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.

1. **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.

1. **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.

1. **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.
1. **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.
1. **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* |

1. **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 |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Class : SYETC** |  |  |

1. **Structure of Syllabus:**

****

**Class : SYETC**



**SY ETC**

1. **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 |
| Ch.6 | **Unit No. 6. Probability Distributions** |
| 38 | Definition, Introduction, Random Variables, Types |
| 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 & Schering Bridge |

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| **ASSIGNMENT QUESTIONS/QUESTION BANK** |
| **Unit- I (Assignment 1) Transducers**  **16 to 24 Marks** |
| **Que. No.** | **Question** | **CO No.** | **Remark** |
|  | Explain the important characteristics of a transducer. | PCC-ETC303.1 | Common for All |
|  | List different types of pressure transducers. Explain bellows in detail.Write the advantages and disadvantages | PCC-ETC303.1 |
|  | List various types of flow transducer. Explain anyone. | PCC-ETC303.1 |
|  | List different types of ultrasonic flow meter. Explain any one in detail. | PCC-ETC303.1 |
|  | List various types of sound transducer, with neat diagram explain any One sound transducer | PCC-ETC303.1 |
|  | List different types of bourdon tubes explain it with the help of Principle, construction and working. | PCC-ETC303.1 |
|  | Explain linear variable differential transformer. Write the advantages and Disadvantages. | PCC-ETC303.1 |
|  | List General application of Transducers | PCC-ETC303.1 | Additional questions for Fast Learner  |
|  | 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** |
|  | Explain the diagram of Chopper stabilized amplifier. AlsoWrite the Advantages and disadvantages. | PCC-ETC303.2 | Common for All |
|  | Draw and explain block diagram of DAS | PCC-ETC303.2 |
|  | Explain AC Signal conditioning system | PCC-ETC303.2 |
|  | What is DAC? Explain any one in detail | PCC-ETC303.2 |
|  | Define Filter. Explain active filter. | PCC-ETC303.2 |
|  | Explain DC Signal conditioning system. | PCC-ETC303.2 |
|  | Explain the block schematic of successive approximation ADC. Write advantages and disadvantages. | PCC-ETC303.2 |
|  | Explain the block schematic of parallel comparator ADC | PCC-ETC303.2 |
|  | Explain the block schematic ofInstrumentation system | PCC-ETC303.3 |
|  | Explain Instrumentation set up for measurement of non-electrical quantity such as weight using strain gauge. | PCC-ETC303.3 |
|  | Explain Instrumentation amplifier | PCC-ETC303.3 | Additional question for Fast Learner |
|  |
| **Unit- IV:(Assignment 4) Introduction to Measurement 16 to 24 Marks** |
|  | With neat sketch explain working of successive approximation type digital Voltmeter.  | PCC-ETC303.4 | Common for All |
|  | State general specifications of DVM. | PCC-ETC303.4 |
|  | What is a standard? State and explain different types of standards depending on functions and applications. | PCC-ETC303.4 |
|  | With neat sketch explain working of Digital Multimeter. | PCC-ETC303.4 |
|  | Explain various types and sources of Errors in measurement system. | PCC-ETC303.4 |
|  | Explain working of Q-meter in detail. | PCC-ETC303.4 |
|  | Explain Digital frequency meter. | PCC-ETC303.4 | Additional question for Fast Learner |
|  |  |  |  |
| **Unit- V: (Assignment 5)Measurement & Display Devices 16 to24Marks** |
|  | Explain working of CRO with block schematic. | PCC-ETC303.4 | Common for All |
|  | With block schematic explain Signal Generator. | PCC-ETC303.4 |
|  | What is Attenuator? Explain types of Attenuators in detail. | PCC-ETC303.4 |
|  | Explain in detail spectrum analyser | PCC-ETC303.4 |
|  | With block Schematic explain function generator. | PCC-ETC303.4 |
|  | Explain in detail Dual beam CRO | PCC-ETC303.4 | Additional question for Fast Learner |
| **Unit- VI: (Assignment 6) Bridges 12to 18Marks** |
|  | Derive expression for Hay's Bridge. | PCC-ETC303.4 | Common for All |
|  | Explain Descourty’s Bridge. | PCC-ETC303.4 |
|  | Explain Wheat Stones Bridge. | PCC-ETC303.4 |
|  | Obtain an expression for Kelvin’s Bridge | PCC-ETC303.4 |

**Experiment List**

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| --- | --- |
| **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 |
| Ch.3 | Arrays and Structures |
| 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, |
| 16 | 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)**

|  |  |  |
| --- | --- | --- |
| **Tutno.** | **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 studiesNeed 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 thefollowing 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.orVisit to a local polluted site – Urban/Rural/Industrial/AgriculturalorStudy of common plants, insects, birds.orStudy of simple ecosystems - ponds, river, hill slopes, etc. |
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**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 |
|  | ElectroVision  | Planned |
|  | IGNITION 2k23 | Planned  |
|  | ETESA Inauguration | Planned |
|  | 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 |