

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Electrical Engineering

Semester – VII (Mode-1-Academic) (w.e.f. 2026-27)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EE3701	Switchgear and Protection	3	--	--	3	3	20	20	60	100
2	PCC	EE3702	EHVAC and HVDC Transmission	3	--	--	3	3	20	20	60	100
3	EL	RM3703	Research Methodology	3	--	--	3	3	20	20	60	100
4	PEC	EE37*4	Industrial/Program Elective -04	2	--	--	2	2	20	20	60	100
5	PEC	EE37*5	Program Elective -05	2	--	--	2	2	20	20	60	100
6	MDM	##	Multi-Disciplinary Minor -05	2	--	--	2	2	20	20	60	100
7	PCC	EE3707	Switchgear and Protection Lab	-	-	2	2	1		25	25	50
8	PCC	EE3708	Power System Lab	--	--	2	2	1	--	25	-	25
9	PEC	EE37*9	Industrial /Program Elective -04 Lab	--	--	2	2	1	--	25	--	25
10	EL	EE3710	Major Project	--	--	08	08	4	-	25	75	100
			Total	15	0	14	29	22	120	220	460	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE/CA- In Semester Evaluation/Continuous Assessment

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	08	05	02	-	-	07	-
Cumulative Sum	16	14	60	15	20	05	12	10	02

PROGRESSIVE TOTAL CREDITS: 132+22 =154

Note:

- Students must choose either Mode 1 or Mode 2 at the beginning of Semester VII.
- Mode-1 students are permitted to enrol in MOOC courses of Semester VIII during Semester VII with prior approval of the respective Head of Department. The results of these MOOC courses will be considered in Semester VIII.
- Students for industrial elective lab will be selected on the basis of merit.




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 Government College of Engineering, Karad

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Electrical Engineering

Semester – VII (Mode-2-Internship) (w.e.f. 2026-27)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PEC	EE3711	MOOC - I	-	-	-	--	3	-		100	100
2	PEC	EE3712	MOOC - II	-	-	-	--	3	-		100	100
3	EL	EE3713	Internship	--	--	--	-	12	-	250	250	500
4	MDM	##	Multi-disciplinary Minor – 05	2	--	--	2	2	20	20	60	100
			Total	2	0	0	2	20	20	270	510	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture T-Tutorial P-Practical, MSE- Mid Semester Examination
End Semester Examination (For Laboratory End Semester performance)

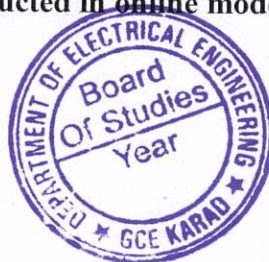
ISE/CA- In Semester Evaluation/Continuous Assessment ESE-

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	--	06	02	-	-	12	-
Cumulative Sum	16	14	52	16	20	05	12	15	02

PROGRESSIVE TOTAL CREDITS: 132+20 =152

Note:

- 1: Students must choose either Mode 1 or Mode 2 at the beginning of Semester VII.
2. For MDM 5 Industry mode students, lectures will be conducted in online mode (with the flexibility of sharing recorded lectures) while MSE & ESE evaluation will be in offline mode.



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Government College of Engineering, Karad

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electrical Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Electrical Engineering

Semester – VIII (Mode-2-Academic) (w.e.f. 2026-27)

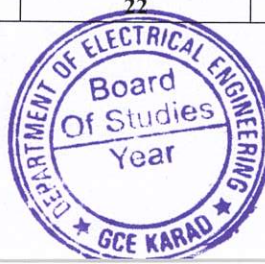
Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EE3801	Switchgear and Protection	3	--	--	3	3	20	20	60	100
2	PCC	EE3802	EHVAC and HVDC Transmission	3	--	--	3	3	20	20	60	100
3	EL	RM3803	Research Methodology	3	--	--	3	3	20	20	60	100
4	PEC	EE38*4	Industrial /Program Elective -04	2	--	--	2	2	20	20	60	100
5	PEC	EE38*5	Program Elective -05	2	--	--	2	2	20	20	60	100
6	MDM	##	Multi-Disciplinary Minor -06	2	--	--	2	2	20	20	60	100
7	PCC	EE3807	Switchgear and Protection Lab	-	-	2	2	1		25	25	50
8	PCC	EE3808	Power System Lab	--	--	2	2	1	--	25	-	25
9	PEC	EE38*9	Industrial /Program Elective -04 Lab	--	--	2	2	1	--	25	--	25
10	EL	EE3810	Major Project	--	--	08	08	4	-	25	75	100
			Total	15	0	14	29	22	120	220	460	800

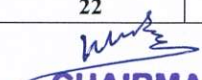
##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture, T-Tutorial, P-Practical, MSE- Mid Semester Examination ISE/CA- In Semester Evaluation/Continuous, Assessment ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	08	05	02	-	-	07	-
Cumulative Sum	16	14	66	15	22	05	12	22	02

PROGRESSIVE TOTAL CREDITS: 152+22 =174




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Government College of Engineering, Karad

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Programme: Electrical Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Electrical Engineering

Semester – VIII (Mode-1-Internship) (w.e.f. 2026-27)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PEC	EE3811	MOOC - I	-	-	-	--	3	-		100	100
2	PEC	EE3812	MOOC - II	-	-	-	--	3	-		100	100
3	EL	EE3813	Internship	--	--	--	-	12	-	250	250	500
4	MDM	##	Multi-disciplinary Minor – 06	2	--	--	2	2	20	20	60	100
			Total	2	0	0	2	20	20	270	510	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture
Assessment

T-Tutorial P-Practical MSE- Mid Semester Examination

ISE/CA- In Semester Evaluation/Continuous

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	--	06	02	-	-	12	-
Cumulative Sum	16	14	60	21	22	05	12	22	02

PROGRESSIVE TOTAL CREDITS: 154+20 =174

Note :

For MDM 6 Industry mode students, lectures will be conducted in online mode (with the flexibility of sharing recorded lectures) while MSE & ESE evaluation will be in offline mode.



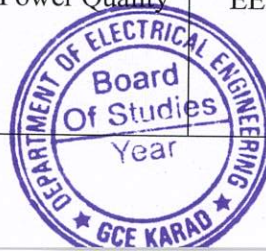
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List of Electives :

Specialization	Automation and Control	Power Engineering	Power Electronics& Drives	Energy Systems
Elective-I	EE3514: Automation and Control	EE3524: Electrical Circuit Analysis	EE3534: High Power Converters	EE3544: Renewable Energy Systems
Elective-II	EE3614: Digital Control	EE3624: Power Plant Engineering	EE3634: Special purpose machines	EE3644: Energy Storage
Elective-III	EE3615: Intelligent Control	EE3625: Restructured Power system	EE3635: PE Converters for renewable Energy Integration	EE3645: Energy Audit
Elective-IV	EE3714/ EE3814: Robotics in Automation EE3754/ EE3854: PLC and SCADA Automation (Industrial Elective)	EE3724/ EE3824: Power Quality	EE3734/ EE3834: FACTS	EE3744/ EE3844: Design of Energy efficient machines
Elective-V	EE3715/ EE3815: Advanced Control System	EE3725/ EE3825: Generation planning and load Forecasting	EE3735/ EE3835: Advanced Electric Vehicles	EE3745/ EE3845: Electrical Utilization and Traction

Program Electives Lab:

Specialization	Automation and Control	Power Engineering	Power Electronics& Drives	Energy Systems
Elective-I Lab	EE3519: Automation and Control Lab	EE3529: Electrical Circuit Analysis Lab	EE3539: High Power Converters Lab	EE3549: Renewable Energy Systems Lab
Elective-IV Lab	EE3719/ EE3819: Robotics in Automation Lab EE3759/ EE3859: PLC and SCADA Automation Lab (Industrial Elective Lab)	EE3729/ EE3829: Power Quality Lab	EE3739/ EE3839: FACTS Lab	EE3749/ EE3849: Design of Energy efficient machines Lab




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 Board of Studies
 Department Of Electrical Engineering
 Government College of Engineering, Karad

List of Multi-disciplinary Minor (Departmental)

Offered by Department	Sr. No.	Course category	Course code & Title	Semester
Civil Engineering	1	Multi-disciplinary Minor - 01	CE3305: Basic civil engineering	III
	2	Multi-disciplinary Minor – 02	CE3404: Building materials	IV
	3	Multi-disciplinary Minor – 03	CE3505: Building planning and drawing	V
	4	Multi-disciplinary Minor Lab – 03	CE3510: Building planning and drawing lab	V
	5	Multi-disciplinary Minor – 04	CE3606: Building services	VI
	6	Multi-disciplinary Minor – 05	CE3705: Smart building I	VII
	7	Multi-disciplinary Minor - 06	CE3805: Smart building II	VIII
Mechanical Engineering	1	Multi-disciplinary Minor - 01	ME3304: Material Science	III
	2	Multi-disciplinary Minor – 02	ME3405: Analysis of Mechanical elements	IV
	3	Multi-disciplinary Minor – 03	ME3505: Thermal and Energy Engineering	V
	4	Multi-disciplinary Minor Lab – 03	ME3509: Mechanical Engineering Lab	V
	5	Multi-disciplinary Minor – 04	ME3606: Manufacturing Engineering	VI
	6	Multi-disciplinary Minor – 05	ME3705: Energy Conservation and Management	VII
	7	Multi-disciplinary Minor - 06	ME3805: Mechanical System Design	VIII
Electrical Engineering	1	Multi-disciplinary Minor - 01	EE3304: DC Machines and Transformers	III
	2	Multi-disciplinary Minor – 02	EE3404: AC Machines	IV
	3	Multi-disciplinary Minor – 03	EE3505: Basics of Power System	V
	4	Multi-disciplinary Minor Lab – 03	EE3510: Electrical Machine Lab	V
	5	Multi-disciplinary Minor – 04	EE3606: Electrical Drives	VI




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 Board of Studies
 Department of Electrical Engineering
 Government College of Engineering, Karad

List of Multi-disciplinary Minor (Institute Level-Other Discipline)

Offered by Department	Sr. No.	Course category	Course code & Title	Semester
Law	1	Multi-disciplinary Minor - 01	IMO3311: Constitutional Law	III
	2	Multi-disciplinary Minor – 02	IMO3412: Human Rights & International Law	IV
	3	Multi-disciplinary Minor – 03	IMO3513: Environmental Law	V
	4	Multi-disciplinary Minor Lab – 03	IMO3514: Environmental Law Field Study	V
	5	Multi-disciplinary Minor – 04	IMO3615: Civil Procedure Code (CPC)	VI
	6	Multi-disciplinary Minor – 05	IMO3716: Intellectual Property Law	VII
	7	Multi-disciplinary Minor - 06	IMO3817: Cyber Law	VIII
Management & Finance	1	Multi-disciplinary Minor - 01	IMO3321: Microeconomics	III
	2	Multi-disciplinary Minor – 02	IMO3422: Corporate Social Responsibility	IV
	3	Multi-disciplinary Minor – 03	IMO3523: Principles of Accounting	V
	4	Multi-disciplinary Minor Lab – 03	IMO3524: Principles of Accounting Lab	V
	5	Multi-disciplinary Minor – 04	IMO3625: Business Intelligence	VI
	6	Multi-disciplinary Minor – 05	IMO3726: Marketing Research	VII
	7	Multi-disciplinary Minor - 06	IMO3827: Corporate Governance and Business Ethics	VIII




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 Department Of Electrical Engineering
 Government College of Engineering, Karad

Civil Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	CE3316	Environmental Chemistry
Open Elective-I lab	CE3321	Environmental Chemistry Lab
Open Elective-II	CE3415	Project Management
Open Elective-III	CE3516	Environmental Impact Assessment

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	CE3326	Environmental Chemistry
Open Elective-I lab	CE3331	Environmental Chemistry Lab
Open Elective-II	CE3425	Project Management
Open Elective-III	CE3526	Environmental Impact Assessment

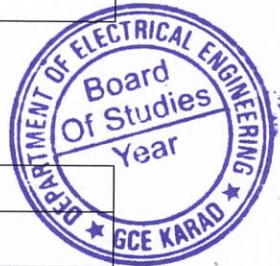
Mechanical Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	ME3315	Industrial Instrumentation
Open Elective-I lab	ME3312	Industrial Instrumentation Lab
Open Elective-II	ME3416	Industrial Safety
Open Elective-III	ME3516	Entrepreneurship Development

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	ME3325	Control systems




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 Board of Studies
 Department Of Electrical Engineering
 Government College of Engineering, Karad

Open Elective-I lab	ME3322	Instrumentation and Control Lab
Open Elective-II	ME3426	Industrial Safety
Open Elective-III	ME3526	Entrepreneurship

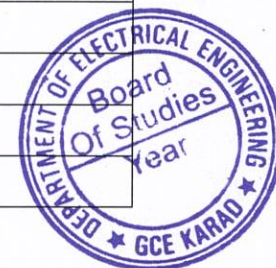
Electrical Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EE3315	Sustainable Energy Systems
Open Elective-I lab	EE3316	Sustainable Energy Systems Lab
Open Elective-II	EE3417	Robotics and Automation
Open Elective-III	EE3518	Optimization Techniques

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EE3325	Energy Systems Engineering
Open Elective-I lab	EE3326	Energy Systems Engineering Lab
Open Elective-II	EE3427	Power System Engineering
Open Elective-III	EE3528	Optimization Techniques



Electronics & Telecommunications Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EX3315	Digital System Design
Open Elective-I lab	EX3310	Digital System Design Laboratory
Open Elective-II	EX3415	Microcontroller and Interfacing
Open Elective-III	EX3516	Embedded Systems and RTOS


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 Department Of Electrical Engineering
 Government College of Engineering, Karad

List of Open Elective (MOOCs Mode)

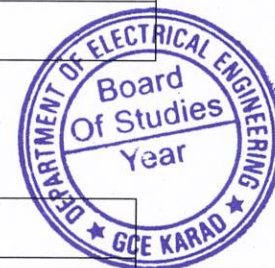
Open Elective	Course Code	Course Title
Open Elective-I	EX3325	Digital Electronics
Open Elective-I lab	EX3320	Digital Electronics Laboratory
Open Elective-II	EX3425	Microprocessor and Microcontroller
Open Elective-III	EX3526	Embedded Systems

Information Technology Department**List of Open Elective (Offline Mode)**

Open Elective	Course Code	Course Title
Open Elective-I	IT3316	Internet of Things
Open Elective-I lab	IT3311	Internet of Things Lab
Open Elective-II	IT3415	Robotics and Automation
Open Elective-III	IT3516	Augmented Reality and Virtual Reality

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	IT3326	Sensors and Internet of Things
Open Elective-I lab	IT3321	Sensors and Internet of Things Lab
Open Elective-II	IT3425	Robotics and Automation
Open Elective-III	IT3526	Multimedia and Reality



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Department Of Electrical Engineering
Government College of Engineering, Karad

Institute Level- Industrial orientated Open Elective

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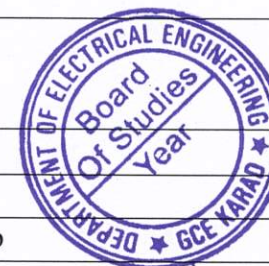
Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3311	Foundations of AI, Data Science, and Data Engineering”	III
Open Elective-I lab	IOE3312	Foundations for AI, Data Science, and Data Engineering Lab”	III
Open Elective-II	IOE3413	Advanced AI Integration	IV
Open Elective-III	IOE3514	AI Applications and Emerging Technologies	V

AIOT

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3321	IoT Hardware and Sensors	III
Open Elective-I lab	IOE3322	IoT Hardware and Sensors lab	III
Open Elective-II	IOE3423	Fundamentals of AIoT	IV
Open Elective-III	IOE3524	Cloud Services for IoT	V

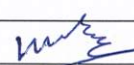
ARVR

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3331	AR/VR Application Development	III
Open Elective-I lab	IOE3332	AR/VR Application Development lab	III
Open Elective-II	IOE3433	Fundamentals of Real-time Rendering	IV
Open Elective-III	IOE3534	Game Development with Unreal Engine	V



ERP-SAP

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3341	ABAP Programming for SAP HANA	III
Open Elective-I lab	IOE3342	ABAP programming in Eclipse LAB	III
Open Elective-II	IOE3443	SAP HANA	IV
Open Elective-III	IOE3544	SAP PEOJECT	V


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