restructured Power System |
| | **EE1724** FACTS (Flexible AC Transmissions) | **EE1823** Wind & Solar Power | **EE1824** Power Plant Engineering |
| | **EE1734** Digital Signal Processing (DSP) | **EE1833** Robotics &Automation | **EE1834** Neural Network |
| | **EE1744** Fuzzy Logic | **EE1843** Sliding Mode Control | **EE1844** Electrical Engineering Materials |
| | **EE1754** Power System Operation & Control | **EE1853** Special Electrical Machines | **EE1854** Electrical Estimation and Costing |