

Dr. Vasantodada Patil Shetkari Shikshan Mandal's
Padmabhooshan Vasantodada Patil Institute of Technology,
Budhgaon, Sangli (MS) – 416304
(An Autonomous Institute)

Affiliated to
Dr. Babasaheb Ambedkar Technological University,
Lonere, Raigad

(Accredited by NAAC)



**Department of Electronics & Telecommunication
Engineering**

Structure of Undergraduate Degree Programme

B. Tech. in Electronics & Telecommunication Engineering

In accordance with National Education Policy (NEP – 2020)

w. e. f.
Academic Year: 2026-27

INSTITUTE VISION & MISSION

Vision

“To be a premier autonomous institute known for academic excellence, research innovation, and transformative engineering education.”

Missions

Mission 1: Academic Excellence

Providing quality engineering education through an outcome-based curriculum, effective teaching–learning processes, and continuous academic improvement.

Mission 2: Research and Innovation

Promoting a strong research and innovation culture by encouraging faculty and students to engage in research projects, publications, patents, and interdisciplinary collaborations.

Mission 3: Industry-Oriented learning

Strengthening industry–institute collaboration through internships, industry-supported laboratories, expert lectures, and real-world engineering projects to enhance employability.

Mission 4: Holistic and Ethical Development

Developing competent engineers with professional ethics, leadership qualities, lifelong learning ability, and commitment to societal and sustainable development.



Vision

To emerge as a recognized department of Electronics & Telecommunication Engineering fostering innovation and research to address the current and future needs of industry and society.

Mission

M1 (Academic Excellence)

Providing outcome-based technical education and conducive learning environment equipped with state-of-the-art curriculum and modern laboratory facilities.

M2 (Research and Innovation)

Cultivating research culture by promoting collaborative research and development in emerging domains and offer student-centric teaching led by highly qualified faculty moulding students into successful, industry-ready professionals.

M3 (Industry-Oriented Learning)

Strengthening industry-institute interactions; ensuring students are highly employable and prepared for entrepreneur addressing industrial requirements.

M4 (Holistic and Ethical Development)

Nurturing professionals with strong leadership, communication, etiquette, ethical and social values, entrepreneurial attitude managerial skills who apply their expertise to solve real-world, societal problems.





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PEO1 : (Professional Career)

To inculcate advance knowledge in the field of Electronics & Telecommunication Engineering among students to help pursue higher education for professional career.

PEO2: (Research & Innovation)

To analyse and solve engineering challenges through research, innovation, and sustainable solutions, while developing multidisciplinary and multi-skilled competencies.

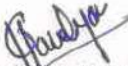
PEO3: (Leadership, Ethics, Social Awareness)

To demonstrate leadership, teamwork, and effective communication while upholding professional ethics and social responsibility.

PEO4: (Lifelong Learning and Entrepreneurship)

To engage in lifelong learning and entrepreneurship to adapt to evolving technologies.


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Dr. K. K. Pandeyaji
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Knowledge and Attitude Profile (WK)

- WK1:** A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
- WK2:** Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
- WK3:** A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
- WK4:** Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
- WK5:** Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
- WK6:** Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
- WK7:** Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.
- WK8:** Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
- WK9:** Ethics, inclusive behaviour and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.


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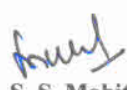
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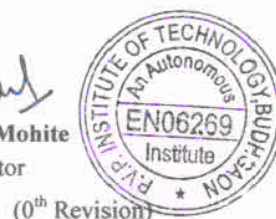
Programme Outcome (POs & PSOs)

- PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization to develop to the solution of complex engineering problems (WK1 to WK4).
- PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
- PO3: Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
- PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
- PO5: Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
- PO6: The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, & WK7).
- PO7: Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
- PO8: Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
- PO9: Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
- PO10: Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
- PO11: Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)


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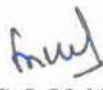
- PSO1:** Graduates will be able to develop ideas & projects which will cater the professional and competitive needs in Electronics & Telecommunication Engineering.
- PSO2:** Graduates will be able to use techniques and skills to design, analyse, and simulate Electronics and Telecommunication Engineering components and systems for societal needs.

Legends Used

L	- Lecture Hours / Week
T	- Tutorial Hours / Week
P	- Practical Hours / Week
CA	- Continuous Assessment
ISE 1	- In Semester Evaluation – 1
ISE 2	- In Semester Evaluation – 2
ESE	- End Semester Examination
MOOC	- Massive Open Online Course
NPTEL	- National Programme on Technology Enhanced Learning
FY	- First Year
SY	- Second Year
TY	- Third Year
B.Tech	- Bachelor of Technology
MDM	- Multidisciplinary Minor
OE	- Open Elective


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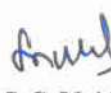
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**Semester-wise Credit distribution for
 Four Year UG Engineering Programme in E&Tc Engineering (One Major,
 One Minor)**

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	8	8	--	--	--	--	--	--	16
Engineering Science Course		6	9	4	--	--	--	--	--	19
Programme Core Courses (PCC)	Program Courses	--	02	11	15	12	15	8	3	64
Programme Elective Courses (PEC)		--	--	--	--	4	4	4	3	14
Multidisciplinary Minor (MDM)	Multidisciplinary Courses	--	--	3	3	3	3	2	--	5
Open Elective (OE) Other than particular program		--	--	--	2	3	--	--	--	6
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	1	2	--	1	--	2	--	--	4
Ability Enhancement Course (AEC-01, AEC-02)	Humanities Social Science and Management (HSSM)	3	--	--	1	--	--	--	--	6
Entrepreneurship / Economics / Management Courses		--	--	2	--	1	--	3	--	2
Indian Knowledge System (IKS)		2	--	--	--	--	--	--	--	3
Value Education Course (VEC)		--	--	2	1	--	--	--	--	2
Research Methodology	Experimental Learning Courses	--	--	--	--	--	--	2	--	1
Comm. Engg. Project (CEP) / Field Project (FP)		--	--	1	--	--	--	--	--	6
Project		--	--	--	--	--	--	4	2	10
Internship / OJT		--	--	--	--	--	--	--	10	
Co-curricular Courses (CC)	Liberal Learning Courses	--	1	--	--	--	--	--	--	1
Total Credits (Major)		20	20	23	24	22	24	23	18	174


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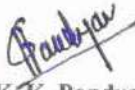
Curriculum Structure and Evaluation Scheme

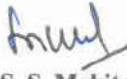
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Distribution of Credits:

Course Category	Number of Subjects	Credit as per PVPIT
Humanities, Social Science, and Management Courses + IKS(1)+VEC(2)	08	15
Basic Science Course (BSC)	04	16
Engineering Science Course (ESC)	05	19
Professional Core Course (PCC)	15	64
Professional Elective Course (PEC)	05	15
Open Elective Course (OEC)	02	05
Project work, Seminar/cep, and Internship in industry or elsewhere (PrSI) +RM	04	19
Mandatory Courses [Environmental Sciences, Induction Program , Indian Constitution, Essence of Indian Knowledge Tradition] (AUC) +CC	02	01
*VSEC	04	06
Total Credit Point		160
Minor Courses	05	14
Honours Courses	05	---


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**Multidisciplinary Minor (MDM) Bucket offered by
Electronics and Telecommunication Engineering Department**

MDM	Semester	Course Code	Multidisciplinary Minor	Credits
I	III	0ETMDM204	Analog Communication	3
II	IV	0ETMDM255	Digital Communication	3
III	V	0ETMDM305	Mobile and Satellite Communication	3
IV	VI	0ETMDM356	Introduction to Arduino and IOT	3
V	VII	0ETMDM405	Mini Project (MDM-V)	2

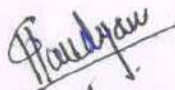
**Open Elective List offered by
Electronics and Telecommunication Engineering Department**

OE	Semester	Course Code	Open Elective	Credits
I	IV	0ETOE256	Digital Marketing	2
II	V	0ETOE306	Remote Sensing and GIS	2

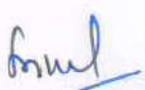
**Program Elective Courses offered by
Electronics and Telecommunication Engineering Department**

Sr. No.	Stream Name	PEC - I (0ETPEC304)	PEC - II (0ETPEC355)	PEC - III (0ETPEC403)
		Sem - V	Sem - VI	Sem - VII
01	Electronics Control & Automation	Analog Circuits	Control Systems	Industrial Automation
02	Programming & Web Design	Object Oriented Programming	Web Design	Python Programming
03	Digital Signal Processing	Image Processing	Advanced Signal Processing	Biomedical Signal Processing


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S.Y. B. Tech. Semester III Electronics and Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					Total
		L	T	P	Credits	Scheme	Theory		Practical		
							Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC201	Electronic Devices and Circuits	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC202	Digital Systems	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC203	Network Theory	3	1	0	4	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETMDM204	MDM-I	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETVEC205	Universal Human Values	2	0	0	2	ISE	50	20	-	-	50
0ETES206	Numerical Techniques	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETHSSM207	Principles of Management	2	0	0	2	ISE	50	20			50
0ETPCC208	Electronic Devices and Circuits Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
0ETPCC209	Digital Systems Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
0ETCEP210	CEP	0	0	2	1	ISE	-	-	50	20	50
Total		19	1	6	23	Total Marks					850
Total Contact Hours Per Week		26									

Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credits	-	3	12		3	-	-	-	2	-	2	-	1	-	-	-	23
Cumulative	16	18	12	-	3	-	3	3	2	2	2	-	1	-	-	1	63

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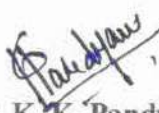
**ISE 1: In semester evaluation 1, ISE 2: In semester evaluation 2, MSE: Mid Semester Examination,
ESE: End Semester Examination.**

Passing Criteria:

ISE + MSE $\geq$ 40 % Marks and ESE has separate passing $\geq$ 40 % Marks.

	MDM- I
0ETCMDM204	Analog Communication


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S.Y. B. Tech. Semester IV Electronics and Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					Total
		L	T	P	Credits	Scheme	Theory		Practical		
							Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC251	Microcontrollers and Applications	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC252	Signals and Systems	3	1	0	4	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC253	Principles of Electronic Communication	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC254	Electronic Measurement and Instruments	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETMDM255	MDM-II	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETOE256	Open Elective-I	2	0	0	2	ISE	50	20	-	-	50
0ETAEC257	Soft Skills	0	0	2	1	ISE	25	10	-	-	25
0ETVEC258	Environmental Studies	2	0	0	2	ISE	50	20	-	-	50
0ETVSEC259	Simulation Lab	0	0	2	1	ISE	-	-	25	10	25
0ETPCC260	Microcontrollers and Applications Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
0ETPCC261	Principles of Electronic Communication Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
Total		19	1	8	24	Total Marks					875
Total Contact Hours Per Week		28									

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Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credits	-	-	15	-	3	2	2	1	-	-	1	-	-	-	-	-	24
Cumulative	16	18	27	-	6	2	5	4	2	2	3	-	1	-	-	1	87

ISE 1: In semester evaluation 1, ISE 2: In semester evaluation 2, MSE: - Mid Semester Examination,
ESE: End Semester Examination.

Passing Criteria:

ISE + MSE $\geq$ 40 % Marks and ESE has separate passing $\geq$ 40 % Marks.

MDM- II	
0ETMDM255	Digital Communication

Open Elective – I	
0ETOE256	Digital Marketing


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T.Y. B.Tech.

Semester V

Electronics and & Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					TOTAL
		Hours Per week			Credits	Scheme	Theory		Practical		
		L	T	P			Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
OETPCC301	Electromagnetic Fields	3	1	0	4	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
OETPCC302	Digital Signal Processing	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
OETPCC303	Digital Communication	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
OETPEC304	Program Elective I	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
OETMDM305	MDM –III	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
OETOE306	Open Elective II	2	0	0	2	ISE	50	20			50
OETHSSM307	Entrepreneurship Development	1	0	0	1	ISE	50	20			50
OETPCC308	Digital Signal Processing Lab	0	0	2	1	ISE			50	20	100
						ESE			50	20	
OETPCC309	Digital Communication LAB	0	0	2	1	ISE			50	20	100
						ESE			50	20	
OETPEC310	Program Elective I Lab	0	0	2	1	ISE			50	20	50
Total Contact Hours Per Week		18	1	6	22	Total Marks					800
		25									

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Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credit	-	-	12	4	3	2	-	-	1	-	-	-	-	-	-	-	22
Cumulative	16	18	39	4	9	4	5	4	3	2	3	-	1	-	-	1	109

ISE 1: In semester evaluation 1, ISE 2:-In semester evaluation 2, MSE: Mid Semester Examination,
ESE: End Semester Examination.

Passing Criteria:

ISE + MSE $\geq$ 40 % Marks and ESE has separte passing $\geq$ 40 % Marks.

Program Elective – I	
0ETPEC304A	Analog Circuits
0ETPEC304B	Object Oriented Programming
0ETPEC304C	Image Processing

MDM – III	
0ETPEC305A	Mobile and Satellite Communication

Open Elective – II	
0ETPEC306A	Remote Sensing and GIS


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Department of Electronics & Telecommunication Engineering

Curriculum Structure and Evaluation Scheme

(Academic Year 2027-28 Onwards)

T.Y. B.Tech. Semester VI Electronics and & Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					Total
		Hours Per week			Credits	Sche me	Theory		Practical		
		L	T	P			Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC351	Antenna and Wave Propogation	3	1	0	4	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC352	Computer Networks	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC353	VHDL Programming	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC354	Optical Communication and Networks	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPEC355	Program Elective II	3	0	0	3	ISE1	10	40			100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETMDM356	MDM –IV	3	0	0	3	ISE			50	20	50
0ETVSEC357	Mini Project	0	0	4	2	ISE			50	20	100
						ESE			50	20	
0ETPCC358	Computer Networks Lab	0	0	2	1	ISE			50	20	50
						ESE			50	20	
0ETPCC359	VHDL Programming Lab	0	0	2	1	ISE			50	20	50
						ESE			50	20	
0ETPEC360	Optical Communication and Networks Lab	0	0	2	1	ISE			50	20	100
						ESE			50	20	
		18	1	10	24	Total Marks					850
Total Contact Hours Per Week		29									

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(Academic Year.2027-28Onwards)

Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credit	-	-	15	4	3	-	2	-	-	-	-	-	-	-	-	-	24
Cumulative	16	18	54	8	12	4	7	4	3	2	3	-	1	-	-	1	133

ISE 1: In semester evaluation 1, ISE 2:-In semester evaluation 2, MSE: Mid Semester Examination, ESE: End Semester Examination.

Passing Criteria:

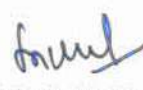
ISE + MSE $\geq$ 40 % Marks and ESE has separte passing $\geq$ 40 % Marks.

Program Elective – II	
0ETPEC355A	Control Systems
0ETPEC355B	Python Programming
0ETPEC355C	Advanced Signal Processing

MDM -IV	
0ETPEC356A	Introduction to Ardiuno and IOT


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Curriculum Structure and Evaluation Scheme

(Academic Year 2028-29 onwards)

Final Year B. Tech. Semester VII Electronics & Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					TOTAL
		L	T	P	Credits	Scheme	Theory		Practical		
							Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC401	Microwave Engineering	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC402	Embedded Systems	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPEC403	Programme Elective-III	3	1	0	4	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETHSSM404	Project Management	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETMDM405	Mini Project (MDM-V)	0	0	4	2	ISE	-	-	50	20	50
0ETRM406	Research Methodology	2	0	0	2	ISE	-	-	50	20	50
0ETPCC407	Embedded Systems Laboratory	0	0	2	1	ISE	-	-	50	20	50
						ESE	-	-	50	20	50
0ETPCC408	Microwave Engineering Laboratory	0	0	2	1	ISE	-	-	50	20	50
0ETPR409	Project -I	0	0	8	4	ISE	-	-	100	40	100
						ESE	-	-	50	20	50
TOTAL		14	1	16	23	Total Marks					800
Total Contact Hours Per Week		29									

Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credit	-	-	8	4	2	-	-	-	3	-	-	2	-	4	-	-	23
Cumulative	16	18	62	12	14	4	7	4	6	2	3	2	1	4	-	1	156

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Curriculum Structure and Evaluation Scheme

(Academic Year 2028-29 Onwards)

ISE 1: In semester evaluation 1, ISE 2: In semester evaluation 2, MSE: Mid Semester Examination,

ESE: End Semester Examination.

Passing Criteria:

ISE + MSE $\geq$ 40 % Marks and ESE has separate passing $\geq$ 40 % Marks.

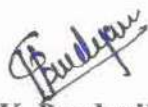
Multidisciplinary Minor Bucket offered by E&Tc Engineering Department

MDM-V (SEM – VII)	0ETMDM405	Mini Project
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Programme Elective-III (0ETPEC403)

0ETPEC403A	Industrial Automation
0ETPEC403B	Web Designing
0ETPEC403C	Biomedical Signal Processing


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 Curriculum Structure and Evaluation Scheme
 (Academic Year 2028-29 Onwards)

Final Year B. Tech. Semester VIII Electronics & Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					Total
		L	T	P	Credits	Scheme	Theory		Practical		
							Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC451	MOOC Course – I **	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPEC452	MOOC Course – II **	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPR454	Project – II	0	0	4	2	ISE	-	-	50	20	50
						ESE	-	-	50	20	50
0ETOJT455	Internship / OJT	0	0	20	10	ISE	-	-	100	40	100
						ESE	-		100	40	100
TOTAL		6	0	24	18	Total Marks					500
Total Contact Hours Per Week		30				Total Marks					500

Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credit	-	-	3	3	-	-	-	-	-	-	-	-	-	2	10	-	18
Cumulative	16	18	65	15	14	4	7	4	6	2	3	2	1	6	10	1	174

ISE 1: In semester evaluation 1, ISE 2: In semester evaluation 2, MSE: Mid Semester Examination,

ESE: End Semester Examination.

Passing Criteria: - ISE + MSE $\geq$ 40 % Marks and ESE has separate passing $\geq$ 40 % Marks.

** These subjects are to be studied on self –study mode using SWAYAM/NPTEL/Any other source. Teacher who works as a facilitator for the MOOC course should be allotted 3 hrs/week load.

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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

S.Y. B. Tech. Semester III Electronics and Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					Total
		L	T	P	Credits	Scheme	Theory		Practical		
							Max	Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC201	Electronic Devices and Circuits	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC202	Digital Systems	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC203	Network Theory	3	1	0	4	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETMDM204	MDM-I	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETVEC205	Universal Human Values	2	0	0	2	ISE	50	20	-	-	50
0ETES206	Numerical Techniques	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETHSSM207	Principles of Management	2	0	0	2	ISE	50	20			50
0ETPCC208	Electronic Devices and Circuits Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
0ETPCC209	Digital Systems Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
0ETCEP210	CEP	0	0	2	1	ISE	-	-	50	20	50
Total		19	1	6	23	Total Marks					850
Total Contact Hours Per Week		26									

Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credits	-	3	12	-	3	-	-	-	2	-	2	-	1	-	-	-	23
Cumulative	16	18	12	-	3	-	3	3	2	2	2	-	1	-	-	1	63

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ISE 1: In semester evaluation 1, ISE 2: In semester evaluation 2, MSE: Mid Semester Examination,
ESE: End Semester Examination.

Passing Criteria:

ISE + MSE $\geq$ 40 % Marks and ESE has separate passing $\geq$ 40 % Marks.

MDM- I	
0ETCMDM204	Analog Communication


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

S.Y. B. Tech. Semester IV Electronics and Telecommunication Engineering

Course Code	Course Name	Teaching Scheme				Evaluation Scheme					Total
		L	T	P	Credits	Scheme	Max	Theory	Practical		
								Minimum Marks for Passing	Max	Minimum Marks for Passing	
0ETPCC251	Microcontrollers and Applications	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC252	Signals and Systems	3	1	0	4	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC253	Principles of Electronic Communication	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETPCC254	Electronic Measurement and Instruments	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETMDM255	MDM-II	3	0	0	3	ISE1	10	40	-	-	100
						MSE	20				
						ISE2	10				
						ESE	60				
0ETOE256	Open Elective-I	2	0	0	2	ISE	50	20	-	-	50
0ETAEC257	Soft Skills	0	0	2	1	ISE	25	10	-	-	25
0ETVEC258	Environmental Studies	2	0	0	2	ISE	50	20	-	-	50
0ETVSEC259	Simulation Lab	0	0	2	1	ISE	-	-	25	10	25
0ETPCC260	Microcontrollers and Applications Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
0ETPCC261	Principles of Electronic Communication Lab	0	0	2	1	ISE	-	-	50	20	50
						ESE			50	20	50
Total		19	1	8	24	Total Marks					875
Total Contact Hours Per Week		28									

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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Course Category	BSC	ESC	PCC	PEC	MDM	OE	VSEC	AEC	HSSM	IKS	VEC	RM	CEP	PR	OJT	CC	Total
Credits	-	-	15	-	3	2	2	1	-	-	1	-	-	-	-	-	24
Cumulative	16	18	27	-	6	2	5	4	2	2	3	-	1	-	-	1	87

ISE 1: In semester evaluation 1, ISE 2: In semester evaluation 2, MSE: - Mid Semester Examination,
ESE: End Semester Examination.

Passing Criteria:

ISE + MSE $\geq$ 40 % Marks and ESE has separate passing $\geq$ 40 % Marks.

MDM- II	
0ETMDM255	Digital Communication

Open Elective – I	
0ETOE256	Digital Marketing


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Electronic Devices and Circuits

Course Code and Course Title		0ETPCC201 Electronic Devices and Circuits			
Semester		III			
Prerequisites		Basic Electrical & Electronics Engineering, Engineering Physics.			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	--	--	
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Explain the operation of power supplies and their applications.				2
CO 2	Analyse the operation of wave shaping circuits and Filters.				4
CO 3	Describe BJT, JFET, and MOSFET as amplifiers and study their frequency response.				3
CO 4	Understand the operation of Power amplifiers and Feedback amplifiers.				2
CO 5	Explain the working of RC, LC and Crystal oscillators.				2
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Power Supply : Half wave rectifier and Full wave rectifiers with and without filter, IC regulators: 78XX, 79XX, LM317 and LM723. Switch Mode Power Supply and its applications.				6
Unit 2	Wave shaping Circuits and Filters: Unbiased and Biased Clippers, Unbiased and Biased Clampers. Design of filters: Low pass filter, High pass filter, Band pass filter, Band stop filter, Frequency response of filters.				7
Unit 3	BJT : BJT Biasing: Need of biasing, DC load line, Fixed bias circuit, Collector to base bias Circuit and Voltage divider bias circuit. Voltage Amplifiers: Voltage amplifier analysis and its frequency response, Hybrid equivalent model of amplifier				7


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(Academic Year 2026-27 Onwards)

Unit 4	JFET & MOSFET: JFET: Construction and characteristics of JFETs, Drain and transfer characteristics. FET Biasing, Analysis of common source FET Amplifier. MOSFET: Structure, Symbol, Basic operation, Drain and Transfer characteristics, Depletion-Type MOSFET, Enhancement-type MOSFET, MOSFET Handling, Biasing of MOSFET, MOSFET as amplifier.	7
Unit 5	Power Amplifiers & Feedback Amplifiers: Power Amplifiers: Class A, Class B, Class AB and Class C power Amplifiers. Feedback Amplifiers: Feedback concept, classification of amplifiers based on feed-back topology, Effect of negative feedback on performance parameters of an amplifier.	6
Unit 6	Oscillators: Barkhausen's criteria, RC phase shift oscillator, Wein bridge oscillator, UJT relaxation Oscillator, Hartley oscillator, Colpitts and Crystal oscillators.	6
Total Hours		39

Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Electronic Devices and Circuits Theory	Robert L. Boylestad	Pearson	11	2014
2	Electronic Devices and Circuits	J. Millman & C. Halkias	Tata McGraw Hill	2	2013
3	Electronic Devices and Circuits	J. B. Gupta	Katson Publications	2	2013

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Electronic Devices and Circuits	Allen Mottershead	Prentice Hall India	2	2012
2	Electronic Devices and Circuits	S. Salivahanan & N. Suresh Kumar	McGraw Hill	5	2022
3	Electronic Devices and Circuits	David A. Bell	Oxford University Press	5	2008


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Digital Systems

Course Code and Course Title		0ETPCC202 Digital Systems			
Semester		III			
Prerequisites		Basic Electrical & Electronics Engineering			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	--	--	
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO1	Describe the basic logic gates and various reduction techniques of digital logic circuit.				2
CO2	Solve Boolean expressions using K-maps.				3
CO3	Construct combinational and sequential circuits.				4
CO4	Design basic combinational and sequential circuits using VHDL				4
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Digital Systems: Digital Logic families: Introduction, Fan In, Fan out, TTL, ECL, MOS, CMOS logic families and their comparison. Number Systems (Binary, Octal, Decimal and Hexadecimal). 1's complement and 2's complement, Number system conversion, Codes-ASCII, Gray Code, Excess 3 code.				6
Unit 2	Combinational Logic Design: Standard representations for logic functions, k map representation of logic functions (SOP and POS forms), and minimization of logical functions for min-terms and max-terms (upto 4 variables), don't care conditions, Design Examples: Arithmetic Circuits, BCD to 7 segment decoder, Code converters.				7
Unit 3	Combinational Circuits: Design of Half- Adder, Full Adder, Half Subtractor, Full Subtractor, Serial adder, Multiplexer, Demultiplexer, Encoder, Decoder, Comparator etc.				6
Unit 4	Sequential circuits: Memory elements - latch & Flip-Flop, truth table & excitation table of SR, JK, D, T flip flops, Conversion from one FF to another, Asynchronous and synchronous Preset & Clear inputs, Application of flip-flops: Counters, Shift Registers.				7
Unit 5	State Machines: Basic design steps- State diagram, State table, State reduction, State assignment, Mealy and Moore machines representation, Implementation, finite state machine implementation, Sequence detector.				7

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Unit 6	Introduction to VHDL: Entity, Architecture, Library, Modelling styles, Data objects, Concurrent and sequential statements, Design examples using VHDL for basic combinational and sequential circuits.	6
Total Hours		39

Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Modern digital electronics	R.P. Jain	Tata McGraw Hill Publication	3	2007
2	Digital Logic and Computer Design	M. Morris Mano	Prentice Hall of India	4	2013
3	Fundamentals of digital circuits	Anand Kumar	Prentice Hall of India	1	2001
4	A VHDL primer	J. Bhaskar	Prentice-Hall of India	3	2010

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Digital Systems: Principles and Application	Ronald J. Tocci, Neal S. Widmer, Gregory L. Moss	Pearson Education	12	2016
2	Digital Design: Principles and Practices	John F. Wakerly	Pearson Education	4	2008
3	Digital Electronics: An Introduction to Theory and Practice	William H. Gothmann	Prentice-Hall of India	1	1982
4	Digital Principles and Applications	Albert Paul Malvino, Donald P. Leach, Goutam Saha	McGraw Hill	8	2015


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Department of Electronics and Telecommunication Engineering

Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Network Theory

Course Code and Course Title		0ETPCC203 Network Theory			
Semester		III			
Prerequisites		Engineering Mathematics, Basic Electrical & Electronics Engineering			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	01	--	
Credits		04			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Understand basics of voltage sources, current sources and R-LC circuits using network theorems.				2
CO 2	Determine two port Z, Y, H ,ABCD network parameters and their interrelationships				4
CO 3	Determine half power frequencies, BW, Q factor of series and parallel resonance circuits.				4
CO 4	Analyse Constant K-type Low pass and High pass filters.				4
CO 5	Apply knowledge for identification of transient system.				3
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Development of basic circuit concepts and Graph Theory: Kirchhoff's laws and applications, Series and parallel circuit, Star-delta transformation, loop analysis, node analysis, Super mesh and super node analysis.				7
Unit 2	Network Theorems: Superposition, Millman's, Norton's, Thevenin's and Maximum power transfer theorems.				6
Unit 3	Two Port Network: Relationship of Two-port variables, the open circuit impedance parameters, short-circuit admittance parameters, the hybrid parameters, transmission parameters, relationships between parameters, parallel and series connections of two-port network.				6
Unit 4	Resonance: AC circuit, steady state analysis of RL, RC and RLC circuits, Series resonance: Properties, Bandwidth, Q factor. Parallel resonance: Properties, Bandwidth, Q factor.				7

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Unit 5	Filters: Classification, filter fundamentals such as attenuation constant, phase shift, propagation constant, characteristic impedance. Design of K-type Low Pass and High Pass Filters.	6
Unit 6	Transient Response: Network Solution using Laplace transforms, Initial Conditions of elements. Steady state & transient response, DC response of RL circuit, DC response of RC circuit, DC response of RLC circuit.	7
Total Hours		39

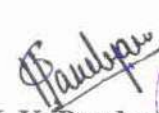
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Circuit and Network: Analysis and Synthesis	A. Sudhakar, S. P. Shyammohan	Tata McGraw-Hill	5	2015
2	Network Analysis and Synthesis	Ravish R. Singh	Tata McGraw-Hill	1	2013
3	Fundamentals of Electric Circuits	Charles K. Alexander, Matthew N. O. Sadiku	McGraw-Hill	6	2017
4	Circuit Theory: Analysis and Synthesis	A. Chakraborty	A. Chakraborty	7	2018

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Network Analysis	M. E. Van Valkenburg, T. S. Rathore	PHI Learning	2	2019
2	Network Analysis and Synthesis	Franklin F. Kuo	Wiley India	2	2006
3	Electrical Circuit Analysis	Soni & Gupta	Dhanpat Rai & Co.	2	2018


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

MDM-I Analog Communication

Course Code and Course Title		0ETMDM204 MDM-I Analog Communication			
Semester		III			
Prerequisites		Engineering Mathematics, Basic Electrical & Electronics Engineering			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	--	---	
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Explain the basic principles of analog communication systems and multiplexing techniques (TDM, FDM).				2
CO 2	Analyse Pulse, AM, FM modulation and demodulation systems.				4
CO 3	Explain radio receivers and describe the performance characteristics such as sensitivity, selectivity, and fidelity.				2
CO 4	Compare different types of noise in communication systems.				2
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Analog Communication Systems: Block schematic of communication system, Simplex and duplex systems, Modes of communication: Broadcast and point to point communication, multiplexing: TDM, FDM. Necessity of modulation, Classification of modulation,				6
Unit 2	Sampling and Pulse Modulation: Sampling theorem, Pulse analog modulation and demodulation: PAM, PWM and PPM.				6
Unit 3	Amplitude Modulation: Introduction, Mathematical analysis and expression for AM, Modulation index, Frequency spectrum and bandwidth of AM, Power calculations, Generation of AM using nonlinear property, Low and high level modulation, Balance Modulator. Types of AM: DSB-FC, DSB-SC, SSB-SC, ISB, VSB and comparison.				7


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Unit 4	Frequency Modulation: Introduction, Mathematical analysis of FM, Modulation index for FM, Frequency spectrum and bandwidth of FM, Pre emphasis and de-emphasis, Direct and Indirect methods of FM generation, Comparison of AM, FM.	7
Unit 5	AM and FM Detectors: AM Detectors: Envelop detector and practical diode detector, AGC, FM Detectors: Slope detector, phase discriminator, ratio detector.	6
Unit 6	Radio Receivers and Noise: Introduction, Performances characteristic of receivers: Sensitivity, Selectivity, Fidelity, Image frequency and IFRR, Tracking and Double spotting. TRF receiver, Super heterodyne receiver. Introduction to noise.	7
Total Hours		39

Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Electronic Communications systems	George Kennedy	McGraw Hill	5	2008
2	Communication Systems: Analog and Digital	R. P. Singh, S. Sapre	McGraw Hill	2	2009
3	Principles of Communication System	Taub, Schilling	McGraw Hill	4	2007
4	Electronic Communications	Dennis Roddy, Coolen, John	Pearson Education	4	2014

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Digital and Analog Communication Systems	Sam Shanmugam	John Wiley	3	2005
2	Modern Digital and Analog Communication Systems	B. P. Lathi and Z. Ding	Oxford	4	2011
3	Introduction To Analog & Digital Communications	Simon Haykin	VISIONIAS	2	2020
4	Communication Systems	A.B Carlson, P B Crully	McGraw Hill	4	2011


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Universal Human Values (UHV)

Course Code and Course Title	0CSVEC205 Universal Human Values (UHV)		
Semester	III		
Prerequisites	Student Induction Program (SIP)		
Teaching Scheme (hours per week)	Lecture	Tutorial	Practical
	2	--	--
Credits	2		
Evaluation Scheme	ISE	MSE	ESE
	50	-	-

Course Outcomes (COs): Upon successful completion of this course, Student will be able to:		BL
CO 1	Develop the ability to self-explore and verify value-based living through natural acceptance having right understanding and harmonious relationships as foundational to resolving personal, familial, and societal problems sustainably.	2
CO 2	Apply the understanding of respect as right evaluation to address societal conflicts and contribute to value-based education.	3
CO 3	Recognize the interconnectedness of natural orders and propose responsible human participation to ensure mutual fulfilment in existence.	3
CO 4	Apply value-based understanding to their domain expertise to propose sustainable solutions for societal and ecological mutual fulfilment.	3

Course Contents:

Unit No.	Contents	Hrs.
Unit 1	Introduction to Value Education: Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education), Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity-the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations.	6
Unit 2	Understanding Human being as the Co-existence of the Self and the Body Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self Lecture, Understanding Harmony in the Self, Harmony of the Self with the Body Lecture, Programme to ensure self-regulation and Health.	6
Unit 3	Harmony in the Family: The Basic Unit of Human Interaction 'Trust'-the Foundational Value in Relationship, 'Respect'-as the Right Evaluation, Other Feelings, Justice in Human-to-Human Relationship, Understanding Harmony in Society, Vision for the Universal Human Order.	6


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(Academic Year 2026-27 Onwards)

Unit 4	Understanding Harmony in the Nature Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence.	6
	Total Hours	24

Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	A Foundation Course in Human Values and Professional Ethics	R R Gaur, R Asthana, G P Bagaria	Excel Books	2	2019
2	Teachers' Manual for A Foundation Course in Human Values and Professional Ethics	R R Gaur, R Asthana, G P Bagaria	Excel Books	2	2019
3	Human Values	A.N. Tripathi	New Age Intl. Publishers, New Delhi,	1	2004

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Jeevan Vidya	Ek Parichaya, A Nagaraj,	Jeevan Vidya Prakashan, Amarkantak Publisher	1	1999
2	The Story of Stuff (Book)	Annie Leonard	Free Press Publishers,	1	2010
3	The Story of My Experiments with Truth	Mohandas Karamchand Gandhi	Navjivan Publishing House Publishers,	1	1948
4	Small is Beautiful	E. F Schumacher, Harper Collins	Penguin Publishers,	1	1993
5	Slow is Beautiful	Cecile Andrews	Penguin Random House Publishers	1	2023


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Curriculum Structure and Evaluation Scheme

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Numerical Techniques

Course Code and Course Title	0ETES206 Numerical Techniques		
Semester :	III		
Prerequisites	Engineering Mathematics I and II		
Teaching Scheme (hours per week)	Lecture	Tutorial	Practical
	3	0	-
Credits	03		
Evaluation Scheme	ISE 1	MSE	ISE 2
	10 Marks	20 Marks	10 Marks
			ESE 60 Marks

Course Outcomes (CO): Upon successful completion of this course, the students will be able to:		BL
CO 1	Apply Laplace and inverse Laplace transforms to solve linear differential equations with constant coefficients.	3
CO 2	Apply Fourier transform and its inverse for solving mathematical and engineering problems.	3
CO 3	Apply Lagrange's linear equation method and Method of separation of variables to solve first-order partial differential equations.	3
CO 4	Explain properties of Z-transform and their significance.	3
CO 5	Apply Interpolation Formula to estimate intermediate values of function.	3

Course Contents:

Unit No.	Contents	Hrs.
Unit 1	Laplace Transform: Definition, Transforms of elementary functions. Properties of Laplace transforms- Linearity property, first shifting property, second shifting property, transforms of function multiplied by t^n , scale change property, transforms of function divided by t , transforms of integral of functions, transform of derivatives, Transform of some special function- periodic function, Heaviside unit step function, Dirac delta function.	7
Unit 2	Inverse Laplace Transform: Introductory remarks; Inverse transforms of some elementary functions ; General methods of finding inverse transforms ; Partial fraction method and Convolution Theorem for finding Inverse Laplace Transform	6

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Unit 3	Fourier Transform : Definitions – integral transforms; Fourier integral theorem (without proof); Fourier sine and cosine integrals; Complex form of Fourier integrals; Fourier sine and cosine transforms.	6
Unit 4	Partial Differential Equations and Their Applications : Formation of Partial differential equations by eliminating arbitrary constants and functions; Equations solvable by direct integration; Linear equations of first order (Lagrange's linear equations). Method of separation of variables- Applications to find solutions of one dimensional heat flow equation and one dimensional wave equation.	7
Unit 5	Z- Transformation: Definitions and properties, Z – transforms of standard sequences, inverse Z – transforms and solving difference equations for discrete systems.	6
Unit 6	Interpolation and Polynomial Approximation: Forward, backward, central and divided difference, Newton's forward divided difference, Backward difference interpolation, Sterling interpolation.	7
Total Hours		39

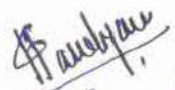
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	A course in Engineering Mathematics	Dr. B. B. Singh	Synergy Knowledgeware	Vol-III	-
2	Applied Mathematics	P. N. and J. N. Wartikar	Vidyarthi Griha Prakashan, Pune.	Vol -I and II	2006
3	Introductory Methods of Numerical Analysis	S.S. Sastry	Prentice Hall of India	3	1999
4	Higher Engineering Mathematics	B. V. Ramana	Tata McGraw-Hill Publications	1	2006

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Advanced Engineering Mathematics	Wylie C.R	Tata McGraw Hill Publication	8	1999
2	A Text Book of Engineering Mathematics	Peter O' Neil	Thomson Asia Pvt. Ltd., Singapore	7	2000
3	Numerical methods for scientific and Engineering Computation	M. K. Jain, S. R. K. Iyengar, R. K. Jain.	New Age International Limited Publishers.	6,8	2012


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(Academic Year 2026-27 Onwards)

Principles of Management

Course Code and Course Title		0ECSHSSM207 Principles of Management			
Semester		III			
Prerequisites		--			
Teaching Scheme		Lecture	Tutorial	Practical	
		2	--	--	
Credits		2			
Evaluation Scheme		ISE 1	MSE	ISE 2	ESE
		25	-	25	-
Course Outcomes (COs): Upon successful completion of this course, student will be able to:					BL
CO 1	Develop analytical and managerial abilities for solving organizational and workplace problems using management concepts and theories.				3
CO 2	Identify and classify different types of plans such as policies, procedures, rules, programs, budgets, and strategies used in organizations..				3
CO 3	Describe different types of organizational structures and evaluate their suitability in various business environments.				3
CO 4	Identify and compare different leadership styles and major leadership theories used in management practices.				3
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Management: Definition, nature, scope, and importance of management, Functions of management, Levels of management, Managerial roles and skills, Evolution of management thought ,Scientific Management – F.W. Taylor, Administrative Theory – Henri Fayol, Bureaucratic Theory – Max Weber, Human Relations Approach – Elton Mayo ,Management as science, art, and profession.				7
Unit 2	Planning and Decision Making : Nature and importance of planning. Types of plans, Planning process, Strategic planning, Forecasting techniques, Decision-making process, Types of decisions, Decision-making models, Problem-solving techniques, Management by Objectives (MBO).				5
Unit 3	Organizing and Staffing: Principles of organization, Organizational structure, Departmentation, Delegation and decentralization, Authority and responsibility, Span of control, Line and staff organization, Staffing process, Recruitment and selection. Training and development. Performance appraisal.				5


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Unit 4	Leadership, Motivation, and Communication: Nature and importance of leadership, Leadership styles and theories, Motivation concepts, Maslow's Need Hierarchy Theory, Herzberg's Two-Factor Theory, McGregor's Theory X and Theory Y, Communication process, Types and barriers of communication, Team dynamics and conflict management, Emotional intelligence.	7
	Total Hours	24

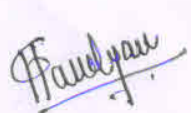
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Essentials of Management	Koontz, H. and Weihrich, H	McGraw Hill	12th Edition	2023
2	Management	Robbins, S.P. and Coulter, M.	Pearson	16th Global Edition	2024
3	Principles of Management	Gupta, C.B.	Sultan Chand & Sons	18th Revised Edition	2023
4	Principles and Practice of Management	Prasad, L.M.	Sultan Chand & Sons	10th Edition	2020
5	Principles of Management	Tripathi, P.C. and Reddy, P.N.	McGraw Hill	6th Edition	2017

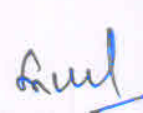
Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1.	The Practice of Management	Peter Drucker	Harper Business	Classic/Reissue	2006
2.	Organizational Behaviour	Fred Luthans	McGraw Hill	14th Edition	2021
3.	Management	Stoner, Freeman & Gilbert	Pearson / Prentice Hall	6th Edition	2018
4.	Organizational Behaviour	Stephen Robbins	Pearson	19th Global Edition	2023


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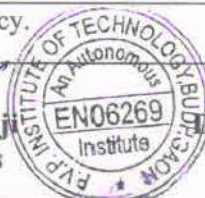
(Academic Year 2026-27 Onwards)

Electronic Devices and Circuits Lab.

Course Code and Course Title		0ETPCC208 Electronic Devices and Circuits Lab		
Semester		III		
Prerequisites		Basic Electrical & Electronics Engineering, Engineering Physics		
Teaching Scheme (hours per week)	Lecture	Tutorial	Practical	
	---	---	02	
Credits		01		
Evaluation Scheme	ISE		ESE	
	50 Marks		50 Marks	
Course Outcomes (COs): Upon completion of the course, students will be able to:				BL
CO 1	Understand the operation of power supplies.			2
CO 2	Construct and test performance of wave shaping circuits and Filters.			3
CO 3	Understand operation and frequency response of BJT, JFET, and MOSFET amplifiers.			2
CO 4	Design and test operation of RC, LC and Crystal oscillators.			3
	List of the Experiments (Any 10)			Hrs.
1	Construct and test Full wave rectifier with and without filter.			2
2	Implementation of fixed voltage regulator using 78XX and 79XX.			2
3	Implementation of Three terminal Adjustable Positive Voltage Regulator- LM317.			2
4	Implementation of Three terminal Adjustable Negative Voltage Regulator- LM337.			2
5	Construct and test Clipper circuits.			2
6	Construct and test Clamper circuits.			2
7	Design and test performance of Low Pass filter.			2
8	Design and test performance of High Pass filter			2
9	Study of voltage amplifier using BJT and plot its Frequency Response.			2
10	Study of characteristics of JFET.			2
11	Study of JFET Amplifier and its Frequency Response.			2
12	Study of Transfer Characteristics of n-channel MOSFET.			2
13	Design and test RC Phase Shift Oscillator for given frequency.			2

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14	Design and test Wien Bridge Oscillator for given frequency.	2
15	Design and test UJT Relaxation Oscillator for given frequency.	2


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Digital Systems Lab.

Course Code and Course Title		0ETPCC209 Digital Systems Lab.		
Semester		III		
Prerequisites		Basic Electrical & Electronics Engineering		
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical
		---	---	02
Credits		01		
Evaluation Scheme		ISE	ESE	
		50 Marks	50 Marks	
Course Outcomes (COs): Upon completion of the course, students will be able to:				BL
CO 1	Describe the operation of basic logic gates, multiplexers, decoders, and flip-flops using standard ICs.			2
CO 2	Construct combinational circuits such as adders, subtractors, MUX, and decoders using logic gates			4
CO 3	Implementation sequential like counters and shift registers using Flip-flops.			3
CO 4	Simulate various combinational & sequential circuits using VHDL			3
List of the Experiments (Any 10)				
Expt. No.	Title			Hrs.
1	Verification of Basic Logic Gates			2
2	Verification of Boolean Laws			2
3	Implementation of Half & Full Adder using Gates			2
4	Implementation of Half & Full subtractors using Gates.			2
5	Implementation of 4 to 1 Multiplexer using basic gates.			2
6	Verification of IC 74151 (8-to-1 Mux) and 74138 (3-to-8 Decoder)			2
7	Verification of IC 7476 (JK Flip-flop)			2
8	Implementation of 3-bit Counter using Flip-flops.			2
9	Implementation of 4-bit shift register.			2
10	Implementation of Basic Gates using VHDL.			2
11	Design & Simulation of Half & Full Adder using VHDL.			2
12	Design & Simulation of S-R and J-K flip-flop using VHDL.			2

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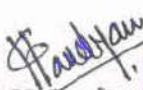
Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Community Engagement Project

Course Code and Course Title		0ETCEP210 Community Engagement Project		
Semester		III		
Prerequisites		Basic Engineering Sciences, Professional communication skills.		
Teaching Scheme(hours per week)		Lecture	Tutorial	Practical
		--	--	02
Credit		1		
Evaluation Scheme		ISE	-	-
		50	-	-
Course Outcomes (COs): Upon completion of the course, students will be able to:				BL
CO 1	Identify real world problems.			2
CO 2	Suggest methods to solve the identified problems.			3
CO 3	Analyse and validate the solution with sustainability.			4
CO 4	Understand the role of engineers in society.			2
Group of two to three students shall select a focus area from the society. Learn the practices in the focus area. Identify the issues and accordingly propose some solutions through the technical abilities.				
Students Activities:				
1. Overview of the course and group formation.				
2. Identification of areas (Village/Hospitals/NGOs/Public places /Schools/ Orphanage/Old age homes etc.) & Visit.				
3. Design the questionnaire / survey to identify the problems.				
4. Survey, Analysis and group discussions.				
5. Proposing problem solutions.				
6. Implementing the solutions.				
7. Validate the solution, presentation &report submission.				
Evaluation is based on the study and actual work done on the selected topic, which will cover theoretical and analytical study of the system, specifications, applications, results etc. Project report should include abstract in 100 words (max), key words, introduction, design, simulation, implementation, results/ comparison, conclusion and references.				


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

S.Y. B. Tech. Semester IV Electronics and Telecommunication Engineering

Microcontrollers and Applications

Course Code and Course Title		0ETPCC251 Microcontrollers and Applications			
Semester		IV			
Prerequisites		Digital Systems			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	--	--	
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Explain the architecture and programming model of MCS-51 microcontroller.				2
CO 2	Apply addressing modes for assembly language programs using timers, interrupts, and serial communication.				3
CO 3	Analyse interfacing techniques of 8051 with external devices for embedded applications.				4
CO 4	Explain the architecture of PIC microcontrollers including addressing modes and CPU registers.				2
CO 5	Apply programming concepts to configure PIC peripherals using MPLAB.				3
CO 6	Analyse embedded system applications using PIC microcontroller.				4
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to MCS 51: Introduction to MCS 51 Family, Architecture, Functional Pin out diagram, Programming Model, Memory Organization, Addressing Modes, Instruction Set: Classification, Reset Circuit, Machine Cycle, Oscillator Circuit, Introduction to Assembly Language Programming.				7
Unit 2	Hardware Overview of 8051: Input/output Ports, Counters & Timers, Serial Communication, and Interrupt. Structure of Above, Related S.F.R, Instruction, Associated Programs.				7
Unit 3	Interfacing & Application: Interfacing: RAM, ROM, LCD, ADC, DAC, Key board. Minimum System Design & Application: Interfacing of Temperature Sensor (LM 35) 8051 Connection to RS 232.				6
Unit 4	Introduction to PIC family: CPU Architecture: Harvard architecture & pipelining, program memory considerations Register file structure, Instruction set, addressing modes: Immediate, Direct, Indirect CPU Registers: Status, W, FSR. INDF, PCLATH, PCL, Programming of above.				7


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Unit 5	Hardware Overview of PIC: I/O ports & TRIS registers, External Interrupts, Timers, and CCP Module: Programmable period scalar, Event Counter, Sleep Mode, PWM mode, ADC: Features, ADC uses.	6
Unit 6	Special feature of PIC: Configuration word, Oscillator configuration, Reset alternatives, low power operation, concept of I2C & associated hardware.	6
Total Hours		39

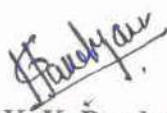
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	The 8051 Microcontroller	Kenneth J. Ayala	Thomson Delmar Learning	5	2008
2	The 8051 Microcontroller & Embedded Systems	Muhammad Ali Mazidi, Janice Gillispie	Mazidi Pearson	2	2011
3	Design with PIC Microcontroller	Taub, Schilling	McGraw Hill	4	2003

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Architecture Programming, Interfacing & System	Rajkamal	Pearson	5	2007
2	Programming the PIC microcontroller	Jack R. Smith	Elsevier	1	2006


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Signals and Systems

Course Code and Course Title		0ETPCC252 Signals and Systems			
Semester		IV			
Prerequisites		Engineering Mathematics-II			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	01	---	
Credits		04			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (CO): Upon completion of the course, student should able to:					BL
CO 1	Classify different signals and operations (shifting, scaling) on signals.				2
CO 2	Determine the properties of systems such as Linearity, Stability, Causality etc.				4
CO 3	Analyse LTI systems in Time Domain & Frequency domain using Convolution Techniques.				4
CO 4	Apply Fourier transform, Fourier series and Z transform to analyse frequency spectra of signal &system				3
CO 5	Apply simulation tools like MATLAB to visualise their behaviour of signals and systems				4
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Signals and Systems: Basic definitions, Classification of signals and systems. Signal operations and properties, Basic continuous time signals, signal sampling and reconstruction, Basic system properties, Sampling theorem & reconstruction of signal, Aliasing				6
Unit 2	Time domain representation of LTI system: Definition of Impulse response, Convolution integral, Convolution sum, Impulse response characterization and convolution integral for LTI system, signal responses to LTI system, properties of convolution, LTI system response properties				7
Unit 3	Fourier Series: Fourier Analysis of Continuous Time Signals and Systems, Dirichlet condition for existence of F.S. ,Fourier series representation using exponential form, Fourier Analysis of Discrete Time Signals and Systems, Discrete Time Fourier series				7
Unit 4	Fourier Transform: Fourier Transform (FT) representation of aperiodic CT signals, Dirichlet condition for existence of Fourier transform, evaluation of magnitude and phase response, FT of standard, CT signals, FT of standard periodic CT signals, Introduction to Fourier Transform of DT signals, Properties of CTFT and DTFT, Fourier Transform of periodic signals.				7
Unit 5	Laplace Transform Analysis For Signals and Systems: Laplace Transform and its properties, Inverse Laplace Transform, Applications of Laplace transforms				6

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(Academic Year 2026-27 Onwards)

Unit 6	The Z-Transform Analysis for D.T. Signals and Systems: The Z-Transform, Convergence of Z-Transform, Basic Z-Transform, Properties of Z-Transform, Inverse Z-Transform, Solving difference equation using Z-Transform, System Function, stability Criterion, Relation between Z Transform & DTFT.	6
Total Hours		39

Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Signals and Systems	Alan V. Oppenheim, Alan S. Willsky	PHI, New Delhi	2	2017
2	Signals and Systems	Dr. S. L. Nalbalwar, A. Kulkarni	Synergy knowledgeware	--	2017
3	Signals and Systems	Simon Haykins and Barry Van Veen	Wiley India	2	
4	Signals and Systems- principles and applications	Shaila Apte	Cambridge University press	1	2016

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Continuous and Discrete Time Signals and Systems	Mrinal Mandal and Amir Asif	Cambridge University Press	--	2007
2	Signals and Systems	A. NagoorKanni	McGrawHill.	2	
3	Fundamentals of Signals & Systems"	Roberts, M.J	Tata McGraw Hill.		2007
4	Signals and Systems: Continuous and Discrete	Ziener, R.E., Tranter	Pearson Education	4	2001


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Principles of Electronic Communication

Course Code and Course Title		0ETPCC253 Principles of Electronic Communication			
Semester		IV			
Prerequisites		Engineering Mathematics I & II, Electronic Devices Circuits			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	--	---	
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs):- Upon completion of the course, students will be able to:					BL
CO 1	Explain the basic principles of analog communication systems, need for modulation, multiplexing techniques (TDM, FDM), and sampling theorem.				2
CO 2	Analyse AM, FM and Pulse modulation and demodulation systems, their generation methods, bandwidth, and power requirements.				4
CO 3	Explain different types of radio receivers and describe its performance characteristics.				2
CO 4	Compare different types of noises in communication to determine its impact on signal-to-noise ratio and receiver performance.				4
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Analog Communication Systems: Block schematic of communication system, Simplex and duplex systems, Modes of communication: Broadcast and point to point communication, multiplexing: TDM, FDM. Necessity of modulation, Classification of modulation, sampling theorem and pulse analog modulation.				7
Unit 2	Amplitude Modulation: Introduction, Mathematical analysis and expression for AM, Modulation index, Frequency spectrum and bandwidth of AM, Power calculations, Generation of AM using nonlinear property, Low and high level modulation, Balance Modulator. Types of AM: DSB-FC, DSB-SC, SSB-SC, ISB and VSB their generation methods and comparison.				7
Unit 3	Frequency Modulation: Introduction, Mathematical analysis of FM, Modulation index for FM, Frequency spectrum and bandwidth of FM, Narrow band and wide band FM, Pre emphasis and de-emphasis, Direct and Indirect methods of FM generation, Comparison of AM, FM				7
Unit 4	AM and FM Detectors: AM Detectors: Envelop detector and practical diode detector, AGC, FM Detectors: Slope Detector, phase discriminator, ratio detector.				4

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Unit 5	Radio Receivers: Introduction, Performances characteristic of receivers: Sensitivity, Selectivity, Fidelity, Image frequency and IFRR, Tracking and Double spotting. TRF receiver, Super heterodyne receiver. RF amplifier, Local oscillator and mixer, IF amplifier.	7
Unit 6	Noise: Introduction, Sources of noise, Classification of noise, SNR, Noise figure, Noise Factor, Noise Temperature.	7
Total Hours		39

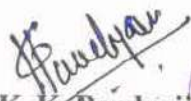
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Electronic Communications systems	George Kennedy	McGraw Hill	5	2008
2	Communication Systems: Analog and Digital	R. P. Singh, S. Sapre	McGraw Hill	2	2009
3	Principles of Communication System	Taub, Schilling	McGraw Hill	4	2007
4	Electronic Communications	Dennis Roddy, Coolen, John	Pearson Education	4	2014

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Digital and Analog Communication Systems	Sam Shanmugam	John Wiley	3	2005
2	Modern Digital and Analog Communication Systems	B. P. Lathi and Z. Ding	Oxford	4	2011
3	Introduction To Analog & Digital Communications	Simon Haykin	VISIONIAS	2	2020
4	Communication Systems	A.B Carlson, P B Crully	McGraw Hill	4	2011


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Electronic Measurement and Instruments

Course Code and Course Title		0ETPCC254			
		Electronic Measurement and Instruments			
Semester		III			
Prerequisites		Basic Electrical & Electronics Engineering			
Teaching Scheme (hours per week)		Lecture	Tutorial		Practical
		03	-		---
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Understand fundamental concepts of measurement systems, standards, and errors in instrumentation.				2
CO 2	Analyse and use different electrical measuring instruments for measurement of voltage, current, and resistance.				4
CO 3	Apply knowledge of electronic instruments like CRO, DMM, and signal generators for practical measurement.				3
CO 4	Evaluate and select appropriate transducers for measurement of physical parameters.				4
CO 5	Design and analyse data acquisition systems using ADC, DAC, and signal conditioning techniques.				4
CO 6	Apply instrumentation knowledge in industrial applications including automation, PLC, and SCADA systems.				3
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Fundamentals of Measurement Systems: Definition and importance of measurement, Measurement system elements (primary sensing element, transducer, signal conditioning, display), Static characteristics: accuracy, precision, sensitivity, linearity, resolution, Dynamic characteristics: speed of response, fidelity, lag, Errors in measurement: gross, systematic, random errors Standards and calibration (primary, secondary standards)				7
Unit 2	Electrical Measuring Instruments: Classification of instruments (analog & digital) , Working principles of: PMMC instruments, Moving Iron instruments , Electrodynamometer instruments Measurement of voltage, current, resistance, Extension of range (shunts and multipliers), Instrument transformers (CT & PT).				6
Unit 3	Electronic Instruments: Advantages of electronic instruments over conventional instruments, Electronic voltmeters (analog & digital), Digital mustimeter (DMM), Cathode Ray Oscilloscope (CRO): Block diagram and working, Measurement of voltage, frequency, phase, Signal generators and function generators.				6

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(Academic Year 2026-27 Onwards)

Unit 4	Transducers and Sensors: Definition and classification of transducers , Characteristics of transducers , Types of transducers: Resistive (RTD, thermistor, strain gauge) , Inductive (LVDT), Capacitive transducers, Temperature, pressure, displacement measurement, Selection criteria for transducers	6
Unit 5	Data Acquisition Systems & Signal Conditioning: Introduction to Data Acquisition Systems (DAQ), Signal conditioning: Amplifiers Filters , Analog to Digital Converter (ADC), Digital to Analog Converter (DAC), Sampling theorem and data conversion techniques , Noise and interference reduction	7
Unit 6	Industrial Instrumentation & Applications: Measurement of physical parameters: Temperature, pressure, flow, level, Industrial instruments and control systems, Smart instruments and digital instrumentation SCADA and PLC basics, Applications in automation and industry	7
Total Hours		39

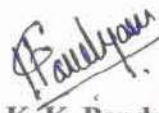
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Electronic Instrumentation	H.S. Kalsi	McGraw Hill	4	2019
2	Electrical and Electronic Measurements and Instrumentation	A. K. Sawhney	Dhanpat Rai & Co.	2	2015
3	Electronic Instrumentation and Measurements	David A. Bell	Oxford University Press	2	2013
4	Transducers and Instrumentation	D. V. S. Murty	PHI Learning	2	2010

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Measurement Systems: Application and Design	Ernest O. Doebelin	McGraw-Hill	6	2017
2	Principles of Measurement Systems	John P. Bentley	Pearson	4	2005
3	Industrial Instrumentation and Control	S. K. Singh	Tata McGraw-Hill	2	2010


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

MDM-II Digital Communication

Course Code and Course Title		0ETMDM255 Digital Communication			
Semester		IV			
Prerequisites		Engineering Mathematics I & II, Analog Communication			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		03	--	--	
Credits		03			
Evaluation Scheme		ISE1	MSE	ISE2	ESE
		10 Marks	20 Marks	10 Marks	60 Marks
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Explain the fundamental concepts of digital communication systems				2
CO 2	Apply source coding techniques for baseband transmission systems, including synchronization and inter-symbol interference.				3
CO 3	Demonstrate the generation and detection of passband digital modulation schemes				2
CO 4	Analyse communication system performance using information theory concepts and evaluate error detection and correction techniques.				4
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Digital communication: Introduction to Digital Communication System: Why Digital?, Block Diagram and transformations, Basic Digital Communication Nomenclature. Digital Versus Analog Performance Criteria, Sampling Process, Uniform Quantization, Non-uniform Quantization and companding, Quantization Noise.				7
Unit 2	Source Coding Techniques: PCM Generation and Reconstruction, Delta Modulation, Adaptive Delta Modulation, Delta Sigma Modulation, Differential Pulse Code Modulation.				6
Unit 3	Baseband Digital Transmissions: Digital Multiplexing: Multiplexers and hierarchies, Data formats and their spectra, synchronization: Bit Synchronization, Frame Synchronization. Inter-symbol interference, Eye diagram.				6
Unit 4	Pass band Digital Transmission: Signal space diagram, Generation and detection of ASK, PSK, FSK and QPSK. Introduction to QAM.				6
Unit 5	Information Theory: Entropy and information content, Source coding theorem, Channel capacity (Shannon theorem).				7

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Unit 6	Error Detection and Correction Techniques: Parity checks, Hamming codes, CRC (Cyclic Redundancy Check), Convolutional codes.	7
Total Hours		39

Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Digital Communication Systems	Simon Haykin	John Wiley & Sons	4	2008
2	Communication Systems: Analog and Digital	R. P. Singh, S. Sapre	McGraw Hill	2	2009
3	Principles of Communication System	Taub, Schilling	McGraw Hill	4	2007
4	Digital Communications Fundamentals and Applications	Bernard Sklar, Prabitra Kumar Ray	Pearson Education	2	2020

Reference Book:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Digital Communication Systems	P Ramkrishna Rao	Mc Graw Hill	3	2015
2	Modern Digital and Analog Communication Systems	B. P. Lathi and Z. Ding	Oxford	4	2011
3	Communication Systems	A.B Carlson, P B Crully	McGraw Hill	4	2011
4	A First Course in Digital Communication	Ha Nguyen, Ed Shwedyk	Cambridge University Press	2	2019


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Open Elective-I Digital Marketing

Course Code and Course Title		0ETOE256 Digital Marketing		
Semester		IV		
Prerequisites		Computer Fundamentals, Communication Skills		
Teaching Scheme(hours per week)	Lecture	Tutorial	Practical	
	02	---	---	
Credits	02			
Evaluation Scheme	ISE	MSE	ESE	
	50 Marks	--	---	
Course Outcomes (COs): Upon completion of the course, students will be able to:				
CO 1	Understand the basic Concepts of Digital marketing.			
CO 2	Apply digital marketing tools for suitable applications.			
CO 3	Examine the various social media and design Advertising campaigns			
CO 4	Learn search engine optimization (SEO) techniques and apply it for suitable application to increase page views.			
CO 5	Analyse social media advertising platforms.			
Course Contents:				
Unit No.	Contents			
Unit 1	Introduction to Digital Marketing : Fundamentals of Digital marketing & Its Significance, Traditional marketing Vs Digital Marketing, Evolution of Digital Marketing, Digital Marketing Landscape, Key Drivers, The Digital users in India, Digital marketing Strategy- Consumer Decision journey Digital advertising Market in India, Skills in Digital Marketing, Digital marketing Plan.			
Unit 2	Digital Marketing Terminology : Terminology used in Digital Marketing, PPC and online marketing through social media, Social Media Marketing, Google web-master and analytics overview, Email Marketing, Mobile Marketing Display advertng, Buying Models, different type of ad tools, Display advertising terminology, types of display ads, different ad formats			
Unit 3	Social Media Marketing : Fundamentals of Social Media Marketing& its significance, Necessity of Social media Marketing Facebook Marketing: Facebook for Business, Facebook Insight, Different types of Ad formats, setting up Facebook Advertising Account, Facebook audience & types, Designing Facebook Advertising campaigns, Facebook Avatar, Apps, Live, Hashtags.			


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Curriculum Structure and Evaluation Scheme

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Unit 4	Search Engine Optimization (SEO) : Introduction to SEO, How Search engine works, SEO Phases, History Of SEO, How SEO Works, Googlebot (Google Crawler), Types of SEO technique, Keyword Planner tools Social media Reach- Video Creation & Submission, Maintenance- SEO tactics, Google search Engine	5
Total Hours		24

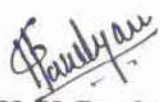
Text Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Digital Marketing	Seema Gupta	McGraw Hill Education India	2	2022
2	Digital Marketing Strategy	Simon Kingsnorth	Kogan Page	3	2022
3	Social Media Marketing	Tracy L. Tuten, Michael R. Solomon	SAGE Publications	4	2023
4	SEO 2024	Adam Clarke	Independently Published	1	2024

Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Marketing 5.0: Technology for Humanity	Philip Kotler et al.	Wiley India	1	2021
2	The Art of SEO	Eric Enge et al.	O'Reilly Media	4	2023
3	Jab, Jab, Jab, Right Hook	Gary Vaynerchuk	Harper Business	2	2021
4	Digital Marketing Analytics	Chuck Hemann, Ken Burbary	Que Publishing	2	2018


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Curriculum Structure and Evaluation Scheme
 (Academic Year 2026-27 Onwards)

Soft Skills Lab.

Course Code and Course Title		0ETAEC257 Soft Skills Lab.			
Semester		III			
Prerequisites		Basic Communication Skills			
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical	
		---	---	02	
Credits		01			
Evaluation Scheme		ISE		-	
		25 Marks		-	
Course Outcomes (COs): Upon completion of the course, students will be able to:					BL
CO 1	Demonstrate self-awareness, confidence, professional ethics, and interpersonal skills through personality development, leadership, and team-building activities.				2
CO 2	Communicate effectively in professional and digital environments using presentation, interview, debate, social media, and online communication skills.				3
CO 3	Analyse engineering case studies, ethical issues, and workplace situations to develop problem-solving, decision-making, and critical-thinking abilities...				4
CO 4	Understand career readiness and employability skills through resume preparation, portfolio and professional interaction activities.				2
	List of the Experiments (Any 10)				Hrs.
1	Personality Development and Self Awareness; Self-introduction, SWOT analysis, Confidence building Exercise, Goal Setting Worksheet.				2
2	Career and Employability Skills; Resume preparation, Mock interview, Elevator pitch, Portfolio preparation.				2
3	Teamwork and Leadership Skills;Team building games, Leadership rotation activity, Problem solving case study, Time management exercise.				2
4	Digital Communication and Social Media Handling; LinkedIn/Profile Activity, Social media Case Discussion, Online communication exercise.				2
5	Team Building Exercise. Blindfold navigation, Problem solving challenge, Marshmallow Challenge, Survival Scenario Discussion.				2
6	Time Management Exercise; Weekly planner preparation, Priority matrix exercise (Urgent vs Important), Goal Setting and Deadline Planning, Pomodoro technique.				2
7	Engineering Case Study Analysis; Provide real engineering failure/success cases.				2
8	Technical Debate.				2
9	Ethical Decision-Making.				2

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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

10	Leadership Under Pressure Activity.	2
11	Technical Interview Panel Activity	2
12	Start-up Idea.	2
13	Research Paper Presentation.	2


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Environmental Studies

Course Code and Course Title		0ETVEC258 Environmental studies			
Semester		IV			
Prerequisites		--			
Teaching Scheme (hours per week)		Lecture	Tutorial		Practical
		2	--		--
Credits		2			
Evaluation Scheme		ISE	MSE	ISE	ESE
		--	--	50 Marks	--
Course Outcomes (COs): Upon successful completion of this course, Student will be able to:					BL
CO 1	Explain the components and importance of Environment, ecosystems and Bio-diversity.				2
CO 2	Discuss the various natural resources and strategies for their management.				3
CO 3	Explain the sources of pollution, effects and control measures.				2
CO 4	Apply the knowledge of EIA, EMS and Audits for the preparation of reports.				3
Course Contents:					
Unit No.	Contents				Hrs.
Unit 1	Introduction to Environmental Studies: Definition, scope and importance, Components of environment, Multidisciplinary nature of environmental studies. Ecosystems- Types, Structure and function, energy flow, food chains and food webs. Biodiversity- Types, Importance and conservation.				6
Unit 2	Natural resources and Management: Natural resources- Forest, Water, Mineral food, Energy and Land. Energy resources- Renewable- Wind, Hydropower, Tidal, Ocean thermal, Solar, Biomass, Biogas, Geothermal and Hydrogen. Non-renewable- Coal Petroleum, Natural gas, Nuclear energy, Sustainable management of resources.				6
Unit 3	Environmental pollution and climate change: Types of pollution- Water, Air, Solid waste, Soil and Noise, Sources, effects and control measures, Global effects of pollution.				6
Unit 4	EIA, EMS, Social issues and legislation: Environmental Impact Assessment (EIA)- Purpose and process. Engineering Management Systems(EMS)-Principles and steps, Introduction to Environmental Audit and Green audit.				6
	Total Hours				24


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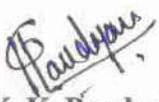
Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

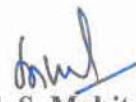
Text/Reference Books:

Sr. No.	Title	Author	Publisher	Edition	Year of Edition
1	Ecological and Environmental studies	S. K. Garg	Khanna publishers	1	2006
2	Essentials of Environmental studies	Kurian Joseph and R. Nagendran	Pearson Education, Singapore	2	2004
3	Environmental studies	Dr. Suresh K. Dhameja	Katson books	4	2012
4	Environmental studies	Dr. P. D. Raut	Shivaji University, Kolhapur	4	2012


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Simulation Lab

Course Code and Course Title		0ETVSEC259 Simulation Lab
Semester		IV
Prerequisites		Basic Mathematics, signals and systems
Teaching Scheme (hours per week)	Lecture	Tutorial
	---	---
Credits		01
Evaluation Scheme	ISE	ESE
	25 Marks	-
Course Outcomes (COs): Upon completion of the course, students will be able to:		BL
CO 1	Understand and generate continuous-time and discrete-time signals using MATLAB and Simulink tools.	2
CO 2	Apply signal operations and system analysis techniques such as convolution, and signal transformations using computational tools.	3
CO 3	Analyse properties of signals and systems in time and frequency domains through Fourier, Laplace, and Z-Transforms.	4
CO 4	Evaluate and validate theoretical results with simulation outcomes and interpret the behaviour of signals and LTI systems.	5
List of the Experiments (Any 10)		Hrs
1	Understand and demonstrate basic MATLAB environment, built-in functions, and Simulink toolbox operations.	2
2	Apply MATLAB to generate and analyse discrete and continuous time elementary signals (unit step, impulse, ramp, sinusoidal).	2
3	Analyse the effect of sampling rate on signal reconstruction and demonstrate aliasing phenomenon using MATLAB and Simulink.	2
4	Apply signal operations (addition, subtraction, shifting, folding, scaling) on discrete time signals using MATLAB.	2
5	Apply convolution operation on discrete time signals using MATLAB and evaluate the results through analytical verification.	2
6	Find Fourier Transform of basic signals and evaluate amplitude and phase spectra.	2
7	Verify Linearity property of Fourier Transform Using MATLAB.	2
8	Verify Time shifting property of Fourier Transform Using MATLAB.	2

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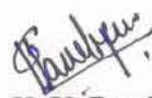
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Curriculum Structure and Evaluation Scheme

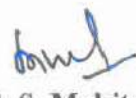
(Academic Year 2026-27 Onwards)

9	Find Laplace Transform of basic signals Using MATLAB-	2
10	Write MATLAB program to find Z-Transform of basic signals and evaluate amplitude and phase spectra.	2
11	Write a MATLAB program to verify Time-shifting property of Z-Transforms.	2
12	Apply Laplace Transform techniques and write MATLAB code to determine system characteristics and verify result.	2


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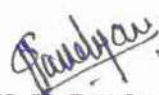
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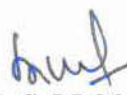
Microcontroller and Applications Lab

Course Code and Course Title		0ETPCC260 Microcontroller and Applications Lab		
Semester		IV		
Prerequisites		Digital Systems		
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical
		—	—	02
Credits		01		
Evaluation Scheme		ISE	ESE	
		50 Marks	50 Marks	
Course Outcomes (COs): Upon successful completion of the course, students will be able to:				
CO 1	Explain the architecture, instruction set, and working principles of the 8051 microcontroller along with development tools and basic interfacing concepts.			BL
CO 2	Develop and execute assembly language programs for arithmetic operations, delay generation, I/O interfacing (LEDs, switches, seven-segment, LCD), and serial communication using UART.			2
CO 3	Analyse and implement advanced embedded applications using timers, counters, interrupts, and design simple systems such as traffic light controllers and mini-projects.			3
Course Contents:				
	List of the Experiments (Any 10)			Hrs.
1	Study of 8051 development board and IDE			2
2	Program to perform addition and subtraction of two 8-bit numbers			2
3	Program for multiplication and division using assembly language			2
4	Program to generate delay using loops			2
5	LED blinking using 8051			2
6	Interfacing switches and LEDs (input-output operation)			2
7	Seven-segment display interfacing (display digits 0–9)			2
8	Timer programming for delay generation			2
9	Counter application using external pulses			2
10	Interrupt programming (external interrupt)			2
11	Serial communication using UART (data transmission/reception)			2
12	LCD interfacing (display message)			2


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Curriculum Structure and Evaluation Scheme

(Academic Year 2026-27 Onwards)

Principles of Electronic Communication Lab.

Course Code and Course Title		0ETPCC261 Principles of Electronic Communication Lab.		
Semester		IV		
Prerequisites		Principles of electronic Communication		
Teaching Scheme (hours per week)		Lecture	Tutorial	Practical
		—	—	02
Credits		01		
Evaluation Scheme		ISE	ESE	
		50 Marks	50 Marks	
Course Outcomes (Cos): Upon completion of the course, students will be able to:				BL
CO 1	Apply sampling, multiplexing schemes in signal generation and detection			3
CO 2	Analyse modulation and demodulation techniques (AM, DSB-SC, SSB-SC, FM, and pulse modulation)			4
CO 3	Demonstrate modulation techniques using MATLAB or SIMULINK.			2
Course Contents:				
	List of the Experiments (Any 10)			Hrs
1	To study Sampling, reconstruction and observe input and output waveforms.			2
2	To study PAM modulation, demodulation and observe input and output waveforms.			2
3	To examine time division multiplexing and demultiplexing of PAM signal, observe the wave forms and control signals.			2
4	To study PWM modulation, demodulation and observe input and output waveforms.			2
5	To study PPM modulation, demodulation and observe input and output waveforms.			2
6	To examine amplitude modulation, demodulation, observe the waveforms and calculate modulation index.			2
7	To examine amplitude modulation and calculate the modulation index by Trapezoidal Method.			2
8	To study Double Sideband Suppressed Carrier (DSB-SC) modulation, demodulation and observe input and output waveforms.			2
9	To examine frequency modulation, demodulation, observe the waveforms and calculate modulation index.			2
10	To implement Pre-emphasis and De-emphasis circuit for frequency modulation.			2

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11	To Simulate an Amplitude Modulation Technique using MATLAB	2
12	To Simulate an Frequency Modulation Technique using MATLAB	2

Note: Visit to Radio Station is to be arranged for study of implementation of AM / FM radio station / radio transmission.


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