Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering,

◈ Department of Electronics & Telecommunication Engineering◈

Student Information Manual (SIM)

Academic Year 2022-23 (Sem.-I)

Student Information Manual (SIM)

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1. Institute Information

Dr J J Magdum College of Engineering was established by Dr. J. J. Magdum Trust, Jaysingpur in the year 1992 with an objective to promote the cause of higher education. The institute is approved by All India Council of Technical Education (AICTE), New Delhi and Government of Maharashtra, affiliated to Shivaji University, Kolhapur. The college offers B. Tech program in Mechanical, Civil, Computer Science Engineering, Electronics & Tele-Communication, Information Technology and M. Tech program in Civil Engineering-Construction Management.

Our Management extends its fullest support in building the institution as a center of excellence with technically superior, ethically strong and competent engineers. The serene campus vibrant with aesthetic bliss in an exhilarating convenient location, well connected by road, rail and air is easily accessible. The eco-friendly ambience creates and bestows a healthy learning atmosphere.

The institution is meticulous with modern laboratory, workshop facilities and state of art computer center providing an excellent infrastructure.

The institution has spacious library with vast collection of Books, Newspapers, National & International Journals, Magazines, and Reference books, Encyclopedia, World of science, ASM hand books and course materials. E-learning through NPTEL Video course by NIT and IIT Professors are available.

The Teaching and Non-Teaching Staff of the institute is a blend of senior experienced and young dynamic faculty members devoted to the noble cause of education. Qualified, experienced, versatile and efficient faculty members mould the students diligently in ethical, moral and academic aspects.

We imparts technology based experiential learning through industry visits, live projects, expert talks, MOOC's, workshops, case studies, upscale labs, and virtual classroom sessions.

Industry-Institute interaction and real-time projects nurture and craft the budding engineers to bloom and flourish in the field with the prowess guidance in the campus. The college equips the students with the latest skills which make them employable and future ready.

Due to able and proper guidance and motivation, many of our students have topped at University. Our training and placement works meticulously to improve and develop life skills to the students and tries hard to seek good jobs for our students. In addition to the academics, the students are engaged in sports and cultural activities which helps them to develop versatile personality. Various Club activities are conducted to encourage, motivate and inspire students from diverse culture to harness the talent through their perseverance.

The institute is having specious ground and the modern facilities for both indoor and outdoor games and ultra-modern Gymnasium. Due to proper guidance and motivation, many of our students have grabbed prizes at University level and different sport events.

We are committed to stakeholders for best results and produced more than 10000+ engineers getting campus placements.

2. VISION

To be a leading academic organization, creating skilled and Ethical Human Resource by leveraging Technical Education for Sustainable Development of Society.

MISSION

To promote learnability of all among stakeholders.

To empower rural youth to be competent in technical education and imbibe ethical values.

To contribute local social and economic context, leading to satisfied stakeholders.

VALUES (TIIE)

Transparency

Integrity

Inclusivity

Empathy

QUALITY POLICY

We strive for continual improvement in our performance through methodical academic monitoring, student participation and use of innovative teaching-learning process.

3. DEPARTMENT VISION

To be a most preferred department delivering modern learning methodologies to transform the students into knowledgeable and skilled ETC graduates with ethical behavior.

MISSION

- To provide high quality technical education and develop a person with sound footing on basic engineering principles.
- To utilize technical and managerial skills, innovative research capabilities for exemplary professional conduct.
- To lead and to use technology for the progress of mankind.
- To adopt themselves to changing technological environment with highest ethical values as inner strength.

WE ARE COMMITTED TO

- Provide Learning ambience using ICT, open source teaching.
- Offer continuing education programs to fulfill the needs of Industry & Community.
- Establish sustainable relation with parents & alumni.
- Offer globally accepted certification programmes in field of Electronics Engineering.

CORE VALUES

- Faculty & staff development.
- Transparency
- Equity

Program Educational Objectives (PEO)

PEO1:

Graduate will enrich for knowledge of Electronics and Telecommunication Engineering.

PEO2:

Graduate will have enough knowledge to analyze, design, experiment, simulate and evaluate system performance in Electronics and Telecommunication Engineering.

PEO3:

Graduate will inherit good scientific and engineering breadth particularly in analog and digital circuits; electronics communication, programming knowledge, embedded system, and industry automation, so as to comprehend analyze, design and create novel product and solutions for real life problems.

PEO4:

Graduate should inculcate high ethical standards, strong sense of professionalism viz. effective communication skill, team work, and multidisciplinary projects in global and social context

PEO5:

Graduates will have a platform to identify and meet challenges of Electronics and Telecommunication which will encourage them for higher education, research and development.

Program Outcomes (POs)

At the end of successful completion of program, the graduates will be able to,

1. Engineering Knowledge: Apply knowledge of mathematics, science, engineering Fundamentals and an engineering specialization to the solution of complex engineering.
2. Problem Analysis: Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental
4. Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid
5. Modern Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an under-standing of the limitations.
6. The Engineer and Society: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering
7. Environment and Sustainability: Understand and the impact of professional engineering solutions in societal and environmental contexts and demonstrates knowledge of and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering
9. Individual and Teamwork: Function effectively as in visual, and as a member or leader in diverse teams and in multidisciplinary s
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear
11. Project Management and Finance: Demonstrate knowledge and understanding of engineering and management principles and apply these too noels on work, as a member and leader instead, to manage projects and in multidisciplinary environment
12. Lifelong Learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological.

PSO's

Graduate can be able to,

1. Apply their integrated knowledge of Digital Communication and Image Processing to suggest the technical solutions to the problems related with digital communication using simulation tools.

2. Implement the successfully simulated optimum solutions in hardware using modern tools and test those for the designed specifications.

4. Students role and Responsibilities

Code of Conduct:-

- Every student must carry his/her identity card while being present on the College Premises.
- Use of Cell phones is strictly prohibited during class/Labs hour.
- Without the permission of the Principal, Students are not allowed to circulate any printed materials within the college campus.
- Every student is expected to maintain the general cleanliness within the classrooms, laboratories and the campus in general.
- Students should handle the college properties with care. Damage to the furniture or any other materials may lead to penalty or suspension from the college.
- Intoxication or possession of narcotics and other dangerous material is strictly prohibited.
- Playing cards, spitting and loitering are strictly prohibited inside the college campus and shall invite severe punishment/disciplinary action
- Attempted or actual theft of and/or damage to property of the College, or property of a member of the College community, or other personal or public property, on or off campus will be considered as a punishable act.
- Every student will remain answerable to the college authority for his/her activity and conduct on the College Premises.
- Any act which obstructs teaching, research, administrative activity and other proceedings of the college is strictly prohibited.
- Indulging ragging, anti-institutional, anti-national, antisocial, communal, immoral or political expressions and activities within the Campus and hostel are strongly prohibited as well as punishable.
- Students are required to check the Notice Board and also website of the college for important announcements.

5. Classroom Instructions:-

- Students should know and obey rules and regulations of department as well as college.
- Students strive to meet Academic Expectations.
- Students are expected to take all tests at the scheduled times seriously.
- Maintain discipline in the class.
- A student should maintain at least 75% attendance in the Lectures of every subject and 100% overall performance. Otherwise, he or she will be debarred from the University Examination.
- Latecomers will not be entertained to enter into the classroom.
- Participate in the activities organized in the Department as well as in the College.
- While discussion, students should conduct and express themselves in a way that is respectful of all persons.
- Develop positive attitudes
- Be cooperative and considerate.
- Welcome challenges.
- Be helpful to others
- Be kind, polite, and courteous to others.
- Do the assigned work on time.
- Be prepared for classes with all necessary supplies.
- Be Respectful and Punctual.
- Be in the best of behaviors.

Computer Lab Instructions:

- Students must present a valid ID card before entering the computer lab.
- Remove your shoes/chapels/sandals outside the lab.
- Playing of games on computer in the lab is strictly prohibited.
- Before leaving the lab, students must close all programs positively and keep the desktop blank.
- Students are strictly prohibited from modifying or deleting any important files and install any software or settings in the computer without permission
- Based on the prime priority, users may be requested by the lab in-charge, to leave the workstation any time and the compliance is a must.
- Eating and/or drinking inside the computer lab is strictly prohibited.
- Internet facility is only for educational/ study purpose.
- Silence must be maintained in the lab at all times.
- The lab must be kept clean and tidy at all times.
- If any problem arises, please bring the same to the notice of lab in-charge.

- No bags/ hand bags/ rain coats/ casual wears will be allowed inside the computer lab, however note book may be allowed.
- Lab timing will be as per the academic time table of different classes.
- Every user must make an entry in the Computer Lab Register properly.
- Each student or visitor must take mobile phones in "Switched Off" mode while entering and or working in Computer Lab.
- Conversation, discussion, loud talking & sleeping are strictly prohibited.
- Users must turn-off the computer before leaving the computer lab.
- Maintain silence in lab.
- Computer Lab Assistants are available to assist with BASIC computer and software problems.
- Food and drink are not permitted in the computer lab.
- The use of cell phones is prohibited in the computer lab.
- Please take your calls outside. We also ask that you put your cell phone on vibrate mode.
- Unauthorized copying and/or installing of unauthorized software is not permitted.
- Tampering with the hardware or software settings will not be tolerated.
- Students found Internet surfing or chatting for personal reasons may be asked to leave. Preference is given to students doing course work over those engaged in personal computer use.
- Personal files are not to be stored on the local drive C. Students are responsible for providing their own means of digital storage. All lab computers are set up to remove any data stored or any programs installed by users.

6. Academic Planner 2021-22 (Semester II)

ACADEMIC CALENDAR FOR YEAR 2022-23

SEMESTER I

August 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24 Commencement of Theory lectures for SY / TY/ Final Year	25	26	27
28	29	30	31 Ganesh chaturthi			

September 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5 Teachers Day	6 Workshop for students	7 Workshop for students	8 Workshop for students	9	10

11	*12*	*13*	*14*	*15 Engineers day*	*16*	*17*
18	*19*	*20*	*21*	*22 DRC Meeting*	*23 Field Training presentation for final year*	*24 NSS Day*
25	*26 Proctor meeting*	*27*	*28 ECESA activity*	*29* Expert lecture	*30 CMC meeting*	

October 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Industrial visit for Btech *Commencement of Value added course*
2	*3*	*4*	*5 Dasara*	*6 CIE-1*	*7 CIE-1*	*8*
9	*10*	*11*	*12*	*13*	*14 BTech Synopsis Presentation*	*15 ECESA activity*
16	*17*	*18*	*19*	*20* Expert lecture	*21 Augmentation Program*	*22*

23	*24 Diwali*	*25 Diwali*	*26 Diwali*	*27*	*28 Proctor meeting*	*29* Industrial visit for TY
30	*31 CMC meeting*					

November 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	*2*	*3*	*4 FDP-Webinar for Teaching (ETC)*	*5 Parents Meet*
6	*7 Alumni Interaction*	*8*	*9*	*10*	*11*	*12*
13	*14*	*15 Augmentation Program*	*16*	*17*	*18 Second assessment of project*	*19* Industrial visit for SY
20	*21 CIE-II*	*22 CIE-II*	*23*	*24* Expert lecture	*25 Proctor meeting*	*26*
27	*28 Advisory Board meeting*	*29*	*30 CMC meeting*			

December 2023

Sun	Mon	Tue	Wed	Thu	Fri	Sat

				1	2	3 Expert lecture
4	5 Tentative Final submission for SY/TY/Final Year	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	2	122	23	24
25	26	27	28	29	30	31

7. Departmental Time-Table

Academic Year: 2022-23 **Semester:** II
Department: Electronics & Telecommunication Engineering **Class:** SY
Revision: **Class Room No.: 103**
Class Coordinator: Prof. Sutar A. A. **W.e.f.:** 28/03/2022

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
09.30 am – 10.30 am	E1-ECD-I (MUP) E2-ACOM (THM) E3-TAM (VTK) E4-M3 (MRN) / NA (AAS)	E1- ACOM (THM) E2-TAM (DUC) E3- M3 (MRN) / NA (AAS) E4-PL-I (SRM)	E1- TAM (MMK) E2- (M3 (MRN) / NA (AAS) E3-PL-I (SRM) E4-PL-I (SRM))	E1-M3 (MRN)/ NA (MMK) E2- PL-I (SRM) E3- ECD-I (MUP) E4- ACOM (THM)	E1-PL-I (SRM) E2-ECD-I(MUP) E3-ACOM(THM) E4- TAM (RVK)	NA(AAS)
10.30 am – 11.30 am						NA (AAS)
11.30 am – 11.40 am	**Short Break**					
11.40 am – 12.40 pm	M3 (MRN)	ECD-I (MUP)	ACOM(THM)	ES (PAC)	M3 (MRN)	
12.40 pm – 01.40 pm	PL—I (SRM)	M3 (MRN)	NA (AAS)	NA (AAS)	ACOM(THM)	
01.40 pm – 02.30 pm	**Lunch Break**					
02.30 pm – 03.30 pm	TAM (VTK)	TAM (VTK)	ECD-I (MUP)	PL—I (SRM)	TAM (VTK)	
03.30 pm – 04.30 pm	ACOM (THM)	NA (AAS)	ES (PAC)	ECD-I (PPB)	ECD-I (PPB)	

Name of Subject	Batches	Name of Faculty Member	NAME OF LAB
Electronics Circuit Design-I	E4	Prof.P.P.Belagali	ANALOG ETRX
Electronics Circuit Design-I	E2,E3,E3	Prof.M U Phutane	ANALOG ETRX
Analog Communication	E2,E3,E3,E4	Prof.T.H.Mohite	ANALOG COMMUNICATION
Programming Language-I	E1,E2,E3,E4	Prof. S R Mahadik	PROGRAMMING LANGUAGE-II
Transducer and Measurement	E1	Prof. M M Kolap	MEASUREMENT AND POWER
Transducer and Measurement	E2	Prof.D U Chavan	MEASUREMENT AND POWER
Transducer and Measurement	E3	Prof. V T Kamble	MEASUREMENT AND POWER
Transducer and Measurement	E4	Prof. R V Kaulgud	
Network Analysis (TUT)	E1,E3	Prof. M M Kolap	
Network Analysis (TUT)	E3	Prof. S S Karadge	
Network Analysis (TUT)	E4	Prof. A A Sutar	
Engg Maths-III (TUT)	E1,E2,E3,E4	Prof.M R Naik	

8. Structure of Syllabus:

Class : SYETC

Semester III

Sr. No	Code No.	Subject	Semester	Credits
1	BSC-ETC301	Engineering Mathematics-III	3	4
2	PCC-ETC-301	Electronic Circuit Design-I	3	5
3	PCC-ETC302	Network Analysis	3	5
4	PCC-ETC303	Transducers and Measurement	3	4
5	PCC-ETC304	Analog Communication	3	4
6	PCC-ETC305	Programming Lab-I	3	3
7	MC-ETC-301	Environmental studies	3	3**
Total				**25**

**over and above credit

Semester IV

Sr. No.	Code No.	Subject	Semester	Credits
1	PCC-ETC401	Electronic Circuit Design-II	4	5
2	PCC-ETC402	Linear integrated Circuits	4	5
3	PCC-ETC403	Control System Engineering	4	4
4	PCC-ETC404	Digital Communication	4	4
5	PCC-ETC405	Data Structures	4	4
6	PCC-ETC406	Programming Lab-II	4	3
Total				25

Class : SYETC

Semester Examination

SEMESTER - III																							
Sr. No	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME												
		THEORY			TUTORIAL			PRACTICAL			THEORY					PRACTICAL			TERM WORK			
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max	Min
1	BSC-ETC301	3	3	3	1	1	1	-	-	-		CIE	30	100	40	As per BOS Guidelines	-	-	2	25	10
												ESE	70								
2	PCC-ETC301	4	4	4	-	-	-	1	2	2		CIE	30	100	40		50	20	2	25	10
												ESE	70								
3	PCC-ETC302	4	4	4	1	1	1	-	-	-		CIE	30	100	40		-	-	2	25	10
												ESE	70								
4	PCC-ETC303	3	3	3	-	-	-	1	2	2		CIE	30	100	40				2	25	10
												ESE	70								
5	PCC-ETC304	3	3	3	-	-	-	1	2	2		CIE	30	100	40		50	20	2	25	10
												ESE	70								
6	PCC-ETC305	2	2	2	-	-	-	1	2	2		-	-	-	-		50	20	2	25	10
	TOTAL	**19**	**19**	**19**	**2**	**2**	**2**	**4**	**8**	**8**				**500**			**150**			**150**	
SEMESTER –IV																							
1	PCC-ETC401	4	4	4	-	-	-	1	2	2		CIE	30	100	40	As per BOS Guidelines	50	20	2	25	10
												ESE	70								
2	PCC-ETC402	4	4	4	-	-	-	1	2	2		CIE	30	100	40		50	20	2	25	10
												ESE	70								
3	PCC-ETC403	3	3	3	1	1	1	-	-	-		CIE	30	100	40		-	-	2	25	10
												ESE	70								
4	PCC-ETC404	3	3	3	-	-	-	1	2	2		CIE	30	100	40		-	-	2	25	10
												ESE	70								
5	PCC-ETC405	3	3	3	1	1	1	-	-	-		CIE	30	100	40		-	-	2	25	10
												ESE	70								
6	PCC-ETC406	2	2	2	-	-	-	1	2	2							50	20	2	25	10
7	MC-ETC	-	-	-	-	-	-	-	-	-		CIE	30	100	10		-	-		-	-
												ESE	70		30						
	TOTAL	**19**	**19**	**19**	**2**	**2**	**2**	**4**	**8**	**8**				**600**			**150**			**150**	
	TOTAL	**38**	**38**	**38**	**4**	**4**	**4**	**8**	**16**	**16**				**1100**			**300**			**300**	

CIE- Continuous Internal Evaluation. ESE – End Semester Examination

SY ETC

9. Subject Details

Subject: Engineering Mathematics-III

Chapter No.	Lect No.	Details of syllabus planned
Ch.1	**Unit No.:- 1. Linear Differential Equations with Constant Coefficients and its Applications.**	
	01	Introduction.
	02	Calculations for C.F.
	03	Examples.
	04	To find P.I.-Exponential, Trigonometry ($i.e, e^{ax}$, $sinax/cosax$)
	05	To find P.I.-x^m, $e^{ax}x^m$,e^{ax}sinax, e^{ax}cosax
	06	Homogenous Linear Differential Equations –Examples.
	07	Examples.
	08	Applications to Electrical Engg. Problems.
	09	Examples.
Ch.2	**Unit No.2 Vector Differential Calculus**	
	10	Revision of Vector Calculus
	11	Differentiation of vectors
	12	Gradient of scalar point function
	13	Directional derivatives -Examples
	14	Divergence of vector point function
	15	Solenoidal vector Field -Examples.
	16	Curl of vector point function & irrotational vector field
Ch.3	**Unit No. 3. Introduction to Fuzzy sets**	

	17	Crisp set and Fuzzy set.
	18	Basic concepts of fuzzy sets
	19	Examples
	20	Basic operations on fuzzy sets
	21	Examples
	22	Properties of fuzzy sets.
	23	Examples
Ch.4	**Unit No.:- 4.Fourier Series**	
	24	Fourier series Introduction & Definition
	25	Function giving points of discontinuity, Examples
	26	Change of interval, Examples
	27	Expansion of odd functions - Examples
	28	Expansion of Even functions - Examples
	29	Half range sine series– Examples
	30	Half range cosine series – Examples
Ch.5	**Unit No 5:- Laplace Transform and its Applications.**	
	31	Laplace Transform – Definition, Examples,
	32	Properties of Laplace transform
	33	Transform of derivatives & integration Examples
	34	Inverse Laplace Transform
	35	Partial fraction method, Examples
	36	Convolution theorem & Examples.
	37	Application of L.D.E. with const. Coefficient
	Unit No. 6. Probability Distributions	
	38	Definition, Introduction, Random Variables, Types

Ch.6	39	Probability mass function, Distributions
	40	Probability density function
	41	Binomial Distribution & Examples
	42	Poisson Distributions & Examples
	43	Normal Distribution & Examples
	44	Examples

Recommended Books:

TEXT BOOKS:

01 Higher Engineering Mathematics, by B. S. Grewal (Khanna Publication Delhi.)

02 Applied Mathematics Wartikar P N and Wartikar J N , (Pune Vidyarthi Grah Prakashsn)

REFERENCE BOOKS:

01 Advance Engineering Mathematics by Erwin Kreyszig (Wiley India.)

02 Mathematical Methods of Science and Engineering, by Kanti B. Datta (Cengage Learning.)

03 Advanced Engineering Mathematics, 3e, by Jack Goldberg (Oxford University Press.)

04 Engineering Mathematics by V. Sundaram (Vikas Publication.)

05 Higher Engineering Mathematics, by B. S. Grewal (Khanna Publication Delhi.)

06 Higher Engineering Mathematics, by B. V. Ramana (Tata McGraw-Hill)

07 Advanced Engineering Mathematics, by H. K. Das (S. Chand Publication.)

08 Fuzzy Sets and Fuzzy Logic: Theory and Applications, by George J. Klir and Bo Yuan (Prentice Hall of India Private Limited.)

09 Applied Mathematics by Navneet D. Sangle (Cengage Publication)

General Instructions:

1) For the term work of 25 marks, batch wise tutorials are to be conducted. The number of students per batch per tutorial should be as per University rules.

2)Number of assignments should be at least six (All units should be covered).

Subject: Electronic Circuit Design-I

Class: S.Y. ETC. Year: 2022-23

Sub:- ECAD-I Lecture:2/week

Faculty Name: Prof. Mrs.Phutane M.U.

Lecture No.	Content Of Lecture
	UNIT 4
1.	Introduction to BJT
2.	Need of Biasing ,Stability factor
3.	Biasing of CE Configuration-Fixed Bias
4.	Collector to Base Bias
5.	Voltage Divider Bias (Analysis & Design)
6.	FET: Introduction to JFET
7.	Biasing of CS configuration-Fixed Bias
8.	Self Bias (Analysis of the same).
	UNIT 5
9.	H –Parameters
10.	Hybrid model for transistor CE Configuration
11.	Hybrid model for transistor CB Configuration
12.	Hybrid model for transistor CC Configuration
13.	CE Amplifier equations for Voltage Gain
14.	Current gain, Input resistance
15.	Output resistance taking Rs of source into account
16.	Analyticals
	UNIT 6
17.	Low frequency response: Effect of Coupling capacitor(CC) & Emitter bypass capacitor(CE)
18.	High frequency response: Hybrid π model
19.	Derivation for CE short circuit
20.	resistive Current gain
21.	β cutoff, α cutoff frequency
22.	amplifier high freq. response to square wave
23.	gain bandwidth product, (Numerical are expected).
24.	Design of single stage RC coupled amplifier.

Subject: Network Analysis

Chapter No.	Lect No.	Details of syllabus planned
		Network Fundamentals:
	1	Network Elements & its types, Energy sources,
	2	KVL & KCL, series & parallel connection of passive elements(R,L,C) ,
	3	KVL & KCL, series & parallel connection of passive elements(R,L,C) ,
	4	Combination of energy sources
	5	Current Division & Voltage division, source transformation ,
	6	StarDelta transformation, Mesh & Super mesh analysis, Node & super node analysis
	7	Graph Theory: graph of network & its parts,
	8	Tree & co-tree, incidence matrix, Tie Set matrix, cut sets
		Network Theorems:
	9	Superposition Theorem,
	10	Thevenin's Theorem,
	11	Norton's Theorem,
	12	Maximum Power Transfer Theorem,
	13	Reciprocity Theorem,
	14	Compensation theorem,
	15	Duality theorem,
	16	Millman's Theorem
		Resonance
	17	Definition, Types: series & parallel resonance,
	18	Series resonance-resonant frequency, variation of impedance,
	19	Admittance, current & voltage across L & C with respect to. Frequency,

	20	Effect of resistance on frequency response, Selectivity, B.W. &Quality factor.
	21	Parallel resonance–Ant resonance frequency,
	22	Resonant frequency for a tank circuit, variation of impedance &admittance with frequency, Selectivity,
	23	Quality factor. & B.W.
	24	Comparison of series and parallel resonant circuits.
	Two Port Network & Network Functions:	
	25	Two port network: Z, Y, ABCD , h parameters,
	26	Interrelation of different parameters,
	27	Interrelation of different parameters,
	28	Interconnections of port network (Series, Parallel, Cascaded, SeriesParallel)
	29	Network functions for one port & two port networks,
	30	Driving point impedance and admittance of one port network, Driving point impedance & admittance function
	31	Transfer function Concept of complex frequency, significance of poles & zeros. Restrictions on poles& zeros for transfer& drawing point's function,
	32	Stability of circuit using Routh criterion, Pole zero diagram, Time response from pole zero plot.
	Filters	
	33	Definitions,
	34	classification & characteristics of different filters
	35	decibel & Neper
	36	Filter fundamental such as attenuation constant (α),
	37	phase shift(β)
	38	propagation constant (γ)
	39	characteristic impedance(Zo)
	40	Design & analysis of constant K, M derived (low pass, high pass, band pass & band stop filters): T & Pi sections.
	Transient Response	
	41	Network Solution using Laplace transforms
	42	Initial Conditions of elements.
	43	Initial Conditions of elements.
	44	Steady state & transient response (Voltage & Current)
	45	Steady state & transient response (Voltage & Current)
	46	DC response of RL circuit
	47	DC response of RC circuit

	48	DC response of RLC circui

Tutorial List

TutNo.	Name of Tutorial
01	Examples on KVL and KCL
02	Examples on Theoream
03	Examples on Resonance
04	Examples on Two port network
05	Interconnection of Two port network
06	Examples on Filter Design
07	Transient Response derivations
08	Examples on RLC network

Text Books:

1 A. Sudhakar ,ShyammohanS.Palli ‘Circuit & Network – Analysis & Synthesis’ IIIrd Edition – Tata McGraw Hill Publication

2 Ravish Singh, “Networks Analysis & Synthesis” Tata McGraw Hill Publication

3 A.Chakrabarti ‘Circuit Theory (Analysis & Synthesis)’ - IIIrd Edition DhanpatRai& co

4 William H Hayt, Jack E Kimmerly and Steven M.Durbin, Engineering Circuit Analysis, Tata McGraw Hill

Reference Books:

1 D. Roy Choudhury ‘Networks & Systems’ - New Age International Publisher

2 Soni Gupta ‘Electrical Circuit Analysis’ DhanpatRai& Co.

3 Boylestad ‘Introductory Circuit Analysis – Universal book stall, New Delhi

4 M.E.VanValkenburg ‘ Network Analysis’ – IIIrd Edition , Pearson Education / PHI

5 JoshephEdministrar 'Theory & Problems of Electronic Circuit (Schaum's series) – Tata McGraw Hill, Publication

6 R.G .Kaduskar, S.O.Rajankar, T.S. Khatavkar, Network Fundamentals and Analysis – Wiley Indi

Subject: Transducer and Measurement

Chapter No	No. of Lecture	Topics to be covered in each Lecture
	Transducers & Sensors	
1	1	definition and various types of transducers
	2	Classifications of transducers
	3	Selection factors and general applications of transducers
	4	Detail study of transducers
	5	Types of sensors
	6	Hall Effect Transducers, Digital Transducers: Shaft Encoder
	7	Digital Resolver, Digital tachometer
	Sensors	
2	8	Proximity Sensors, optical Sensors
	9	IR sensors, Piezo – electric sensors Smart Sensors: Fiber optic sensor
	10	Film sensors, Nano sensors, Electrochemical sensors
	11	biosensors, MEMS
	Signal Conditioning and Data Acquisition System	
3	12	Introduction, AC & DC Signal Conditioning
	13	Chopper Stabilized Amplifier, Instrumentation Amplifier
	14	Isolation and Programmable Gain Amplifier, Grounding and Shielding
	15	Principles and working of different types of ADC and
	16	DAC
	17	Instrumentation Techniques: Introduction to Process Instrumentation
	18	Instrumentation set up for measurement of nonelectrical quantity such as weight using strain gauge
	Introduction to Measurement	
4	19	Introduction to Measurement. Performance Characteristics, Static Characteristics
	20	Error in Measurement, Types of Static Error. Sources of Error, Dynamic Characteristics

	21	Statistical Analysis, Electrical Standards
	22	Atomic Frequency and Time Standards
	23	Graphical Representation of Measurements as a Distribution
	24	Digital voltmeters- Introduction, Types of DVM
	25	General specifications of DVM, digital multimeter, digital measurements of time Q meter, Instrument calibration
	Measurement & Display Devices	
5	26	CRO: Dual Beam, Dual trace
	27	Sampling, Digital Storage
	28	Measurement of Phase and frequency using Lissajaous pattern
	29	CRO Probes: active, passive, current, attenuators
	30	Display Devices & Principle LED, LCD, and Graphics display
	31	Signal generators. Function Generators
	32	Spectrum analyser Logic analyser
	Bridges	
6	33	Measurement of Resistance with Bridges Wheatstone's Bridge
	34	Kelvin Double Bridge
	35	AC Bridges such as Haye's Bridge, Wein Bridge
	36	Maxwell's-Wein Bridge, Maxwell' L/C Bridge Descourty's Bridge Bridge

ASSIGNMENT QUESTIONS/QUESTION BANK			
Unit- I (Assignment 1) Transducers 16 to 24 Marks			
Que. No.	**Question**	**CO No.**	**Remark**
1.	Explain the important characteristics of a transducer.	PCC-ETC303.1	Common for All
2.	List different types of pressure transducers. Explain bellows in detail.Write the advantages and disadvantages	PCC-ETC303.1	
3.	List various types of flow transducer. Explain anyone.	PCC-ETC303.1	
4.	List different types of ultrasonic flow meter. Explain any one in detail.	PCC-ETC303.1	
5.	List various types of sound transducer, with neat diagram explain any One sound transducer	PCC-ETC303.1	
6.	List different types of bourdon tubes explain it with the help of Principle, construction and working.	PCC-ETC303.1	
7.	Explain linear variable differential transformer. Write the advantages and Disadvantages.	PCC-ETC303.1	
8.	List General application of Transducers	PCC-ETC303.1	Additional questions for Fast Learner
9.	Compare Active and Passive Transducer	PCC-ETC303.1	
Unit-II: (Assignment 2) Sensors 16 to 24 Marks			
1.	Explain proximity sensors.	PCC-ETC303.1	Common for All
2.	Draw and explain block diagram of SMART Sensor	PCC-ETC303.1	
3.	Explain MEMS Sensor System	PCC-ETC303.1	
4.	Explain fiber optics sensor	PCC-ETC303.1	
5.	Draw and explain IR Sensor	PCC-ETC303.1	
Unit-II: (Assignment 3)Signal Conditioning & Data Acquisition System 16 to 24 Marks			
1.	Explain the diagram of Chopper stabilized amplifier. AlsoWrite the Advantages and disadvantages.	PCC-ETC303.2	Common for All
2.	Draw and explain block diagram of DAS	PCC-ETC303.2	
3.	Explain AC Signal conditioning system	PCC-ETC303.2	

4.	What is DAC? Explain any one in detail	PCC-ETC303.2	
5.	Define Filter. Explain active filter.	PCC-ETC303.2	
6.	Explain DC Signal conditioning system.	PCC-ETC303.2	
7.	Explain the block schematic of successive approximation ADC. Write advantages and disadvantages.	PCC-ETC303.2	
8.	Explain the block schematic of parallel comparator ADC	PCC-ETC303.2	
9.	Explain the block schematic ofInstrumentation system	PCC-ETC303.3	
10.	Explain Instrumentation set up for measurement of non-electrical quantity such as weight using strain gauge.	PCC-ETC303.3	
11.	Explain Instrumentation amplifier	PCC-ETC303.3	Additional question for Fast Learner
Unit- IV:(Assignment 4)	**Introduction to Measurement**	**16 to 24 Marks**	
1.	With neat sketch explain working of successive approximation type digital Voltmeter.	PCC-ETC303.4	Common for All
2.	State general specifications of DVM.	PCC-ETC303.4	
3.	What is a standard? State and explain different types of standards depending on functions and applications.	PCC-ETC303.4	
4.	With neat sketch explain working of Digital Multimeter.	PCC-ETC303.4	
5.	Explain various types and sources of Errors in measurement system.	PCC-ETC303.4	
6.	Explain working of Q-meter in detail.	PCC-ETC303.4	
7.	Explain Digital frequency meter.	PCC-ETC303.4	Additional question for Fast Learner
Unit- V: (Assignment 5)Measurement & Display Devices to24Marks			**16**
1.	Explain working of CRO with block schematic.	PCC-ETC303.4	Common for All

2.	With block schematic explain Signal Generator.	PCC-ETC303.4	
3.	What is Attenuator? Explain types of Attenuators in detail.	PCC-ETC303.4	
4.	Explain in detail spectrum analyser	PCC-ETC303.4	
5.	With block Schematic explain function generator.	PCC-ETC303.4	
6.	Explain in detail Dual beam CRO	PCC-ETC303.4	Additional question for Fast Learner
Unit- VI: (Assignment 6) Bridges			**12to 18Marks**
1.	Derive expression for Hay's Bridge.	PCC-ETC303.4	Common for All
2.	Explain Descourty's Bridge.	PCC-ETC303.4	
3.	Explain Wheat Stones Bridge.	PCC-ETC303.4	
4.	Obtain an expression for Kelvin's Bridge	PCC-ETC303.4	

Experiment List

Expt.No.	Name of Experiment
01	Measurement of wt using strain gauage
02	To study Resistance Temp.detector.
03	To study of temp. measurement using Thermistor
04	To study of temp. Measurement using Thermocouple.
05	To study of CRO & Measurement of Amplitude & Frequency
06	To study on measurement of frequency using Lissajous Pattern
07	To study of Function Generator
08	To study of Whetstones Bridge
09	To study of Smart Sensor

Text Books:

1. A course in Electrical, Electronics measurement and Instrumentation, A.K.Sawhney
2. Electronic Instrumentation, H. S. Kalsi, MGH, 3rd Edition S.Y.

Reference Books:

1. Electronic Instrumentation and Measurement Techniques, Welfrick Cooper.
2. Instrumentation for Engineers And Scientists, John Turner, II Edition , Wiley
3. Electronic Instrumentation and Measurements, David A Bell, Third Edition, Oxford
4. Instrumentation for Engineering Measurements, James W Dally, II Edition , Wiley
5. Sensors and Transducers, Patranabis D., PHI, 1999
6. Smart Sensors for Industrial Applications, Krzystof Iniewski, CRC press, Tailor & Francis
7. Introduction to electrochemical transducer, Brian R Eggins, Willey

Subject: Analog Communication

LECTURE NO	CONTENTS
1	Elements of electronic communication systems, Need for modulation,channel,
2	Frequency spectrum, time and frequency domain signals,
3	Amplitude Modulation principles, AM envelope
4	frequency spectrum & BW, phase representation of AM wave
5	Modulation index, % modulation (Numericals expected)
6	AM modulating circuits: Low level AM modulation, medium power AM modulation
7	AM transmitters: Block of low level DSBFC, High level DSBFC, Trapezoidal patterns
8	Evolution and descriptions of SSB, Suppression of carrier using balanced modulator
9	Suppression of unwanted sideband, Methods: Filter system phase shift & third method Vestigial sideband(VSB)
10	Instantaneous frequency, Concept of angle modulation
11	Frequency spectrum
12	Narrow band & Wide Band FM
13	Modulation Index, Bandwidth
14	Phase modulation
15	Bessel,s Function and it,s mathematical Analysis
16	Generation of FM Direct and Indirect Method
17	Comparison of FM and PM
18	Simplified block diagram of AM receiver
19	Receiver parameters: Sensitivity,Selectivity, BW
20	Dynamic range, Tracking, fidelity
21	Types of AM receiver: TRF and super heterodyne (block diagram)
22	AM detection types: using diode, practical diode detector
23	Distortion in diode detector. Negative peak clipping & diagonal clipping

24	Demodulation of SSB using : product demodulator & diode balanced modulator
25	Automatic Gain Control (AGC)
26	Double conversion FM receivers
27	Block diagram, FM demodulator
28	Tuned circuit frequency discriminators
29	Slope detectors
30	Fosters seeley discriminator
31	Ratio detectors
32	PLL-FM demodulators FM noise suppression
33	Sources of noise, Types of noise
34	Introduction, Sampling theorem Occurance of allising error
35	Mathematical proof of sampling thm PAM: Channel BW for PAM, Natural Sampling
36	Flat-top Sampling, PAM & TDM Signal Recovery,; PWM: Uses of PWM

Text Books:

1 George Kennedy, “Electronic Communications”, McGraw Hill Kennedy.

2 Wayne Tomasi ‘Electronics Communication System’ -Fundamentals through Advanced.-

Vth Edition- Pearson Education.

3 V. Chandra Sekar, “Analog Communication”, OXFORD University press.

Reference Books:

1 B.P. Lathi, “Analog and Digital Communication”, OXFORD University press.

2 Simon Haykin, “An introduction to analog & digital communications”, John Wiley &

Sons

3 R P Singh, S D Sapre ‘Communication System-Analog & Digital’ IInd Edition –Tata Mc

Graw Hill Publication

4 Blake”Electronic Communication Systems”,2nd Edition CENGAGE learning

5 Louis E. Frenzel, “Principals of electronic communication system”, IIIrd Ed., TMH Pub

Experiment list-

Sr. No.	Experiment List

1.	Implementation ofAmplitude Modulation (AM).
2.	Implementation of AM using trapezoidal pattern for calculation of modulation index.
3.	Implementation of Amplitude Modulation – Demodulation.
4.	Implementation of Frequency Modulation (FM).
5.	Implementation of Frequency Modulation – Demodulation.
6.	Implementation of Sampling and reconstruction.
7.	Implementation of Pulse Amplitude Modulation(PAM).
8.	Implementation of Pulse Width Modulation(PWM).
9.	Implementation of Pulse Position Modulation(PPM).
10.	Implementation of Pulse Amplitude Modulation - Time Division Modulation (PAM-TDM).
11.	Implementation of Single Side Band(SSB).
12.	Visit Report of AM or FM station.

Assignments No.1

1.Draw and explain block diagram of analog communication.

2. Draw and explain classification of modulation.

3. Draw and explain AM for m=1,m>1,m<1,m=0.

Assignments No.2

1.Draw and explain FM,PM with modulation index.

2. Draw and explain Narrow band & Wide Band FM

3. Draw and explain Ratio detectors

4. Draw and explain Fosters seeley discriminator

5. Draw and explain PLL-FM demodulators

Assignments No.3

1.Draw and explain noise classification.

2. Draw and explain PAM,PWM,PPM.

3. Draw and explain Sampling and reconstruction

Subject: Programming Lab-I

Chapter No.	Lect No.	Details of syllabus planned
Ch.1		Programming Fundamentals
	01	Flow chart, Algorithm, Standard notations, Selection Procedure
	02	Loops, Sub Algorithms,
	03	Compilers, Interpreters,
	04	The Library and Linking, concept of Data Storage (Memory Concept)
Ch.2		Introduction to C
	05	Introduction to Constants, Variables,
	06	Data Types,
	07	Operators, Expressions,
	08	Structure of C Programming,
	09	Identifiers, Decision & Loop control statements
		Arrays and Structures

Ch.3	10	Arrays::Introduction to 1-Dimensional arrays,
	11	Declaration and Initialization of 1-Dimensional arrays, Declaration and Initialization of 2-Dimensional arrays,
	12	Declaration and Initialization of MultiDimensional arrays.
	13	Structures-Declaring of Structures, Accessing Structure elements, arrays of structures.
Ch.4	Functions and Pointers	
	14	Introduction of functions, Need for functions
	15	Multifunction Programming, Elements of functions,
		Definition and declaration of functions, return values and their types,
	17	function call, arguments, return value, nesting and recursion Pointers- Introduction to pointers, pointer variables,
	18	Declaration and initialization of pointer variable, accessing pointer
Ch.5	Strings	
	19	Declaration and Initialization of string,
	20	Reading from Terminal,
	21	Writing to screen, Standard library string functions
Ch.6	File handling	
	22	File operation, counting character tabs,
	23	Spaces, file copy program, file opening modes,
	24	Text file- binary file, Real time case study.

Experiment List (Minimum 10+ project)

Tut no.	Name of Experiments	Status
01	Develop Program using decision control statements	Performing
02	Develop Program using control statements	Performing

03	Develop Program using loop control statements	Performing
04	Develop Program using functions	Performing
05	Develop Program using pointers	Performing
06	Develop Program using array	Performing
07	Develop Program using two dimensional arrays	Performing
08	Develop Program using structures	Performing
09	Develop Program using dynamic memory allocation	Performing
10	Develop Program using strings	
11	Develop Program using any sorting technique	
12	Develop Program using file handling.	
13	Mini project	

Recommended Books:

TEXT BOOKS:

1. Yashawant Kanetkar, "Let Us C", XIIIth Edition BPB Publications
2. E Balagurusamy, "Object Oriented Programming With C++", Mc Grow Hill

REFERENCE BOOKS:

1. Brian W. Kernighan, Dennis M. Ritchi , "The C++ Programming Language", IInd edition, Prentice Hall of India

Subject: Environmental Studies

Unit No/Name of Chapter	Lecture No	Details of Syllabus Planned
01 Nature of Environmental Studies. (03 lectures)	**01**	Definition, scope and importance of Environment.
	02	Multidisciplinary nature of environmental studies Need for public awareness.
	03	Concept of Sustainability. Sustainable Development & It's goals with Indian context.

02 Ecosystems (09 lectures)	**04**	Introduction of Ecosystems Concept of an ecosystem.
	05	Structure and function of an ecosystem.-Producers, consumers and decomposers.
	06	Energy flow in the ecosystem.
	07	Ecological succession.
	08	Food chains, food webs
	09	Ecological pyramids.
	10	Introduction, types, characteristics features, structure and function of the following ecosystem :- Forest ecosystem,
	11	Grassland ecosystem, Desert ecosystem,
	12	Aquatic ecosystems (ponds, streams, lakes). Aquatic ecosystems (, rivers, oceans, estuaries).
03 Natural Resources and Associated Problems (08 lectures)	**13**	Introduction of Natural Resources. Different types of Natural Resources. (Renewable Natural Resources and Non-Renewable Natural Resources)
	14	Forest resources: Use and over exploitation, deforestation, Timber extraction, mining, dams and their effects on forests,
	15	Water resources: Use and over -utilization of surface and ground water, Floods, drought, conflicts over water, dams- Benefits and problems.
	16	Mineral resources: Usage and exploitation, environmental effects of extracting and using mineral resources.
	17	Food Resources: World food problem, changes caused by agriculture effects of mode n agriculture, fertilizer - pesticide Problems.
	18	Energy resources: Growing energy needs, renewable and non- renewable energy sources, use of alternate energy sources.
	19	Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
	20	Role of an individual in conservation of natural resources.
04 Biodiversity and it's Conservation (08 lectures)	**21**	Introduction – Definition: genetic, species and ecosystem diversity.
	22	Biogeographically classification of India.
	23	Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic
	24	India as a mega-diversity nation.

	25	Western Ghats as a bio-diversity region. Hot-spots of biodiversity
	26	The threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
	27	Endangered and endemic species of India.
	28	Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
05 Environmental Pollution (08 lectures)	**29**	Definition: causes, Effects and Control measures of Air Pollution
	30	Water Pollution
	31	Soil Pollution & Noise Pollution
	32	Thermal Pollution and Nuclear hazards
	33	Global warming, Acid rain
	34	Ozone layer depletion, nuclear accidents and holocaust.
	35	Solid waste Management (causes, Effects and Control measures of Urban & Industrial waste)
	36	Role of an individual in prevention of pollution.
06 Social Issues And The Environment (09 lectures)	**37**	Human population growth, impacts on environment,
	38	Human health and welfare
	39	Environmental Ethics: Role of Indian religious traditions and culture in conservation of environment.
	40	Environmental movements- Chipko Movement, Appiko Movement, Silent Valley.
	41	Resettlement and rehabilitation of people; its problems and concerns.
	42	Water conservation, rain water harvesting, watershed management. water conservation
	43	Disaster management: floods, earthquake, cyclone, tsunami and landslides.
	44	Wasteland reclamation
	45	Environmental communication and public awareness, case studies.
07 Environmental Protection – Policies & Practices (05 lectures)	**46**	Environment Protection Act, 1986.
	47	Air (Prevention and Control of Pollution) Act, 1981
	48	Water (Prevention and control of Pollution) Act, 1974
	49	Wildlife Protection Act, 1972.
	50	Forest Conservation Act, 1980, National & International conventions and agreements on environment
08 Field Work **(10 lectures)**	**51**	**Environment Field Project Report** Visit to a local area to document environmental assets- River/forest/grassland/hill/mountain. or Visit to a local polluted site – Urban/Rural/Industrial/Agricultural
	52	
	53	
	54	
	55	
	56	

	57	or
	58	Study of common plants, insects, birds.
	59	or
	60	Study of simple ecosystems - ponds, river, hill slopes, etc.

10. Departmental Faculty Details

Academic Year: 2022-23

Sr.No.	Name of Faculty
1	Dr.(Mrs.)S.B.Patil
2	Mr. M. M. Kolap
3	Dr.(Mrs.)S. R. Mahadik
4	Mrs. P. P. Belagali
5	Mrs. T. H. Mohite
6	Mrs. M. U. Phutane
7	Mrs. R. V. Kaulgud
8	Mr. V. T. Kamble
9	Mrs. D. U. Chavan
10	Mr. A. A. Sutar
11	Mrs. S. S. karadge

12. Department Staff:

Sr.No.	Name of Staff
1	Mr. P. K. Upadhye
2	Mr. K. M. Kulkarni
3	Mrs. H. S. Swami

12. Activity Record:

Department Activity

2022-23

Sr. No.	Name of activity / event	Planned/ conducted
1.	ElectroVision	Planned
2.	IGNITION 2k23	Planned
3.	ETESA Inauguration	Planned
4.	Engineers Day	Conducted

2021-2022		
Sr. No.	**Name of Event/Activity**	**Planned / Conducted**
1	IGNITION 2k22	Planned
2	Junior College Activity	Planned
3	STTP on MACHINE LEARNING	Organized
4	Welcome function for SY-ETC Students	Conducted

2020-2021		
1	VandeMatram(video making contest	Conducted for all
2	SUBH-AARAMBH(Paper presentation contest)	Conducted for all
3	NTD 2k21 Quiz contest	Conducted for all
4	Fairwell Party BE students	Conducted for BE
2019-2020		
1	VLSI Back End Programming	Conducted TE
2	Python Programming	Conducted SE
3	Arts Club Inauguration (Kalavishkar 2k19)	Conducted for all
4	GD Club Inauguration	Conducted for all
5	BOX Cricket	Conducted for all
6	IGNITION 2k19	Conducted for Degree & Diploma studenst
7	Colour code Activity	Conducted for SE
8	English Spelling Activity	Conducted for TE
9	Drishti Online Context By Texas Instrument Banglore.	Conducted for all
10	Inauguration of EESA and IOE 2019-20	Conducted for all
11	Industry 4.0.Workshop	Conducted for all
12	Fresher's Party	Conducted for all