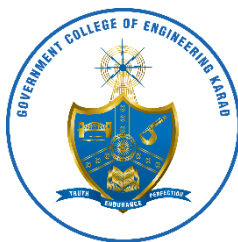


Government College of Engineering, Karad (An Autonomous Institute of Govt.of Maharashtra)



Department of Electronics & Telecommunication Engineering B.Tech E&TC Curriculum Structure w.e.f Academic Year: 2023-24

Institute Vision
To emerge as a technical Institute of national repute driven by excellence in imparting value based education and innovation in research to face the Global needs of profession.
Institute Mission
To create professionally competent engineers driven with the sense of responsibility towards nature and society.
Department Vision
To be a model of excellence to impart strong fundamentals, technical skills & research for real life application in Electronics and Telecommunication Engineering education.
Department Mission
<ol style="list-style-type: none">1) Provide strong foundation in Electronics and Communication Engineering.2) Create platform for innovation, research and new technology development.3) Inculcate ethical values, entrepreneurial skills and self-learning attitude.

Programme Educational Objectives (PEO):

PEO1	To motivate the students for pursuing higher education from renowned organizations, leading to Research & Development in core technical area.
PEO2	To encourage students to participate in Social activities & utilize engineering knowledge to fulfil socio-ethical problems for Rural development & Regional needs of technology.
PEO3	To prepare students with core Technical competency, Soft skills, Leadership quality & demonstrate an ability to work in multi-disciplinary fields.
PEO4	To be able to acquire state of art knowledge to cater the industry employability needs & to motivate students to enter in the field of Entrepreneurship.

Programme Outcomes (PO):

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO):

PSO1	Validate the knowledge of the state of art, tools and apply for the development of Electronics systems including Embedded, IoT ,Robotics, Artificial Intelligence & VLSI circuits.
PSO2	Demonstrate appropriate modern techniques for analysis, design and development of Telecommunication systems.
PSO3	An ability to apply design principles in the development of hardware and software systems of varying complexity and provide security at every level.

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: **Electronics & Telecommunication Engineering**

Proposed Scheme of Instructions: First Year B. Tech. in Electronics & Telecommunication Engineering

Semester – I (w.e.f. 2023-24)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	BSC	EX3101	Engineering Chemistry	3	--	--	3	3	20	20	60	100
2	BSC	EX3102	Matrix Algebra and Calculus	3	1	--	4	4	20	20	60	100
3	ESC	EX3103	Basic Electrical & Electronics Engineering	3	--	--	3	3	20	20	60	100
4	ESC	EX3104	Engineering Graphics	2	--	--	2	2	--	50	--	50
5	ESC	EX3105	Design Thinking	2	--	--	2	2	--	50	--	50
6	BSC	EX3106	Engineering Chemistry Laboratory	--	--	2	2	1	-	25	25	50
7	ESC	EX3107	Engineering Graphics Laboratory	--	--	2	2	1	-	--	50	50
8	ESC	EX3108	Programming for problem solving Laboratory	1	--	2	3	2	-	50	25	75
9	HSSM	EX3109	Professional Communication Skills	1	--	2	3	2	-	50	25	75
10	VSEC	EX3110	Electronics Workshop and PCB Laboratory	--	--	2	2	1	-	100	-	100
11	CCA	EX3111	Yoga	--	--	2	2	1	-	50	-	50
			Total	15	1	12	28	22	60	435	305	800

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	10	-	-	-	01	02	-	01
Cumulative Sum	08	10	-	-	-	01	02	-	01

PROGRESSIVE TOTAL CREDITS: 00+22 =22

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: **Electronics & Telecommunication Engineering**

Proposed Scheme of Instructions: First Year B. Tech. in Electronics & Telecommunication Engineering

Semester – II (w.e.f. 2023-24)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	BSC	EX3201	Engineering Physics	3	--	--	3	3	20	20	60	100
2	BSC	EX3202	Differential and Integral Calculus	3	1	--	4	4	20	20	60	100
3	ESC	EX3203	Engineering Mechanics	3	--	--	3	3	20	20	60	100
4	PCC	EX3204	Transducers & Measurement	3	--	--	3	3	20	20	60	100
5	HSSM	EX3205	Indian Knowledge Systems (MOOC)	-	-	-	-	2	-	-	-	100
6	BSC	EX3206	Engineering Physics Laboratory	-	-	2	2	1	-	25	25	50
7	ESC	EX3207	Data structure with C++	2	--	2	4	3	-	50	50	100
8	VSEC	EX3208	Engineering Exploration	-	--	4	4	2	-	50	50	100
9	CCA	EX3209	NCC/NSS/CSP/E-Cell.	--	--	2	2	1	-	50	-	50
Total				14	1	10	25	22	80	280	340	800

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	06	03	-	-	02	02	-	01
Cumulative Sum	16	16	03	-	-	03	04	-	02

PROGRESSIVE TOTAL CREDITS: 22+22 =44

Exit Course

Exit option: Award of UG Certificate in Major with 44 credits and an additional 8 credits from following Exit Courses				
Sr. No	Course Code	Course Title	Mode	Credits
1	EX-EC-0101	Maintenance and Servicing of Electrical & Electronics Equipment	Online/offline certification Course	8
OR				
2	EX-EC-0102	Certificate Programme (C, C++ language learned in Sem-1 and/or Sem-2)		8

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electronics & Telecommunication Engineering

Proposed Scheme of Instructions: Second Year B. Tech. in Electronics & Telecommunication Engineering

Semester – III (w.e.f. 2024-25)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EX3301	Digital System Design	3	--	--	3	3	20	20	60	100
2	PCC	EX3302	Network Analysis & Synthesis	3	1	--	4	4	20	20	60	100
3	PCC	EX3303	Analog Circuits-1	3	--	--	3	3	20	20	60	100
4	Audit	EX3304	Integral Transform, Probability and Random Processes	3	--	--	3	--	--	--	--	--
5	MDM	##	Multi-Disciplinary Minor-01	2	--	--	2	2	20	20	60	100
6	OEC	\$D/O/I	Open Elective -01	3	--	--	3	3	20/NA/NA	20/NA/50	60/10/0/50	100
7	HSSM	EX3306	Universal Human Values	2	--	--	2	2	-	50	-	50
8	HSSM	EX3307	Economics for Engineers	2	--	--	2	2	-	50	-	50
9	VSEC	EX3308	Digital System Design Laboratory	--	--	2	2	1	-	25	50	75
10	VSEC	EX3309	Analog Circuits-1 Laboratory	--	--	2	2	1	-	25	50	75
	OE	\$D/O/I	Open Elective -01 Laboratory	--	--	2	2	1	-	25	25	50
			Total	21	1	6	28	22	100	275	425	800

***Note: 1. Open Elective-01 (OE) can be offered as offline/Online mode (MOOC).**

2. \$D/O/I:- Any course offered by Department/Online/Institute OE bucket.

3. ##:- 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 (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	00	-	10	-	06	02	04	-	-
Cumulative Sum	16	16	13	-	06	05	08	-	02

PROGRESSIVE TOTAL CREDITS: 44+22 =66

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electronics & Telecommunication Engineering

Proposed Scheme of Instructions: Second Year B. Tech. in Electronics & Telecommunication Engineering

Semester – IV (w.e.f. 2024-25)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EX3401	Analog Circuits-II	3	1	--	4	4	20	20	60	100
2	PCC	EX3402	Signals & Systems	3	--	--	3	3	20	20	60	100
3	PCC	EX3403	Microcontroller & Interfacing	3	--	--	3	3	20	20	60	100
4	MDM	##	Multi-Disciplinary Minor-02	2	--	--	2	2	20	20	60	100
5	OEC	\$D/O/I	Open Elective -02	2	--	--	2	2	20/NA/NA	20/NA/50	60/100/50	100
6	HSSM	EX3406	Strategic Management	2	--	--	2	2	-	25	-	25
7	HSSM	EX3407	Professional Ethics	2	--	--	2	2	-	25	-	25
8	PCC	EX3408	Analog Circuits-III Laboratory	--	--	2	2	1	-	50	50	100
9	VSEC	EX3409	Signals & Systems Laboratory	--	--	2	2	1	-	25	25	50
10	VSEC	EX3410	Microcontroller & Interfacing Laboratory	--	--	2	2	1	-	25	25	50
11	EL	EX3411	Community Engagement Project	--	--	2	2	1	-	50	-	50
12	BSC	EX3412	Environmental Science	2	--	--	2	Audit	-	-	-	-
Total				19	1	8	28	22	100	300	400	800

*Note: 1. Open Elective-02 (OE) can be offered as offline/Online mode (MOOC).

2. \$D/O/I:- Any course offered by Department/Online/Institute OE bucket.

3. ## :- 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	-	-	11	-	04	02	04	01	-
Cumulative Sum	16	16	24	-	10	07	12	01	02

PROGRESSIVE TOTAL CREDITS: 66+22 =88

Exit Course

Exit option : Award of UG Diploma in Major with 88 credits and an additional 8 credits from following Exit Courses				
Sr. No	Course Code	Course Title	Mode	Credits
1	EX-EC-0201	Data Communication Networking	Online/offline certification Course	8
OR				
2	EX-EC-0202	Advanced Electronics Gadgets Servicing & Maintenance		8

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electronics & Telecommunication Engineering

Proposed Scheme of Instructions: Third Year B. Tech. in Electronics & Telecommunication Engineering

Semester – V

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EX3501	Analog & Digital Communication	3	--	--	3	3	20	20	60	100
2	PCC	EX3502	Digital Signal Processing	3	--	--	3	3	20	20	60	100
3	PCC	EX3503	Embedded System & RTOS	3	-	--	3	3	20	20	60	100
4	PEC	EX35*4	Program Elective -01	3	1	--	4	4	20	20	60	100
5	MDM	##	Multi-Disciplinary Minor-03	3	--	--	3	3	20	20	60	100
6	OEC	\$D/O/I	Open Elective -03	2	--	--	2	2	20/NA/NA	20/NA/50	60/100/50	100
7	PCC	EX3507	Analog & Digital Communication Laboratory	--	--	2	2	1	-	25	25	50
8	PCC	EX3508	Digital Signal Processing Laboratory	--	--	2	2	1	-	50		50
9	PCC	EX3509	Embedded System & RTOS Laboratory	-	-	2	2	1		25	25	50
10	MDM	##	MDM-03 Laboratory	--	--	2	2	1	-	50	-	50
Total				17	1	8	26	22	120	270	410	800

*Note: 1. Open Elective-03 (OE) can be offered as offline/Online mode (MOOC).

2. \$D/O/I:- Any course offered by Department/Online/Institute OE bucket.

3. ## :- 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	-	-	12	04	06	-	-	-	-
Cumulative Sum	16	16	36	04	16	07	12	01	02

PROGRESSIVE TOTAL CREDITS: 88+22=110

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Electronics & Telecommunication Engineering

Proposed Scheme of Instructions: Third Year B. Tech. in Electronics & Telecommunication Engineering

Semester – VI

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EX3601	Electromagnetic Field Theory	3	--	--	3	3	20	20	60	100
2	PCC	EX3602	Fiber Optical Communication	3	--	--	3	3	20	20	60	100
3	PCC	EX3603	Computer Network	2	--	--	2	2	20	20	60	100
4	PEC	EX36*4	Program Elective -02	3	1	--	4	4	20	20	60	100
5	PEC	EX3605	Internet of Things	3	--	--	3	3	20	20	60	100
6	MDM	##	Multi-Disciplinary Minor -04	2	--	--	2	2	20	20	60	100
7	EL	EX3607	Mini Project	-	--	4	4	2	-	50	25	75
9	VSEC	EX3609	Fiber Optical Communication Laboratory	--	--	2	2	1	-	50		50
10	PCC	EX3610	Computer Network Laboratory	--	--	2	2	1	-	25		25
11	PEC	EX3611	Internet of Things Laboratory	--	--	2	2	1	-	25	25	50
			Total	16	1	10	27	22	120	270	410	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 (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	9	8	02	01	-	2	-
Cumulative Sum	16	16	45	12	18	08	12	03	02

PROGRESSIVE TOTAL CREDITS: 110+22 =132

Exit option : Award of B. Vocational in Major with 132 credits and an additional 8 credits from following Exit Courses				
Sr. No	Course Code	Course Title	Mode	Credits
1	EX-EC-0301	Certified Network Engineer	Online/offline certification Course	8
OR				
2	EX-EC-0302	Advanced Mobile Communication		8

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: **Electronics & Telecommunication Engineering**

Proposed Scheme of Instructions: Final Year B. Tech. in Electronics & Telecommunication Engineering

Semester – VII

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EX3701	Computer Architecture	3	--	--	3	3	20	20	60	100
2	PCC	EX3702	Antenna & Wave Propagation	3	--	--	3	3	20	20	60	100
3	EL	EX3703	Mobile Communication & Networks	3	--	--	3	3	20	20	60	100
4	EL	EX3704	Research Methodology	3	--	--	3	3	20	20	60	100
5	PEC	EX37*5	Program Elective -03	2	--	--	2	2	20	20	60	100
6	MDM	##	Multi-Disciplinary Minor -05	2	--	--	2	2	20	20	60	100
7	PCC	EX3707	Antenna & Wave Propagation Laboratory	--	--	2	2	1	-	25	25	50
8	EL	EX3708	Project Phase - I	--	--	10	10	5	-	75	75	150
			Total	16	0	6	28	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	-	-	07	02	02	-	-	11	-
Cumulative Sum	16	16	52	14	20	08	12	14	02

PROGRESSIVE TOTAL CREDITS: 132+22 =154

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: **Electronics & Telecommunication Engineering**

Proposed Scheme of Instructions: Final Year B. Tech. in Electronics & Telecommunication Engineering

Semester – VIII (Academic Mode)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	EX3801	Microwave & Radar Engineering	2	--	--	2	2	20	20	60	100
2	PCC	EX3802	Robotics & Automation	3	--	--	3	3	20	20	60	100
3	PEC	EX38*3	Program Elective -04	2	--	--	2	2	20	20	60	100
4	PEC	EX3804	VLSI Design	3	--	--	3	3	20	20	60	100
5	MDM	##	Multi-Disciplinary Minor -06	2	--	--	2	2	20	20	60	100
6	PCC	EX3806	Robotics & Automation Laboratory	--	--	2	2	1	-	25	25	50
7	PEC	EX3807	VLSI Design Lab	--	--	2	2	Audit	--	25	--	25
8	EL	EX3808	Project Phase - II	--	--	18	18	9	-	125	100	250
			Total	12	0	22	34	22	100	275	425	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	-	-	06	05	02	-	-	09	-
Cumulative Sum	16	16	58	19	22	08	12	23	02

PROGRESSIVE TOTAL CREDITS: 154+22 =176

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: **Electronics & Telecommunication Engineering**

Proposed Scheme of Instructions: Final Year B. Tech. in Electronics & Telecommunication Engineering

Semester – VIII (Industry Mode)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	MOOC	EX3809	MOOC - I	-	-	-	-	4	-	-	100	100
2	MOOC	EX3810	MOOC - II	-	-	-	-	4	-	-	100	100
3	MDM	##	Multi-disciplinary Minor – 06 (MOOC)	--	--	--	--	2	-	-	100	100
4	EL	EX3812	Internship	--	--	--	-	12	-	250	250	500
Total				--	--	--	--	22	-	250	550	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	02	-	-	12	-
Cumulative Sum	16	16	52	22	22	08	12	23	02

PROGRESSIVE TOTAL CREDITS: 154+22 =176

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: **Electronics & Telecommunication Engineering**

Proposed Scheme of Instructions: Final Year B. Tech. in Electronics & Telecommunication Engineering

Semester – VIII (Research Mode)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	MOOC	EX3813	MOOC - I	--	--	--	-	4	--	-	100	100
2	MOOC	EX3814	MOOC - II	--	--	--	-	4	--	-	100	100
3	MDM	##	Multi-disciplinary Minor – 06	2	--	--	2	2	20	20	60	100
4	EL	EX3816	Research Project	--	--	24	24	12	-	250	250	500
Total				2	-	24	26	22	20	270	510	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	-	-		8	02	-		12	-
Cumulative Sum	16	16	52	22	22	08	12	23	02

PROGRESSIVE TOTAL CREDITS: 154+22 =176

List of Programme Elective Courses:

Specialization	Communication	Signal Processing	VLSI & Embedded	Automation	Social Engineering
Elective-I	EX3514: Information Theory & Coding	EX3524:DSP Processor Architecture & Algorithm	EX3534: System Verilog	EX3544: Power Electronics	EX3554: Biomedical Electronics
Elective-II	EX3614: Satellite Communication	EX3624: Image & Video Processing	EX3634: RF IC Designing	EX3644: Automotive Electronics	EX3654: Consumer Electronics
Elective-III	EX3715: EMI-EMC	EX3725: Multirate Signal Processing	EX3735: Mixed Signal IC Designing	EX3745: Control System	EX3755: Cyber Security
Elective-IV	EX3813: Wireless Communication	EX3823: Speech Processing	EX3833: Real Time System Design and Application	EX3843: Industrial Automation	EX3853:AI & ML

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 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
	6	Multi-disciplinary Minor – 05	EE3705: Switchgear and Protection	VII
	7	Multi-disciplinary Minor - 06	EE3805: Energy Management and Audit /Electrical Vehicle	VIII
Information Technology	1	Multi-disciplinary Minor - 01	IT3305: Basics of Data Structure	III
	2	Multi-disciplinary Minor – 02	IT3404:Software Essentials (OS and Application Software)	IV
	3	Multi-disciplinary Minor – 03	IT3505:Database Management Systems	V
	4	Multi-disciplinary Minor Lab – 03	IT3511:Database Management Systems Lab	V
	5	Multi-disciplinary Minor – 04	IT3604:Basics of AI and ML	VI
	6	Multi-disciplinary Minor – 05	IT3705:Python Programming	VII
	7	Multi-disciplinary Minor - 06	IT3805:Web Technology	VIII
Electronics & Telecommunications Engineering	1	Multi-disciplinary Minor - 01	EX3304: Electronic Circuits	III
	2	Multi-disciplinary Minor – 02	EX3404: Digital Electronics	IV
	3	Multi-disciplinary Minor – 03	EX3505: Signals & Systems	V
	4	Multi-disciplinary Minor Lab – 03	EX3510: Signals & Systems Laboratory	V
	5	Multi-disciplinary Minor – 04	EX3606: Communication System	VI
	6	Multi-disciplinary Minor – 05	EX3706: Microprocessor & Microcontroller	VII
	7	Multi-disciplinary Minor - 06	EX3805: Mobile Communication	VIII

List of Multi-disciplinary Minor (Institute Level-Industrial)

Stream/Technology	Sr.No.	Course category	Course code & Title	Semester
Electrical Vehicle (Electrical Engineering- Institute Level-Industrial)	1	Multi-disciplinary Minor - 01	IMI3311: Foundation of EV and Hybrid Vehicle	III
	2	Multi-disciplinary Minor – 02	IMI3412: EV Battery Technology and Powertrain Development	IV
	3	Multi-disciplinary Minor – 03	IMI3513: EV Power Electronics and Embedded System	V
	4	Multi-disciplinary Minor Lab – 03	IMI3514: Electric Vehicle Lab	V
	5	Multi-disciplinary Minor – 04	IMI3615: EV Charging Infrastructure, Vehicle Testing & Homologation	VI
	6	Multi-disciplinary Minor – 05	IMI3716: EV Vehicle Design, Analysis and Control	VII
	7	Multi-disciplinary Minor - 06	IMI3817: EV PCB Design & Data Analytics	VIII
Image Processing (ETC- Institute Level-Industrial)	1	Multi-disciplinary Minor - 01	IMI3321: Fundamentals of Image.	III
	2	Multi-disciplinary Minor – 02	IMI3422: Basics of Image Processing for Healthcare	IV
	3	Multi-disciplinary Minor – 03	IMI3523: Particle Size Analysis using Image Processing	V
	4	Multi-disciplinary Minor Lab – 03	IMI3524: Particle Size Analysis using Image Processing Lab	V
	5	Multi-disciplinary Minor – 04	IMI3625: Particle Characterization in Healthcare	VI
	6	Multi-disciplinary Minor – 05	IMI3726: Particle Characterization in Formulation and Reverse Engineering	VII
	7	Multi-disciplinary Minor - 06	IMI3827: Project	VIII
Electrical Vehicle (Mechanical Engineering- Institute Level-Industrial)	1	Multi-disciplinary Minor - 01	IMI3331: Foundation of EV and Hybrid Vehicle	III
	2	Multi-disciplinary Minor – 02	IMI3432: Automotive Mechanics for EV	IV
	3	Multi-disciplinary Minor – 03	IMI3533: EV Design, Development, Analysis and Control	V
	4	Multi-disciplinary Minor Lab – 03	IMI3534: 3D modelling and simulation Lab	V
	5	Multi-disciplinary Minor – 04	IMI3635: EV Product Development, Homologation and	VI

			Hydrogen FCEV	
	6	Multi-disciplinary Minor – 05	IMI3736:EV FEA ANALYSIS	VII
	7	Multi-disciplinary Minor - 06	IMI387:CYBER SECURITY AND DATA ANALYSIS	VIII

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

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
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 or Electrical vehicle system

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

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

Institute Level- Industrial orientated Open Elective

AIDSML

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

BASKET OF BASIC SCIENCE COURSES (BSC)

LIST OF BSC COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3101	Engineering Chemistry	3	--	--	3
2.	EX3102	Matrix Algebra and Calculus	3	1	--	4
3.	EX3106	Engineering Chemistry Laboratory	--	--	2	1
SEMESTER II						
4.	EX3201	Engineering Physics	3	--	--	3
5.	EX3202	Differential and Integral Calculus	3	1	--	4
6.	EX3206	Engineering Physics Laboratory	-	-	2	1
SEMESTER III						
7.	EX3304	Integral Transform, Probability and Random Process	3	--	--	Audit
SEMESTER IV						
8.	EX3412	Environmental Science	2	--	--	Audit
Total						16

BASKET OF ENGINEERING SCIENCE COURSES (ESC)

LIST OF ESC COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3103	Basic Electrical & Electronics Engineering	3	--	--	3
2.	EX3104	Engineering Graphics	2	--	--	2
3.	EX3105	Design Thinking	2	--	--	2
4.	EX3107	Engineering Graphics Laboratory	--	--	2	1
5.	EX3108	Programming for problem solving Laboratory -I	1	--	2	2
SEMESTER II						
1.	EX3203	Engineering Mechanics	3	--	--	3
2.	EX3207	Data structure with C++	2	--	2	3
Total						16

BASKET OF PROGRAMME ELECTIVE COURSE (PEC)

LIST OF PEC COURSES OFFERED SEMESTER WISE						
SEMESTER V						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX35*4	Program Elective -01	3	1	--	4
SEMESTER VI						
2.	EX36*4	Program Elective -02	3	1	--	4
3.	EX3605	Internet of Things	3	--	--	3
4.	EX3611	Internet of Things Laboratory	--	--	2	1
SEMESTER VII						
5.	EX37*4	Program Elective -03	2	--	--	2
SEMESTER VIII						
6.	EX38*3	Program Elective -04	2	--	--	2
7.	EX3804	VLSI Design	3	--	--	3
8.	EX3807	VLSI Design Lab	--	--	2	Audit
Total						19

BASKET OF PROGRAMME CORE COURSE (PCC)

LIST OF PCC COURSES OFFERED SEMESTER WISE						
SEMESTER II						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3204	Transducers & Measurement	3	--	--	3
SEMESTER III						
2.	EX3301	Digital System Design	3	--	--	3
3.	EX3302	Network Analysis & Synthesis	3	1	--	4
4.	EX3303	Analog Circuits-1	3	--	--	3
SEMESTER IV						
7.	EX3401	Analog Circuits-II	3	1	--	4
8.	EX3402	Signals & Systems	3	--	--	3
9.	EX3403	Microcontroller & Interfacing	3	--	--	3
10.	EX3408	Analog Circuits-II Laboratory	--	--	2	1
SEMESTER V						
11.	EX3501	Analog & Digital Communication	3	--	--	3
12.	EX3502	Digital Signal Processing	3	--	--	3
13.	EX3503	Embedded System & RTOS	3	-	--	3
14	EX3507	Analog & Digital Communication Laboratory	--	--	2	1
15	EX3508	Digital Signal Processing Laboratory	--	--	2	1

16	EX3509	Embedded System & RTOS Laboratory	-	-	2	1
SEMESTER VI						
17	EX3601	Electromagnetic Field Theory	3	--	--	3
18	EX3602	Fiber Optical Communication	3	--	--	3
19	EX3603	Computer Network	2	--	--	2
20	EX3610	Computer Network Laboratory	--	--	2	1
SEMESTER VII						
21	EX3701	Computer Architecture	3	--	--	3
22	EX3702	Antenna & Wave Propagation	3	--	--	3
23	EX3707	Antenna & Wave Propagation Laboratory	--	--	2	1
SEMESTER VIII						
24	EX3801	Microwave & Radar Engineering	2	--	--	2
25	EX3802	Robotics & Automation	3	--	--	3
26	EX3806	Robotics & Automation Laboratory	--	--	2	1
Total						58

BASKET OF OPEN ELECTIVE OTHER THAN PARTICULAR PROGRAM

LIST OF OPEN ELECTIVE COURSES OFFERED SEMESTER WISE						
SEMESTER III						
Sr. No	Course Code	Course	L	T	P	Credits
1.	\$D/O/I	Open Elective -01	3	--	--	3
2.	\$D/O/I	Open Elective -01 Laboratory	--	--	2	1
SEMESTER IV						
3.	\$D/O/I	Open Elective -02	2	--	--	2
SEMESTER V						
4.	\$D/O/I	Open Elective -03	2	--	--	2
Total						08

BASKET OF MULTIDISCIPLINARY MINOR (MDM)

LIST OF MDM COURSES OFFERED SEMESTER WISE						
SEMESTER III						
Sr. No	Course Code	Course	L	T	P	Credits
1.	##	Multi-Disciplinary Minor-01	2	--	--	2
SEMESTER IV						
2.	##	Multi-Disciplinary Minor-02	2	--	--	2
SEMESTER V						
3.	##	Multi-Disciplinary Minor-03	3	--	--	3
4.	##	MDM-03 Laboratory	--	--	2	1
SEMESTER VI						
5.	##	Multi-Disciplinary Minor -04	2	--	--	2
SEMESTER VII						
6.	##	Multi-Disciplinary Minor -05	2	--	--	2
SEMESTER VIII (Academic Mode)						
7.	##	Multi-Disciplinary Minor -06	2	--	--	2
SEMESTER VIII (Industry Mode)						
7.	##	Multi-disciplinary Minor – 06 (MOOC)	--	--	--	2
SEMESTER VIII (Research Mode)						
7.	##	Multi-disciplinary Minor – 06 (MOOC)	--	--	--	2
Total						14

BASKET OF VOCATIONAL AND SKILL ENHANCEMENT COURSE (VSEC)

LIST OF VSEC COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3110	Electronics Workshop and PCB Laboratory	--	--	2	1
SEMESTER II						
2.	EX3208	Engineering Exploration	-	--	4	2
SEMESTER III						
3.	EX3308	Digital system Design Laboratory	--	--	2	1
4.	EX3309	Analog Circuits-I Laboratory	--	--	2	1
SEMESTER IV						
5.	EX3409	Signals & Systems Laboratory	--	--	2	1
6.	EX3410	Microcontroller & Interfacing Laboratory	--	--	2	1
SEMESTER VI						
7.	EX3609	Fiber Optical Communication Laboratory	--	--	2	1
Total						08

BASKET OF HUMANITIES SOCIAL SCIENCE AND MANAGEMENT (HSSM)

LIST OF HSSM COURSES OFFERED SEMESTER WISE**SEMESTER I**

Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3109	Professional Communication Skills	1	--	2	2

SEMESTER II

2.	EX3205	Indian Knowledge Systems (MOOC)	-	-	-	2
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SEMESTER III

3.	EX3306	Universal Human Values	2	--	--	2
4.	EX3307	Economics for Engineers	2	--	--	2

SEMESTER IV

5.	EX3406	Strategic Management	2	--	--	2
6.	EX3407	Professional Ethics	2	--	--	2

Total**12**

BASKET OF EXPERIENTIAL LEARNING (EL)

LIST OF EL COURSES OFFERED SEMESTER WISE						
SEMESTER IV						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3411	Community Engagement Project	--	--	2	1
SEMESTER VI						
2.	EX3607	Mini Project	-	--	4	2
SEMESTER VII						
3.	EX3703	Mobile communication and Networks	3	--	--	3
4.	EX3704	Research Methodology	3	--	--	3
5.	EX3708	Project Phase - I	--	--	10	5
SEMESTER VIII (Academic Mode)						
6.	EX3808	Project Phase - II	--	--	18	9
SEMESTER VIII (Industry Mode)						
6.	EX3812	Internship	--	--	--	12
SEMESTER VIII (Research Mode)						
6.	EX3816	Research Project	--	--	--	12
Total						23

BASKET OF CO-CURRICULAR AND EXTRACURRICULAR ACTIVITIES (CCA)

LIST OF CCA COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr. No	Course Code	Course	L	T	P	Credits
1.	EX3111	Yoga	--	--	2	1
SEMESTER II						
1.	EX3209	NCC/NSS/CSP/E-Cell.	--	--	2	1
					Total	2

BASKET OF MOOC

LIST OF MOOC COURSES OFFERED SEMESTER WISE						
SEMESTER II						
Sr. No.	Course Code	Course	L	T	P	Credits
1.	EX3205	Indian Knowledge Systems (MOOC)	--	--	--	2
SEMESTER VIII (Industry Mode)						
1.	EX3809	MOOC – I	--	--	--	4
2.	EX3810	MOOC – II	--	--	--	4
3.	##	Multi-disciplinary Minor – 06 (MOOC)	--	--	--	2
OR						
SEMESTER VIII (Research Mode)						
1.	EX3813	MOOC – I	--	--	--	4
2.	EX3814	MOOC – II	--	--	--	4
3.	##	Multi-disciplinary Minor – 06 (MOOC)	--	--	--	2
TOTAL						22