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

◈ Department of Electronics & Telecommunication Engineering ◈

Student Information Manual(SIM)

Academic Year 2021-22 (Sem.-II)

Student Information Manual (SIM)

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1. Institute Information

Dr J JMagdum College of Engineering was established by Dr J JMagdum 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 localsocial 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 contribute the sustainable development by providing skilled technical manpower with ethical and moral values.

MISSION

To have holistic development of all the courses by following participating management methodology, healthy HR practices, strong industry participation and continuous development in physical resources.

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 pr
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.

4. <u>Students role and Responsibilities</u>

<u>Code of Conduct:-</u>

➢ 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)

March 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 *Mahashivratri*	*2*	*3* *Commencement of sem-II for TY and Btech*	*4*	*5*
6	*7* *CIE-2 for SY*	*8* *Women's day* *CIE-2 for SY*	*9* *CIE-2 for SY*	*10* *CIE-2 for SY*	*11* *CIE-2 for SY*	*12*
13	*14*	*15* *Proctor meet*	*16*	*17*	*18* *Dhulivandan*	*19* *EDC Expert lecture*
20	*21*	*22*	*23*	*24*	*25* *Commencement of Value added course*	*26*
27	*28* *Commencement of sem-II for SY*	*29*	*30* *CMC Meeting*	*31* *Proctor meet*		

April 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	*2* *Gudhipadwa*
3	*4*	*5*	*6*	*7*	*8* Expert lecture	*9*
10	*11*	*12*	*13* *Proctor meet*	*14* *Mahaveer jayanti* *Dr. Babasaheb Ambedkar jayanti*	*15* *Good friday*	*16* Industrial visit for TY
17	*18* *Student association Activitiy*	*19*	*20*	*21*	*22* Expert lecture	*23*
24	*25* *Alumni Interaction*	*26*	*27*	*28*	*29* CMC Meeting	*30* Proctor meet

May 22

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	*2*	*3* *Ramajan Eid*	*4*	*5*	*6*	7 Industrial visit for SY
8	*9*	*10* *Student association Activitiy*	*11*	*15*	*13* Industrial visit for Btech	*14*
15	*16* *BudhaPornima*	*17* *Proctor meet*	*18*	*19*	*20*	*21* *Advisory board meeting*
22	*23*	*24*	*25* Expert lecture	*26*	*27* Students training	*28*
29	*30* *CMC Meeting*	*31* *Proctor meet*				

June 2

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	*2*	*3*	*4* *Parent meet*
5	*6*	*7*	*8*	*9*	*10*	*11*
12	*13*	*14*	*15* *Proctor meet*	*16*	*17*	*18*
19	*20*	*21*	*22*	*23*	*24*	*25*
26	*27*	*28*	*29*	*30*		

7. Departmental Time-Table

Academic Year: 2021-22   **Semester:** II
Department: Electronics & Telecommunication Engineering **Class:** SY
Revision: **Class Room No.: 103**
Class Coordinator: Prof.C.S.Patil   **W.e.f.:** 28/03/2022

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
09.30 am – 10.30 am	E1-ECD-II(PPB) E2-DCOM(SSK) E3-CS(AAS)/DS(MMK) Tut E4-PL-II(RVK)	ECD-II(PPB)	LIC(RVK)	E1-PL-II(AAS) E2-LIC(RVK) E3-ECD-II(DUC) E4-DCOM(THM)	E1-LIC(RVK) E2-ECD-II(DUC) E3-DCOM(SSK) E4-CS(AAS)/DS(MMK)Tut	
10.30 am – 11.30 am		PL-II(RVK)	DCOM(THM)			
11.30 am – 11.40 am	Short Break					
11.40 am – 12.40 pm	LIC(RVK)	E1- DCOM(SSK) E2-DS(MMK)	CS(AAS)	DCOM(THM)	LIC(RVK)	
12.40 pm – 01.40 pm	DS(DUC)	E3-PL-II(AAS) E4-LIC(RVK)	PL-II(RVK)	LIC(RVK)	Library Hrs	
01.40 pm – 02.30 pm	Lunch Break					
02.30 pm – 03.30 pm	DCOM(THM)	ECD-II(PPB)	E1- DS(MMK) E2-PL-II(AAS) E3-LIC(RVK) E4-ECD-II(DUC)	DS(DUC)	ECD-II(PPB)	
03.30 pm – 04.30 pm	CS(AAS)	DS(DUC)		CS(AAS)	ECD-II(PPB)	
04.30 pm – 05.30 pm		E2-CS(AAS) tut	E1- CS(AAS) tut			

Name of Subject	Batches	Name of Faculty Member	NAME OF LAB
Electronics Circuit Design-II	E1	Prof.P.P.Belagali	Basic Electronics Lab
Electronics Circuit Design-II	E2,E3,E4	Prof.D.U.Chavan	Basic Electronics Lab
Digital Communication	E4	Prof.T.H.Mohite	DigitalCommunication/VIDEO-ETRX
Digital Communication	E1,E2,E3	Prof. S.S.Karadge	DigitalCommunication/VIDEO-ETRX
Control System(TUT)	E1,E2,E3,E4	Prof.A.A.Sutar	-
Programming Language-II	E4	Prof.R.V.Kaulgud	Programming Network -ETC
Programming Language-II	E1,E2,E3	Prof.A.A.Sutar	Programming Network-ETC
4dLinear Integrated Circuit	E1,E2,E3,E4	Prof.R.V.Kaulgud	Design Lab
Data Structure(TUT)	E1,E2,E3,E4	Prof.M.M.Kolap	-

8. Structure of Syllabus:

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**

SEMESTER - III

Sr. No	Course (Subject Title)	THEORY Credits	THEORY No.of Lecture	THEORY Hours	TUTORIAL Credits	TUTORIAL No.of Lecture	TUTORIAL Hours	PRACTICAL Credits	PRACTICAL No.of Lecture	PRACTICAL Hours	THEORY Hours	THEORY Mode	THEORY Marks	Total Marks	Min	PRACTICAL Hours	PRACTICAL Max	PRACTICAL Min	TERM WORK Hours	TERM WORK Max	TERM WORK Min
1	BSC-ETC301	3	3	3	1	1	1	-	-	-		CIE	30	100	40	-	-	-	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		

As per BOS Guidelines

SEMESTER –IV

Sr. No	Course (Subject Title)	THEORY Credits	THEORY No.of Lecture	THEORY Hours	TUTORIAL Credits	TUTORIAL No.of Lecture	TUTORIAL Hours	PRACTICAL Credits	PRACTICAL No.of Lecture	PRACTICAL Hours	THEORY Hours	THEORY Mode	THEORY Marks	Total Marks	Min	PRACTICAL Hours	PRACTICAL Max	PRACTICAL Min	TERM WORK Hours	TERM WORK Max	TERM WORK Min
1	PCC-ETC401	4	4	4	-	-	-	1	2	2		CIE	30	100	40	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		

As per BOS Guidelines

CIE- Continuous Internal Evaluation.   ESE – End Semester Examination

SY ETC

9. Subject Details

Subject: Electronic Circuit Design-II

LECTURE PLAN

Chapter No: - 1. Multistage Amplifiers	
1.	Need of cascading,
2.	Parameter evaluation such as Ri ,Ro for general multistage amplifier,
3.	Parameter evaluation such as Av, Ai & bandwidth for general multistage amplifier
4.	Design of two stage RC coupled amplifier using BJT
5.	Design of Direct coupled amplifier using BJT
Chapter No: - 2. Feedback Amplifiers :	
6.	General theory of feedback, Need of negative feedback.
7.	Feedback Topology, Analysis of Voltage series feedback amplifiers (Using block schematic & Circuit),
8.	Analysis of Current series feedback amplifiers (Using block schematic & Circuit),
9.	Analysis of Voltage shunt feedback amplifiers (Using block schematic & Circuit),
10.	Analysis of Current shunt feedback amplifiers (Using block schematic & Circuit),
11.	Design of two stage Voltage series feedback amplifier
Chapter No: - 3. Power Amplifiers:	
12.	Need of Power amplifier, classification of power amplifier, Power considerations
13.	Distortion in power amplifiers: Phase, Frequency, amplitude/ harmonic / nonlinear distortion,
14.	Amplitude harnomic distortion using Three point method..
15.	Analysis and design of Class A single ended transformer coupled amplifier&,
16.	Analysis and design of class A Push pull amplifiers
17.	Analysis and design of Class B amplifier
18.	Analysis and design of class B push pull amplifier
19.	Crossover distortion
20.	Complementary symmetry power amplifier
Chapter No: - 4.Oscillators:	
21.	Barkhausen's criteria , Frequency and amplitude stability, Classification
22.	RC oscillators : RC phase shift analysis & design using BJT
23.	Numericals
24.	RC oscillators : Wein bridge oscillator analysis & design using BJT
25.	Numericals
26.	LC oscillators: Colpit's oscillators and Hartely's oscillators analysis and design using BJT
27.	Numericals - Colpit's oscillators and Hartely's oscillators
28.	Crystal oscillator
Chapter No: - 5. Multivibrators :	
29.	**Multivibrators :** Transistor as a switch, Different transistor switching parameters,overdrive factor, classification of multivibrators,
30.	Analysis and design of collector coupled -Astable using BJT considering overdrive factor.

31.	Analysis and design of collector coupled - Monostable using BJT considering overdrive factor.
32.	Analysis and design of collector coupled - fixed bias Bistable multivibrator using BJT considering overdrive factor.
33.	Analysis and design of collector coupled -self-bias Bistable multivibratorusing BJT considering overdrive factor.
34.	Analysis and design of Emitter coupled Binary/Schmitt trigger using BJT considering overdrive factor.
35.	Triggering circuits for Multivibrators
Chapter No: - 6 IC voltage regulator	
36.	Fixed voltage regulators (78XX, 79XX)
37.	Adjustable voltage regulators (LM317, LM337)
38.	Adjustable voltage regulators (LM723)
39.	Overall Revision

Text Books:

1	N.C. Goyal & R.K. Khetan, "A Monograph on Electronics Design Principles", Khanna Publishers
2	Allen Mottershed, "Electronic Devices & Circuits", Prentice- Hall India
3	G. K. Mittal, "Electronic Devices & Circuits"
4	Salivahanan, N Suresh kumar, "Electronic Devices & Circuits", Tata McGrawHill Publication

Reference Books:

1	David A. Bell, "Electronic Devices & Circuits", Oxford University
2	Robert L. Boylsted, Louis Nashelsky, "Electronic Devices & Circuit Theory", Pearson Education

List of Experiments (Minimum 08 experiment + 01 Mini-project compulsory):

1.	Design and study of frequency response of direct coupled amplifier.
2.	Design and study of frequency response of two stage RC coupled amplifier.
3.	Design and study of RC phase shift oscillator using BJT
4.	Design and study of Astable multivibrator
5.	Design and study of Schmitt trigger using BJT
6.	Design and study of voltage regulator using LM317
7.	Design and study of voltage regulator using IC723
8.	Simulation of Oscillator (eSim Software)
9.	Simulation of Multivibrator (eSim Software)
10.	Mini-project based on above syllabus. (Maximum two students in each group)

Subject: Linear integrated Circuits

TEACHING PLAN

Topic	Sub Topic	Hours
A.Introduction to op-amp	Definition, symbol, Block diagram of OP-AMP, Explanations of each block,	9
	Differential Amplifier configurations,	
	Differential amplifier analysis (AC & DC) for dual-input balanced-output configuration using 'r' parameters,	
	Level shifter	
	Current mirror circuits,	
	Ideal parameters and practical parameters of OP-AMP and their comparison	
	Internal circuit of IC741,	
	Numericals	
	Numericals	
B.Op-amp configurations & frequency response	Virtual ground concept,Open loop configuration,	7
	Closed loop configuration,	
	unity gain amplifier, frequency Response of both configurations, ,	
	Stability considerations	
	Frequency Compensation	
	Slew Rate	
C.Applications of Op-amp	Summing, Scaling & Averaging Amplifiers using Op-amps	8
	Differential amplifier using opamp	
	Subtractor Circuit, Instrumentation amplifier	
	V to I & I to V Converter, Precision Rectifiers	
	Log & Anti-log Amplifiers	
	Study of comparator, Schmitt Trigger	
	Window Detector, Clippers & Clampers	
	Peak Detectors, Sample & Hold Circuits.	
D.Active Filters	Introduction of filters	8
	Analysis & Design of First & Second order High Pass filter	
	Analysis & Design of First& Second order Low Pass filter	
	Analysis & Design of Band Pass filter (Narrowband & Wideband)	
	Analysis & Design of Band Reject filter (Narrowband & Wideband)	
	Analysis & Design of All Pass Filter	
	Introduction to Chebyshev Filter	

	Test on above	
E.Waveform Generators	Analysis & Design of Square wave generator	7
	Analysis & Design of Triangular wave generator	
	Analysis & Design of Sawtooth wave generator	
	Analysis & Design of RC phase shift oscillator	
	Analysis & Design of RC wein bridge oscillator	
	Colpitts oscillator, Hartley oscillator	
	Test on above	
F.Industrial applications of special OPAMP ICs	IC 555 Timer: Block Diagram	7
	Operating Principle, Multi-vibrator using IC 555	
	IC 565 PLL: Operating Principles, applications	
	Introduction of (block diagram, features, application areas) : IC OP177 op-amp	
	IC AD620 instrumentation amplifier	
	Revision on above	
	Test on above	

List of Experiments

Year- 2021-22   **SEM-II**

Sr. No.	Experiment List
1	Design of inverting ,non inverting amplifier & their frequency response
2	Design of Summing, scaling, and averaging amplifier
3	Design, build and test precision half & full wave rectifier
4	Design, build and test Comparator and Schmitt trigger
5	Design of Butterworth filters
6	Design, build and test square & triangular wave generator
7	Design, build and test Integrator and Differentiator
8	Design and implement oscillator using Op-Amp
9	one small project based on OPAMP applications

Text Books:
1 Ramakant A. Gaikwad, "Op Amps and Linear Integrated Circuits", Pearson Education second and latest edition.

Reference Books:

1.David Bell, "Operational Amplifiers and Linear ICs",Third ed, Oxford University Press
2 .Robert Coughlin, Fredric Driscoll, "Operational Amplifiers and Linear Integrated Circuits", Sixth edition,PE, 2006. (Ch-6)
3.B. Somanathan Nair, "Linear Integrated Circuits- Analysis, Design &Applications", Wiley India.
4. Datasheets

Assignment no-1

1. Derive the expression for DIBO AC and DC analysis.

2. Explain current mirror circuit

3. Explain parameters of OPAMP.

Assignment No-2

1. Explain log and antilog amplifier.

2. Explain comparator and Schmitt trigger in detail.

3. Derive the expression for gain of non-inverting amplifier

Assignment No-3

1. Explain all pass filter in detail.

2. Write a note on PLL.

3. Explain Hartley and Collpitt Oscillator.

Subject: Control System Engineering

Chapter No.	Lect No.	Details of syllabus planned
		Introduction
	01	Need & classification of control system
	02	Effects of feedback, Mathematical model (Mechanical & Electrical systems)
	03	Differential equations
Ch.1	04	Transfer function, Block diagram algebra
	05	Block diagram reduction
	06	Representation by Signal flow graph
	07	Reduction using Mason's gain Formula.
		Time Domain Analysis
	08	Standard test signals
	09	Time response of first& second order systems for Step input,
	10	Characteristic Equation of Feedback control systems,
Ch.2	11	Transient response of second order systems
	12	Time domain specifications
	13	Steady state response
	14	Steady state errors and error constants.
		Stability Analysis
	15	The concept of stability, Routh's stability criterion
Ch.3	16	Qualitative stability and conditional stability, limitations of Routh's stability
	17	Root Locus Technique: The root locus concept
	18	Construction of root loci
	19	Effects of adding poles and zeros on the root locus.
		Frequency Domain Analysis
	20	Frequency Domain Analysis

Ch.4	21	Bode plots
	22	Determination of Frequency domain specifications
	23	Comparison of field & circuit theory
	24	Determination of Frequency domain specifications
	25	Determination of Frequency domain specifications
	26	Stability Analysis from Bode Plots, Polar Plots
	27	Nyquist Stability Criterion, Nyquist plot & stability analysis.

		Compensators & Controllers
Ch.5	28	Compensation techniques
	29	Lag, Lead
	30	Lead-Lag Controllers design in frequency Domain
	31	Design of PID control system.

		State Space Analysis
	32	Concept of state, state variable & state model, state model for linear continuous time systems
	33	Decomposition of Transfer Function
	34	Transfer function from state model, Computation of state transition matrix
	35	Controllability
Ch.6	36	Observability

Tutorial List

Tutno.	NameofTutorial
01	Examples on block diagram reduction, Mason's gain.
02	Derive an equation for Steady state errors and examples on Error coefficients.
03	State and Explain Rouths stability criteria and examples.
04	Examples on Root locus.
05	Frequency domain specification.
06	Examples on Bode Plot.
07	Design of Compensators and design of PID control system.
08	Examples on State space model.

Recommended Books:

TEXT BOOKS:

1. I .J. Nagrath and M. Gopal, "Control Systems Engineering", V th Edition, Anshan Publishers.
2. I .J. Nagrath and M. Gopal, "Control Systems Engineering", V th Edition, Anshan Publishers.
3. 3 R.Aanandnatarajan, P. Rameshbabu, "Control System Engineering", Scitech Publications.

REFERENCE BOOKS:
1. Norman S Nise, "Control System Engineering", viiith edition, Wiley India.
2. Sanarjjet Ghosh, "Control System Theory & Application", I st edition, Pearson Education

Subject: Digital Communication

TEACHING PLAN

LECTURE NO.	CONTENTS
1	Introduction to digital communication , Probability and sample space
2	Bayes" rule
3	Joint & conditional Probability
4	PDF & CDF
5	Statistical averages
6	Measure of Information, Entropy
7	Information Rate, Shannon's encoding theorem
8	Communication channels –Discrete & Continuous
9	Shannon–Hartley theorem
10	Huffman's coding
11	Huffman's coding
12	Shannon-Fanno Coding techniques
13	Quantization–Uniform, Non-Uniform.
14	Study of PCM
15	Study of DM
16	Study of ADM
17	Study of DPCM,Study of ADPCM
18	Line codes: Unipolar, Bipolar
19	NRZ, RZ
20	RZ-AMI
21	Manchester Baseband pulse Shaping
22	Duo binary
23	ASK Coherent, Non- Coherent detection.
24	FSK Coherent, Non- Coherent detection.
25	PSK Coherent, Non- Coherent detection.
26	DPSK Coherent, Non- Coherent detection.
27	QPSK Coherent, Non- Coherent detection.
28	QAM Coherent, Non- Coherent detection.
29	Introduction to Spread Spectrum techniques: DSSS, FHSS
30	M-arySignaling,
31	eye diagram, ISI, Scrambler.
32	Unscramble.
33	Optimum Receivers-Matched Filters.
34	Correlation receivers
35	Optimum detection using ML criteria
36	Optimum detection using ML criteria

Text Books:

1	K. Sam Shanmugam, "Digital & Analog Communication", John Wiley India..
2	Simon Haykin, "Digital Communication", Wiley India.
3	Singh &Sapre, "Communication Systems-Analog & Digital",IInd Edition TMH

Reference Books:

1	Wayne Tomasi, "Electronic Communications Systems", Vth edition, Pearson publication
2	John Proakis, "Digital Communication", IVth Edition, TMH

List of Experiments (Minimum 8 Experiments):

1.	Study of Pulse Code Modulation
2.	Study of Delta Modulation
3.	Study of Adaptive Delta Modulation
4.	Study of Data Formats
5.	Study of Amplitude Shift Keying
6.	Study of Frequency Shift Keying
7.	Study of Phase Shift Keying
8.	Study of Quadrature Phase Shift Keying
9.	Study of Any Modulation Technique using MATLAB/SCILAB
10.	Study of CDF & PDF for Random signals using MATLAB/SCILAB
11.	Study of Standard Random Variables Density Distribution Function

Assignments No.1

1.Draw and explain block diagram of digital communication system.

2. Draw and explain Shannon–Hartley theorem.

3. Draw and explain Entropy Coding.

Assignments No.2

1.Draw and explain Quantization.

2. Draw and explain ADM, ADPCM.

3. Draw and explain DPCM.

4. Draw and explain Line codes: Unipolar, Bipolar

5. Draw and explain NRZ, RZ, RZ-AMI

Assignments No.3

1.Draw and explain ASK, FSK, PSK.

2. Draw and explainSpread Spectrum techniques.

3. Draw and explain eye diagram.

Subject: Data Structure

Lecture No	**Dept of E&TC Engineering (B-Tech Sem II 2021-22)** **Lecture Plan: Data Structures**
	Chapter 1 -Introduction & Overview:
01	Introduction to theory of data structures & its data types,
02	Algorithms: complexity, time space trade-off with example
	Chapter: - 2 Arrays, Records & Pointers
03	Introduction, linear arrays, representation of linear array in memory, traversing linear arrays, inserting & deleting
04	Sorting: bubble sort, searching: linear search,
05	Binary search
06	Multidimensional arrays, Pointers: pointer arrays.
07	Records: Record structures, representation of records in memory, parallel arrays.
08	Matrices, space matrices.
	Chapter: - 3 Linked Lists
09	Introduction, linked lists & its representation
10	Traversing& searching a linked list
11	Memory allocation, Garbage collection, insertion &
12	deletion of nodes of linked list.
13	Header linked list, two-way lists.
14	two-way lists.
	Chapter: - 4 Stacks & Queues
15	Introduction to stacks, stack as an Abstract Data type
16	Representation through Arrays & linked lists ,
17	Applications of stacks
18	stacks & recursion,
19	Queue as an abstract data type representation
20	Circular, double ended priority.
21	Application of queues
	Chapter: - 5 Trees
22	Binary Tree: introduction, types, definition
23	properties, representations, operations
24	binary tree traversal reconstruction
25	Counting number of binary trees, applications.
26	Advanced trees : AVL trees or height balanced trees
27	representation operation, Threaded binary trees,Expression trees
28	Multiway trees: trees , multiway search trees, B+trees Heaps, construction of a Heap.
	Chapter: - 6 Graphs & Hashing
29	Introduction, Graph theory terminology.
30	sequential representation of graphs: Adjacency Matrix, Path matrix

32	shortest paths
33	Warshall's Algorithm
34	shortest paths, linked representation. Operations, Traversing, Posets,
35	Topological sorting. Hashing, Hash functions,
36	collision, chaining

Text Books:

    1)Data structure using C By ISRD group, published by Tata McGraw Hill

    2)Data structures by Seymour Lipschutz, published by Tata McGraw Hill

Reference Books:

1) Data structure & algorithm analysis in C by Mark Allen Weiss published by Pearson Education (LPE)
2) Introduction to Data structure in C by A.N. Kathie published by Pearson Education (LPE)

Tutorial No.1

1.Explain data types, Classification of data structure.

2.Explain Algorithms

3.Explain complexity, time space trade-off with example.

Tutorial No.2

1.Explain representation of linear array in memory,

2. Explain Algorithm for traversing linear arrays, inserting & deleting, Sorting: bubble sort.

3.Explain in details searching: linear search, binary search

4.what is pointer arrays?

Records: Record structures,

5.explain parallel arrays, matrices, sparse matrices..

Tutorial No.3

1.Explain linked lists & its representation.

2.Write a note on

a) memory allocation, Garbage collection, insertion & deletion of nodes of linked list

b) header linked list, two-way lists.

Tutorial No.4

1.Explain stacks, stack as an Abstract Data type.

  2.explain -

    1)Applications of stacks, stacks & recursion.

    2)Queue, representation of queue as an array

3.explain application of queues.

<div align="center">Tutorial No.5</div>

1.Explain Binary Tree.
2.Explain Advanced trees - AVL trees or height balanced trees, representation operation,
Threaded binary trees, Expression trees.

<div align="center">Tutorial No.6</div>

1.write in details about Graph theory.
2.Explain in detail Warshall's Algorithm.

3.explain Hashing, Hash functions, collision, chaining

Subject: Programming Lab-II

Chapter No.	Lect No.	Details of syllabus planned
Ch.1		**IntroductionTo Object Oriented Programming**
	01	Difference between procedure oriented programming and object oriented programming
	02	Basic concepts and features of object oriented programming
	03	Structures and classes, declaration of class, member functions
	04	Defining the object of class, accessing member of class, and array of class objects
Ch.2		**Overloading**
	05	Function overloading
	06	Assignment operator overloading
	07	Binary operator overloading
	08	Unary operator overloading
Ch.3		**Constructors And Destructors**
	12	Constructors- copy constructor, default constructors
	13	Destructors, inline member function
	14	Friend function, dynamic memory allocation
Ch.4		**Polymorphism**

	19	Polymorphism, early binding, polymorphism with pointers
	20	Virtual functions, late binding, pure virtual functions
	21	Abstract base classes, constructor under inheritance
		Destructor under inheritance, virtual destructors, virtual base classes.

Inheritance

	22	Introduction, Single Inheritance
Ch.5	23	Types Of Base Classes- Direct, Indirect
	24	Array Of Class Object And Single Inheritance,
	25	Multiple Inheritances.

Template And Exception Handling

	30	Function template
Ch.6	31	Class template,
	32	Exception handling.

Experiment List

Exp no.	NameofExperiments	Status
01	Develop a Program for implementation of array a. One-dimensional array b. Multi-dimensional array	Performing
02	Develop a Program for implementation of classes and Objects.	Performing
03	Develop a Program for implementation of types of constructor a. Default constructor b. Parameterized constructor c. Copy constructor	Performing
04	Develop a Program for implementation of polymorphism	Performing
05	Develop a Program for implementation of Friend Functions in Class	Performing
06	Develop a Program for implementation of types of inheritance a. Single level Inheritance b. Multi-level Inheritance c. Multiple Inheritance d. Hybrid Inheritance e. Hierarchical inheritance	Performing
07	Develop an Object oriented program on Bubble Sort	Performing
08	Develop an Object oriented program to Perform Linear or binary search	Performing
09	Develop an Objectoriented program to Insert and delete a Node in Link List	Performing
10	Develop an Object oriented program to implement stack using	Performing

	linked list.	
11	Mini Project	Performing

Recommended Books:

TEXT BOOKS:

1. D Ravichandran, "Programming With C++", IInd edition, Tata Mc Grow Hill
2. E Balagurusamy, "Object Oriented Programming With C++", Mc Grow Hill

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

10 RUBRICS B. TECH PROJECT EVALUATION

Course Outcomes in project work:
1. Project/Seminar Review Form

Project/Seminar Evaluation Sheet

Name of Student:-
Class: Roll No.:
Name of Seminar Topic:
Name of Guide:
Academic Year: Semester:
Marking Scheme:

Sr. No.	Details	Max. Marks		Valuated Marks
		For 25 Marks	For 50 Marks	
1.	Selection of Seminar Topic (Scope, Relevance)	2	5	
2.	Literature Survey	3	10	
3.	Presentation	5	10	
4.	Understanding of Subject	3	5	
5.	Seminar Report	4	5	
6.	Question Answer	3	5	
7.	Interaction with Guide	5	10	

Total:
Sign of Guide:
Date:

Sr. No.	Details	Max. Marks		Valuated Marks
		For 25 Marks	For 50 Marks	
1.	Selection of Seminar Topic (Scope, Relevance)	2	5	
2.	Literature Survey	3	10	
3.	Presentation	5	10	
4.	Understanding of Subject	3	5	
5.	Seminar Report	4	5	
6.	Question Answer	3	5	

Total:
Name and Sign of Judge:

Sr. No.	Details	Max. Marks		Valuated Marks
		For 25 Marks	For 50 Marks	
1.	Selection of Seminar Topic (Scope, Relevance)	2	5	
2.	Literature Survey	3	10	
3.	Presentation	5	10	
4.	Understanding of Subject	3	5	
5.	Seminar Report	4	5	
6.	Question Answer	3	5	

Total:
Name and Sign of Judge:
Total Marks: Details of sr. no. 7+ Average of sr.no.1 to 6

Total Marks	Details of sr.no. 7	Average of sr.no.1 to 6

Rubrics for Project Work assessment

- ## Project marking scheme

(Semester-I)

Activity	Nature of Activity	Total Marks for Activity	Rubric for Activity			
			Unsatisfactory	Developing	Satisfactory	Excellent
A1	Submission of Project Topic with names of group member	A1= 0.08* TM1	0.00*A1	0.40*A1	0.80*A1	1.00*A1
A2	Presentation of Synopsis in front of DRC	A2= 0.08* TM1	0.00*A2	0.40*A2	0.80*A2	1.00*A2
A3	Introduction and literature Review presentation	A3= 0.24* TM1	0.25*A3	0.60*A3	0.85*A3	1.00*A3
A4	Methodology and future work presentation	A4= 0.30* TM1	0.25*A4	0.60*A4	0.90*A4	1.00*A4
A5	Guide Marks	A5= 0.30* TM1	0.25*A5	0.60*A5	0.90*A5	1.00*A5

- ## Project marking scheme

(Semester-II)

Activity	Nature of Activity	Total Marks for Activity	Rubric for Activity			
			Unsatisfactory	Developing	Satisfactory	Excellent
A6	Progress presentation 1	A6= 0.20* TM2	0.20*A6	0.65*A6	0.90*A6	1.00*A6
A7	Progress presentation 2	A7= 0.20* TM2	0.20*A7	0.65*A7	0.90*A7	1.00*A7
A8	Final	A8=	0.25*A8	0.70*A8	0.95*A8	1.00*A8

	presentation in front of DRC along with submission of spiral bound copy	0.30* TM2				
A9	Guide Marks	A9= 0.30* TM2	0.25*A9	0.70*A9	0.95*A9	1.00*A9

*TM1:- Term Work Marks in Sem-I for Project

*TM2:- Term Work Marks in Sem-II for Project

11. Departmental Faculty Details

Academic Year: 2021-22

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. N. S. Nadaf
9	Mr. V. T. Kamble
10	Mrs. D. U. Chavan
11	Ms. C. S. Patil
12	Mr. A. A. Sutar
13	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

13. Activity Record:

Department Activity

Sr. No.	Name of Event/Activity	Planned / Conducted
2021-2022		
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