# CMR INSTITUTE OF TECHNOLOGY

**Department of Electronics and communication**

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|---|---|---|---|
| SEMESTER | : III | NAME OF THE FACULTY | : Manjunath V Gudur |
| SECTIONS | : A, B | DATE OF COMMENCEMENT | : 7.08.2017 |
| SUBJECT | : Analog Electronic Circuits | DATE OF CLOSING | : 25.11.2017 |
| SUBJECT CODE | : 15EE34 | CLASS STRENGTH | : 94 |
| NO OF HRS/WK | : 6 | TOTAL HRS | : 63 |

| Session No | Chapter no (No of hrs planed for the chapter) | Date | Topics planned for the session | Teaching Aids | Assignments | Topics covered As per plan |
|---|---|---|---|---|---|---|
| 1 | **1/Prerequisites** | 7.08.2017 | Course Introduction. | Board, chalk, duster | | |
| 2 | **2/ Prerequisites** | 8.08.2017 | **Diode Circuits:** A review on PN Junction Diode theory. | ,, | | |
| 3 | **3/ Prerequisites** | 9.08.2017 | Half wave, Full Wave, Full Wave Bridge Rectifier review. | ,, | | |
| 4 | **1/1** | 10.08.2017 | Diode Clipping Circuits Theory and Problems on Series Clippers. | ,, | | |

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| 5 | **2/ 1** | 11.08.2017 | Biased Series Clippers | ,, | | |
| 6 | **3/1** | 12.08.2017 | Parallel Clipping Circuits. | ,, | | |
| 7 | **4/1** | 14.08.2017 | Biased parallel Clipping Circuits. | ,, | | |
| 8 | **5/1** | 16.08.2017 | Clamping circuits | Board, chalk, duster | | |
| 9 | **6/1** | 17.08.2017 | **Transistor biasing and stabilization**: Transistor characteristics Common Emitter and Common Base. | | | |
| 10 | **7/1** | 18.08.2017 | DC Biasing of BJT: Operating Point, Selection of Operating point. | ,, | | |
| 11 | **8/1** | 19.08.2017 | Analysis and design of fixed bias Circuit and Problems. | ,, | | |
| 12 | **9/1** | 21.08.2017 | Analysis and design of Emitter stabilized bias circuit and Problems. | ,, | | |
| 13 | **10/1** | 22.08.2017 | Analysis and design of Voltage divider bias circuit: Exact and Approximate analysis | | | |
| 14 | **11/1** | 23.08.2017 | Problems on Voltage divider Bias Circuit. | ,, | Assignment-01 | |
| 15 | **12/1** | 24.08.2017 | Analysis and design of Self-bias circuit and problems. | ,, | | |
| 16 | **13/1** | 28.08.2017 | Stability factor of different biasing circuits and Problems | ,, | | |
| 17 | **14/1** | 29.08.2017 | Stability factor of different biasing circuits and Problems | | | |
| 18 | **15/1** | 30.08.2017 | **Transistor switching circuits:** PNP transistors | | | |
| 19 | **16/1** | 31.08.2017 | Thermal compensation techniques. | | | |

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|---|---|---|---|---|---|---|
| 20 | **1/2** | 1/9/2017 | **Transistor at low frequencies:** BJT transistor modelling analysis | ,, | | |
| 21 | **2/2** | 4.09.2017 | CE fixed bias configuration, | | | |
| 22 | **3/2** | 6.09.2017 | voltage divider bias | ,, | | |
| 23 | **4/2** | 7.09.2017 | Emitter follower, CB configuration, | ,, | | |
| 24 | **5/2** | 8.09.2017 | Collector feedback configuration, | ,, | Assignment-02 | |
| 25 | **6/2** | 9.09.2017 | h – parameter model, Relation between h – parameters model of CE, CC, CB models, | ,, | | |
| 26 | **7/2** | 11.09.2017 | Millers theorem and its dual. | ,, | | |
| 27 | **8/2** | 12.09.2017 | **Transistor frequency response:** General frequency considerations, Low frequency response | ,, | | |
| 28 | **9/2** | 13.09.2017 | Miller effect capacitance, High frequency response | ,, | | |
| 29 | **10/2** | 14.09.2017 | Multistage frequency effects. | ,, | | |
| 30 | **11/2** | 15.09.2017 | Problems | ,, | | |
| 31 | **12/2** | 16.09.2017 | Problems | ,, | | |
| 32 | **1/3** | 22.09.2017 | **Multistage amplifiers:** Cascade connections | ,, | | |
| 33 | 2/3 | 23.09.2017 | Cascade Connections. | ,, | | |
| 34 | 3/3 | 21.09.2017 | Darlington circuits, | ,, | | |
| 35 | 4/3 | 25.09.2017 | Analysis and design. | ,, | | |

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| 36 | **5/3** | 26.09.2017 | **Feedback amplifiers:** Feedback concept, | ,, | Assignment-03 | |
| 37 | **6/3** | 27.09.2017 | Different types of feedback Circuits | ,, | | |
| 38 | **7/3** | 28.09.2017 | Different types of feedback Circuits | ,, | | |
| 39 | **8/3** | 3.10.2017 | Practical feedback circuits | ,, | | |
| 40 | **9/3** | 4.10.2017 | Analysis and design of feedback circuits. | ,, | | |
| 41 | **10/3** | 6.10.2017 | Problems | | | |
| 42 | **11/3** | 7.10.2017 | Problems | | | |
| 43 | **1/4** | 9.10.2017 | **Power amplifiers**: Amplifier types, | | | |
| 44 | **2/4** | 10.10.2017 | Analysis and design of different Power amplifiers | | | |
| 45 | **3/4** | 11.10.2017 | Analysis and design of different Power amplifiers | | | |
| 46 | **4/4** | 12.10.2017 | Analysis and derivation of frequency of oscillation of phase shift oscillator, | | | |
| 47 | **5/4** | 13.10.2017 | Wien bridge oscillator, | | Assignment-04 | |
| 48 | **6/4** | 14.10.2017 | RF oscillator | | | |
| 49 | **7/4** | 16.10.2017 | Crystal oscillator | | | |
| 50 | **8/4** | 17.10.2017 | Frequency stability of oscillators | | | |
| 51 | **9/4** | 19.10.2017 | Problems | | | |
| 52 | **10/4** | 21.10.2017 | Problems | | | |
| 53 | **11/4** | 23.10.2017 | Problems | | | |
| 54 | **1/5** | 24.10.2017 | **FETs:** Construction | | | |

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| 55 | **2/5** | 25.10.2017 | Working and characteristics of JFET | | | |
| 56 | 3/5 | 26.10.2017 | Working and characteristics of MOSFET | | | |
| 57 | 4/5 | 27.10.2017 | Biasing of JFET (Only common source configuration with fixed bias) | | | |
| 58 | 5/5 | 28.10.2017 | Biasing of MOSFET(Only common source configuration with fixed bias), Analysis and design | | Assignment-05 | |
| 59 | 6/5 | 29.10.2017 | MOSFET amplifiers. | | | |
| 60 | 7/5 | 30.10.2017 | Problems | | | |
| 61 | 8/5 | 2.11.2017 | Problems | | | |
| 62 | 9/5 | 3.11.2017 | Problems | | | |
| 63 | 10/5 | 4.11.2017 | Problems | | | |

Signature of faculty Signature of HOD Signature of Principal

# ECA

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**CMR INSTITUTE**

**OF TECHNOLOGY**

Session wise – Course Plan

**Department of Electrical & Electronics Engg**

SEMESTER : III

BRANCH : EEE

SUBJECT : ECA

SUBJECT CODE : 15EE32

NO OF HRS/WK : 6

NAME OF THE FACULTY : Ms. Reba Kundu

DATE OF COMMENCEMENT : 07.08.2017

DATE OF CLOSING : 21.11.2017

CLASS STRENGTH : 90

TOTAL HOURS : 63

| Session No | Chapter no (No of hrs planed for the chapter) | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|---|---|---|---|---|---|---|
| **1** | 1/6 | 7/8/2017 | Introduction, Practical Sources &ideal Sources | Board & chalk | Prerequisite Assignme | |

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| | | | | | nt | |
| 2 | 1/6 | 8/8/2017 | Source transformation &problems | ,, | | |
| 3 | 1/6 | 9/8/2017 | problems | ,, | | |
| 4 | 1/6 | 10/8/2017 | Network Reduction transformation &problems | ,, | | |
| 5 | 1/6 | 11/8/2017 | problems | ,, | | |
| 6 | 1/6 | 12/8/2017 | problems | ,, | Assignment- I | |
| 7 | 1/6 | 14/8/2017 | problems | ,, | | |
| 8 | 2/6 | 16/8/2017 | Loop Analysis with linearly independent sources for DC &AC | ,, | | |
| 9 | 2/6 | 17/8/2017 | Loop Analysis with linearly dependent sources for DC &AC | ,, | | |
| 10 | 2/6 | 18/8/2017 | Loop Analysis with linearly independent sources for DC &AC | ,, | | |
| 11 | 2/6 | 19/8/2017 | problems | ,, | | |
| 12 | 2/6 | 21/8/2017 | problems | ,, | | |
| 13 | 2/6 | 22/8/2017 | Node Analysis with linearly in dependent sources for Ac | ,, | | |
| 14 | 2/6 | 23/8/2017 | problems | ,, | | |
| 15 | 2/6 | 24/8/2017 | problems | ,, | Assignment -II | |
| 16 | 3 &4 /14 | 28/8/2017 | problems | ,, | | |
| 17 | 3 &4 /14 | 29/8/2017 | Loop and nodal Analysis with linearly dependant sources for DC& AC | ,, | | |
| 18 | 3 &4 /14 | 29/8/2017 | Loop and nodal Analysis with | ,, | | |

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| | | | linearly dependant sources for DC& AC | | | |
| 19 | 3 &4 /14 | 30/8/2017 | problems | ,, | | |
| 20 | 3 &4 /14 | 30/8/2017 | Concepts of super node and super mesh | ,, | | |
| 21 | 3 &4 /14 | 31/8/2017 | problems | ,, | | |
| 22 | 3 &4 /14 | 31/8/2017 | problems | ,, | Assignment –III | |
| 23 | 3 &4 /14 | | Shift transformations | ,, | | |
| 24 | 3 &4 /14 | 1/9/2017 | problems | ,, | | |
| 25 | 3 &4 /14 | 4/9/2017 | Principle of duality | ,, | | |
| 26 | 3 &4 /14 | 5/9/2017 | Principle of duality | ,, | | |
| 27 | 3 &4 /14 | 6/9/2017 | Resonant ckt series and parallel resonance | ,, | | |
| 28 | 3 &4 /14 | 7/9/2017 | Resonant ckt series and parallel resonance | ,, | Assignmnt –IV | |
| 29 | 3 &4 /14 | 8/9/2017 | Frequency response Qfactor bandwidth | ,, | | |
| 30 | 3 &4 /14 | 9/9/2017 | Problems | ,, | | |
| 31 | 3 &4 /14 | 11/9/2017 | Super position theorem | ,, | | |
| 32 | 5 & 6/12 | 12/9/2017 | Problems | ,, | | |
| 33 | 5 & 6/12 | 13/9/2017 | Reciprocity theorem | ,, | | |
| 34 | 5 & 6/12 | 14/9/2017 | Problems | ,, | Assignment -V | |

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|---|---|---|---|---|---|---|
| 35 | 5 & 6/12 | 15/9/2017 | Problems | ,, | | |
| 36 | 5 & 6/12 | 16/9/2017 | Millman's theorem | ,, | | |
| 37 | 5 & 6/12 | 22/9/2017 | Problems | ,, | | |
| 38 | 5 & 6/12 | 3/10/2017 | Thevenin's Theorem | ,, | | |
| 39 | 5 & 6/12 | 4/10/2017 | Problems | ,, | | |
| 40 | 5 & 6/12 | 4/10/2017 | Norton's Theorem | ,, | | |
| 41 | 5 & 6/12 | 6/10/2017 | Problems | ,, | | |
| 42 | 5 & 6/12 | 7/10/2017 | Problems | ,, | Assignment -VI | |
| 43 | 5 & 6/12 | 9/10/2017 | Max Power Transfer Theorem | ,, | | |
| 44 | 5 & 6/12 | 10/10/2017 | Problems | ,, | | |
| 45 | 5 & 6/12 | 11/10/2017 | Behavior of circuit elements and their representation | ,, | | |
| 46 | 7 & 8 /14 | 12/10/2017 | Evaluation of initial and final condn RL for Dc | ,, | | |
| 47 | 7 & 8 /14 | 13/10/2017 | Transient analysis of dc circuits by classical method for unit step input only. | ,, | | |
| 48 | 7 & 8 /14 | 14/10/2017 | Behaviour of circuit elements under switching<br>Action at $t = 0_-$ and $t = \infty_-$. | ,, | Assignment -VII | |
| 49 | 7 & 8 /14 | 16/10/2017 | Evaluation of initial conditions. | ,, | | |
| 50 | 7 & 8 /14 | 17/10/2017 | Problems | ,, | | |
| 51 | 7 & 8 /14 | 19/10/2017 | Problems | ,, | | |
| 52 | 7 & 8 /14 | 21/10/2017 | Laplace transformation (LT), LT of Impulse function | ,, | | |
| 53 | 7 & 8 /14 | 23/10/2017 | LT of Impulse function<br>Step, Ramp, | ,, | | |

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| | | | Sinusoidal signals and shifted functions | | | |
| 54 | 7 & 8 /14 | 24/10/2017 | Waveform synthesis. Initial and Final value theorems. | ,, | | |
| 55 | 7 & 8 /14 | 25/10/2017 | Laplace Transform of network and time domain solution for RL, RC and RLC networks dc excitations. | ,, | | |
| 56 | 7 & 8 /14 | 26/10/2017 | Laplace Transform of network and time domain solution for RL, RC and RLC networks for ac excitations | ,, | Assignment -VIII | |
| 57 | 7 & 8 /14 | 27/10/2017 | Problems | ,, | | |
| 58 | 7 & 8 /14 | 28/10/2017 | **Unbalanced Three phase systems:** Analysis of three phase systems, calculation of real and reactive powers | ,, | | |
| 59 | 7 & 8 /14 | 29/10/2017 | **Two Port networks:** Definition, Open circuit impedance, Short circuit admittance and Transmission parameters and their evaluation for simple circuits | ,, | | |
| 60 | 7 & 8 /14 | 30/10/2016 | Network functions of one port and two port networks, Properties of poles and zeros of network functions. | ,, | | |
| 61 | 7 & 8 /14 | 2/11/2017 | **Complex Wave analysis:** Analysis of simple circuits with non-sinusoidal excitation | ,, | | |
| 62 | 7 & 8 /14 | 3/11/2017 | Problems | ,, | | |
| 63 | 7 & 8 /14 | 4/11/2017 | Problems | ,, | | |

Signature of faculty Signature of HOD Signature of Principal

# T&G

*#132, AECS Layout, IT Park Road, Kundalahalli, Bangalore – 560 037*

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**CMR INSTITUTE**

**OF TECHNOLOGY**

Session wise – Course Plan

**Department of Electrical And Electronics Engg**

SEMESTER : III NAME OF THE FACULTY : Ms. T Aruna Kumari

BRANCH : EEE DATE OF COMMENCEMENT : 07.08.2017

SUBJECT : Transformers and Generators

DATE OF CLOSING : 25.11.2017

SUBJECT CODE: 15EE33 CLASS STRENGTH : 45

NO OF HRS/WK : 5 TOTAL HOURS : 56

| Session No | Chapter no (No of hrs planed for the chapter) | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|---|---|---|---|---|---|---|
| 1 | **1/20** | 7/8/17 | Intro to subject | Chalk and talk | Assignment-I | |

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|---|---|---|---|---|---|---|
| 2 | **2/20** | 8/8/17 | **Single phase Transformers:** Review of Magnetically coupled circuit, Principle of<br>operation, Constructional details of shell type and core type single-phase transformers, EMF<br>equation, | ,, | | |
| 3 | **3/20** | 9/8/17 | Losses and commercial efficiency, Conditions for maximum efficiency (No<br>question shall be set from the review portion). | ,, | | |
| 4 | **4/20** | 10/8/17 | Salient features of ideal transformer, Operation of practical transformer under no – load | ,, | | |
| 5 | **5/20** | 11/8/17 | Winding resistance, leakage reactance,referred values<br>Equivalent circuit, | ,, | | |
| 6 | **6/20** | 14/8/17 | on - load with phasor diagrams. | ,, | | |
| 7 | **7/20** | 16/8/17 | Open circuit and Short circuit tests,<br>Calculation of equivalent circuit parameters and predetermination of efficiency- | ,, | | |
| 8 | **8/20** | 17/8/17 | Numerical on OC SC test | ,, | | |
| 9 | **9/20** | 18/8/17 | Commercial and all-day efficiency. Voltage regulation and | ,, | | |

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| | | | its significance. | | | |
| 10 | **10/20** | 19/8/17 | Numerical on all day efficiency | ,, | | |
| 11 | **11/20** | 22/8/17 | **Three-phase Transformers:** Introduction, Constructional features of three-phase transformers. | ,, | Assignment-II | |
| 12 | **12/20** | 23/8/17 | Choice between single unit three-phase transformer and a bank of three | ,, | | |
| 13 | **13/20** | 24/8/17 | Single-phase transformers. Transformer connection for three phase operation – Star/Star, Delta/Delta, | ,, | | |
| 14 | **14/20** | 28/8/17 | Star/Delta, Zigzag/star and | ,, | | |
| 15 | **15/20** | 29/8/17 | V/V, Choice of connection | ,, | | |
| 16 | **16/20** | 31/8/17 | Phase conversion - Scott connection for three-phase to two-phase conversion. | ,, | | |
| 17 | **17/20** | 1/9/17 | Numerical on 3-phase trans | ,, | | |
| 18 | **18/20** | 4/9/17 | Numerical on 3-phase trans | ,, | | |
| 19 | **19/20** | 5/9/17 | Labeling of three-phase transformer terminals, Vector groups | ,, | | |
| 20 | **20/20** | 6/9/17 | Equivalent circuit of three phase transformers | ,, | | |
| 21 | **1/8** | 8/9/17 | **Parallel Operation of Transformers:** Necessity of | ,, | Assignme | |

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|---|---|---|---|---|---|---|
| | | | Parallel operation, Conditions for<br>parallel operation – Single phase and three phase, | | nt-III | |
| 22 | **2/8** | 9/9/17 | Load sharing in case of similar and dissimilar transformers. | ,, | | |
| 23 | **3/8** | 11/9/17 | **Auto transformers and Tap changing transformers:** Introduction to auto transformer -<br>copper economy, Equivalent circuit, | ,, | Assignment-IV | |
| 24 | **4/8** | 12/9/17 | Three phase auto transformer connection and voltage regulation. Voltage regulation by tap changing – off circuit and on load. | ,, | | |
| 25 | **5/8** | 13/9/17 | **Tertiary winding Transformers:** Necessity of tertiary winding, Equivalent circuit and voltage regulation,. | ,, | Assignment-V | |
| 26 | **6/8** | 15/9/17 | Tertiary winding in star/star transformers, Rating of tertiary winding | ,, | | |
| 27 | **7/8** | 22/9/17 | NUmericals | ,, | | |
| 28 | **8/8** | 23/9/17 | Numericals | ,, | | |
| 29 | **1/11** | 25/9/17 | Cause and effects of harmonics, | ,, | | |
| 30 | **2/11** | 26/9/17 | Current inrush in<br>transformers, | ,, | | |
| 31 | **3/11** | 28/9/17 | Noise in transformers. Objects of testing transformers, Polarity | ,, | | |

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| | | | test,<br>Sumpner's test. | | | |
| 32 | **4/11** | 3/10/17 | **Direct current Generator –** Review of construction, Types, Armature windings, Relation<br>between no load and terminal voltage (No question shall be set from the review portion).. | PPt | Assignment-VI | |
| 33 | **5/11** | 4/10/17 | Armature reaction, Commutation and associated problems, | Chalk and talk | | |
| 34 | **6/11** | 6/10/17 | No load and full load<br>characteristics | ,, | | |
| 35 | **7/11** | 7/10/17 | **Synchronous generators-** Review of construction and operation of salient & non-salient<br>pole synchronous generators (No question shall be set from the review portion). | PPT | Assignment-VII | |
| 36 | **8/11** | 10/10/17 | Armature windings, Winding factors, Emf equation. Harmonics – causes, Reduction and elimination. | Chalk and talk | | |
| 37 | **9/11** | 11/10/17 | Armature reaction, Synchronous reactance, Equivalent circuit | ,, | | |
| 38 | **10/11** | 12/10/17 | NUM | ,, | | |
| 39 | **11/11** | 13/10/17 | NUM | ,, | | |
| 40 | **1/9** | 14/10/17 | **Synchronous generators (continuation):** Generator load characteristic. Voltage<br>regulation, | ,, | Assignment-VIII | |

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| 41 | **2/9** | 17/10/17 | Excitation control for constant terminal voltage. Generator input and output. | ,, | | |
| 42 | **3/9** | 17/10/17 | Parallel operation of generators and load sharing. | ,, | | |
| 43 | **4/9** | 23/10/17 | Synchronous generator on infinite busbars – General load diagram, O – curves | ,, | | |
| 44 | **5/9** | 24/10/17 | V – curves. Power angle characteristic and synchronizing power. | ,, | | |
| 45 | **6/9** | 25/10/17 | Effects of saliency, Two-reaction theory, | ,, | | |
| 46 | **7/9** | 26/10/17 | Direct and Quadrature reactance, Power angle diagram, Reluctance power, Slip test | ,, | | |
| 47 | **8/9** | 28/10/17 | NUM | ,, | | |
| 48 | **9/9** | 30/10/17 | NUM | ,, | | |
| 49 | **1/9** | 31/10/17 | **Synchronous generators (continuation):** Open circuit and short circuit characteristics, | ,, | Assignment-IX | |
| 50 | **2/9** | 2/11/17 | Assessment of reactance- Short Circuit Ratio, Synchronous reactance, | ,, | | |
| 51 | **3/9** | 2/11/17 | Adjusted synchronous reactance | ,, | | |
| 52 | **4/9** | 3/11/17 | and Potier reactance. Voltage regulation by EMF, MMF, ZPF and ASA methods. | ,, | | |
| 53 | **5/9** | 9/11/17 | NUM | ,, | | |
| 54 | **6/9** | 10/11/17 | NUM | ,, | | |

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| 55 | **7/9** | 13/11/17 | **Performance of synchronous generators:** Capability curve for large turbo generators and<br>salient pole generators | ,, | Assignment-X | |
| 56 | **8/9** | 14/11/17 | . Starting, Synchronizing and control. | ,, | | |
| 57 | **9/9** | 15/11/17 | Hunting and dampers | ,, | | |

Signature of faculty Signature of HOD Signature of Principal

# DSD

*#132, AECS Layout, IT Park Road, Kundalahalli, Bangalore – 560 037*

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**CMR INSTITUTE**

**OF TECHNOLOGY**

**Session wise – Course Plan**

**Department of Electrical And Electronics Engg**

**SEMESTER : III** **NAME OF THE FACULTY : Ms.Anju Das**

**BRANCH : EEE** **DATE OF COMMENCEMENT : 07.08.2017**

**SUBJECT : DSD** **DATE OF CLOSING : 21.11.2016**

**SUBJECT CODE : 15EE35** **CLASS STRENGTH : 120**

**NO OF HRS/WK : 5** **TOTAL HOURS : 50**

| Session No | Chapter no (No of hrs planed for the chapter) | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|---|---|---|---|---|---|---|
| 1 | 1/10 | 08.08.17 | Review of Boolean Algebra | Board & chalk | Prerequisite Assignment | |
| 2 | 2/10 | 10.08.17 | Definition of combinational, Canonical forms | ,, | | |
| 3 | 3/10 | 11.08.17 | Generation of switching equations from truth | ,, | | |

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| | | | tables, | | | |
| 4 | 4/10 | 11.08.17 | K-Map 3 variable | ,, | | |
| 5 | 5/10 | 12.08.17 | K-Map 4 variable | ,, | Assignment- I | |
| 6 | 6/10 | 16.08.17 | K-Map 5 variable | ,, | | |
| 7 | 7/10 | 18.08.17 | Incompletely specified functions | ,, | | |
| 8 | 8/10 | 19.08.17 | Simplifying max - term equations | | | |
| 9 | 9/10 | 19.08.17 | Quine -McClusky minimization technique | ,, | | |
| 10 | 10/10 | 21.08.17 | Quine - McClusky using don't care terms, Reduced Prime Implicant tables, Map entered variables | ,, | | |
| 11 | 1/10 | 23.08.17 | Analysis and design of Combinational Logic: General approach | ,, | | |
| 12 | 2/10 | 28.08.17 | Decoders BCD decoders, | ,, | Assignment -II | |
| 13 | 3/10 | 29.08.17 | Encoders. | ,, | | |
| 14 | 4/10 | 29.08.17 | Digital multiplexers | ,, | | |
| 15 | 5/10 | 30.08.17 | Digital multiplexers-using multiplexers as Boolean function generators | | | |
| 16 | 6/10 | 01.09.17 | Adders and Subtractors- | | | |
| 17 | 7/10 | 05.09.17 | Cascading full adders | | | |
| 18 | 8/10 | 06.09.17 | Look ahead carry Adders | ,, | | |
| 19 | 9/10 | 06.09.17 | Binary comparators | ,, | Assignment –III | |

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|---|---|---|---|---|---|---|
| 20 | 10/10 | 07.09.17 | Design methods of building blocks of combinational logics | ,, | | |
| 21 | 1/10 | 09.09.17 | Sequential Circuits: Basic Bistable element, Latches | ,, | | |
| 22 | 2/10 | 12.09.17 | SR latch, Application of SR latch | ,, | | |
| 23 | 3/10 | 13.09.17 | Switch debouncer. The SR latch, The gated SR latch | | | |
| 24 | 4/10 | 13.09.17 | The gated D Latch, The Master-Slave Flip-Flops (Pulse-Triggered Flip-Flops): | | | |
| 25 | 5/10 | 14.09.17 | The master-slave SR Flip-Flops, The master-slave JK Flip-Flop, | ,, | | |
| 26 | 6/10 | 22.09.17 | Edge Triggered Flip-flop: The Positive Edge-Triggered D Flip-Flop, Negative-Edge Triggered D Flip-Flop. | ,, | Assignment –IV | |
| 27 | 7/10 | 25.09.17 | Characteristic equations, Registers, | ,, | | |
| 28 | 8/10 | 26.09.17 | Counters-Binary Ripple Counter, Synchronous Binary counters | ,, | | |
| 29 | 9/10 | 26.09.17 | Counters based on Shift Registers, | ,, | | |
| 30 | 10/10 | 27.09.17 | Design of a Synchronous counters, Design of a Synchronous Mod-N counters using clocked JK Flip-Flops Design of a Synchronous Mod-N counter using clocked D, T, or SR Flip-Flops. | ,, | | |

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|---|---|---|---|---|---|---|
| 31 | 1/10 | 03.10.17 | Sequential Design: Introduction | ,, | | |
| 32 | 2/10 | 06.10.17 | Mealy and Moore models | ,, | | |
| 33 | 3/10 | 07.10.17 | State machine notation, | | | |
| 34 | 4/10 | 07.10.17 | synchronous sequential circuit analysis and design | ,, | | |
| 35 | 5/10 | 09.10.17 | Construction of state Diagrams | ,, | Assignment -V | |
| 36 | 6/10 | 11.10.17 | Examples. | ,, | | |
| 37 | 7/10 | 13.10.17 | Examples. | ,, | | |
| 38 | 8/10 | 14.10.17 | Counters Design | ,, | | |
| 39 | 9/10 | 14.10.17 | Examples. | ,, | | |
| 40 | 10/10 | 16.10.17 | Examples. | ,, | | |
| 41 | 1/10 | 23.10.17 | HDL: Introduction | ,, | | |
| 42 | 2/10 | 25.10.17 | A brief history of HDL | ,, | | |
| 43 | 3/10 | 26.10.17 | Structure of HDL Module | ,, | | |
| 44 | 4/10 | 26.10.17 | Operators, | ,, | | |
| 45 | 5/10 | 27.10.17 | Data types, | ,, | Assignment -VI | |
| 46 | 6/10 | 30.10.17 | Types of Descriptions | ,, | | |
| 47 | 7/10 | 02.11.17 | Simulation and synthesis | ,, | | |
| 48 | 8/10 | 03.11.17 | Brief comparison of VHDL and Verilog. | ,, | Assignment -VII | |

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|---|---|---|---|---|---|---|
| 49 | 9/10 | 04.11.17 | Data-Flow Descriptions: Highlights of Data flow descriptions | | | |
| 50 | 10/10 | 10.11.17 | Structure of data-flow Description, Data type-vectors. | ,, | | |
| 51 | 1/10 | 14.11.17 | Examples | ,, | | |
| 52 | 2/10 | 15.11.17 | Revision | ,, | | |
| 53 | 3/10 | 15.11.17 | Revision | " | | |
| 54 | 4/10 | 16.11.17 | Revision | ,, | | |

**Signature of faculty** **Signature of HOD** **Signature of Principal**

# EEM

*#132, AECS Layout, IT Park Road, Kundalahalli, Bangalore – 560 037*

*T:+9180 28524466 / 77*

**CMR INSTITUTE**

**OF TECHNOLOGY**

Session wise – Course Plan

**Department of Electrical and Electronics Engineering**

SEMESTER : III

BRANCH : EEE

SUBJECT : EEM

SUBJECT CODE : 15EE36

NO OF HRS/WK : 5

NAME OF THE FACULTY : Sudhakar Vitta

DATE OF COMMENCEMENT : 07.08.2016

DATE OF CLOSING : 25.11.2016

CLASS STRENGTH : 55+55

TOTAL HOURS : 55

| Session No | Chapter no/ (No of hrs planed for the chapter) | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered as per plan |
|---|---|---|---|---|---|---|
| 1 | **1/5** | 07-08-2017 | Introduction to Electrical & Electronic Measuremente | Board, chalk, duster | | |
| 2 | **2/5** | 08-08-2017 | Directed lines as Vectors,Complex numbers and Phasors (Complexors). | ,, | | |

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|---|---|---|---|---|---|---|
| 3 | **3/5** | 09-08-2017 | Complex impedance; Phasors & the corresponding wave-forms w.r.t. time; Phasor diagrams. | ,, | | |
| 4 | **4/5** | 11-08-2017 | Introduction to theorems | ,, | | |
| 5 | **5/5** | 12-08-2017 | Introduction to bridge circuits | ,, | Prerequisite Assignment | |
| 6 | **1/10** | 14-08-2017 | **Module 1:**<br>**Units & Dimensions**: Review of fundamental and derived units, SI units | ,, | | |
| 7 | **2/10** | 16-08-2017 | Dimensional Equations; Problems | ,, | | |
| 8 | **3/10** | 17-08-2017 | **Measurement of Resistance**: Wheatstone's Bridge | ,, | | |
| 9 | **4/10** | 19-08-2017 | Sensitivity; Limitations | ,, | | |
| 10 | **5/10** | 21-08-2017 | Kelvin's double bridge, Problems | ,, | | |
| 11 | **6/10** | 22-08-2017 | Earth Resistance Measurement and by Fall of Potential Method and by using Megger | ,, | | |
| 12 | **7/10** | 23-08-2017 | **Measurement of Inductance & Capacitance**:<br>Sources and detectors | ,, | | |
| 13 | **8/10** | 24-08-2017 | Maxwell's inductance bridge, Maxwell's inductance and capacitance bridge | ,, | | |
| 14 | **9/10** | 29-08-2017 | Hay's bridge, Anderson's bridge | ,, | | |
| 15 | **10/10** | 30-08-2017 | De Sauty's bridge, Schering bridge. Shielding of bridges, problems | ,, | Assignment- I | |
| Session No | Chapter no/ (No of hrs planed for the chapter) | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered as per plan |
| 16 | **1/10** | 31-08-2017 | **Module 2:**<br>**Measurement of Power, P.F. and Frequency**<br>Dynamometer wattmeter, Construction and | Board, chalk, duster | | |

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| | | | Operation | | | |
| 17 | **2/10** | 01-09-2017 | Torque Expression | ,, | | |
| 18 | **3/10** | 04-09-2017 | Errors and minimization | ,, | | |
| 19 | **4/10** | 06-09-2017 | UPF and LPF wattmeters | ,, | | |
| 20 | **5/10** | 07-09-2017 | Measurements of real and reactive power in 3 phase circuits | ,, | | |
| 21 | **6/10** | 08-09-2017 | Construction and operation of electro-dynamometer single phase power factor | ,, | | |
| 22 | **7/10** | 09-09-2017 | Review of Induction type energy meter:<br>construction and operation | ,, | | |
| 23 | **8/10** | 11-09-2017 | Errors, adjustments and calibration of single and three phase energy meters, Problems. | ,, | | |
| 24 | **9/10** | 13-09-2017 | Construction and Operation of 1 phase & 3 phase dynamometer type power factor meter | ,, | | |
| 25 | **10/10** | 14-09-2017 | Weston frequency meter and Phase Sequence Indicator | ,, | Assignment -II | |
| 26 | **1/10** | 15-09-2017 | **<u>Module 3</u>:**<br>**Extension of Instrument Ranges**<br>Desirable features of ammeters and voltmeters<br>Shunts and Multipliers | Board,<br>chalk,<br>duster | | |
| 27 | **2/10** | 22-09-2017 | Construction and theory of Instrument Transformers, Desirable characteristics | ,, | | |
| 28 | **3/10** | 23-09-2017 | Errors of CT and PT (Equations for ratio and phase angle errors) | ,, | | |
| 29 | **4/10** | 26-09-2017 | Turns compensation, Illustrative example | ,, | | |
| 30 | **5/10** | 27-09-2017 | Silsbee's method of testing CT | ,, | | |
| 31 | **6/10** | 28-09-2017 | **Magnetic Measurements:** Introduction, Measurement of flux | ,, | | |

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| 32 | **7/10** | 03-10-2017 | Measurement of flux density, Magnetizing force and leakage factor. | ,, | | |
| 33 | **8/10** | 04-10-2017 | Hopkinson permeameter | ,, | | |
| 34 | **9/10** | 07-10-2017 | Measurement of iron loss by Wattmeter Method. | ,, | | |
| 35 | **10/10** | 09-10-2017 | A brief discussion on measurement of air gap flux and field strength. | ,, | Assignmnt –III | |
| Session No | Chapter no/ (No of hrs planed for the chapter) | DATE | Topics planned for the session | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered as per plan |
| 36 | **1/10** | 10-10-2017 | **<u>Module 4</u>:**<br>**Electronic and Digital Instruments:**<br>Introduction, Essentials of electronic instruments, Advantages of electronic instruments. | Board,<br>chalk,<br>duster | | |
| 37 | **2/10** | 11-10-2017 | True rms reading voltmeter. | ,, | | |
| 38 | **3/10** | 12-10-2017 | Electronic multimeters | ,, | | |
| 39 | **4/10** | 14-10-2017 | Digital voltmeters (DVM) - Ramp type DVM, | ,, | | |
| 40 | **5/10** | 16-10-2017 | Integrating type DVM, | ,, | | |
| 41 | **6/10** | 17-10-2017 | Continuous – balance DVM | ,, | | |

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|---|---|---|---|---|---|---|
| 42 | **7/10** | 23-10-2017 | Successive - approximation DVM. | ,, | | |
| 43 | **8/10** | 24-10-2017 | Q meter. | ,, | | |
| 44 | **9/10** | 26-10-2017 | Principle of working of electronic<br>energy meter (block diagram treatment), | ,, | | |
| 45 | **10/10** | 27-10-2017 | Extra features offered by present day meters and their significance in billing. | ,, | Assignment -IV | |
| 46 | **1/10** | 28-10-2017 | **Module 5**:<br>**Display Devices:**<br>Introduction, Character formats | Board,<br>chalk,<br>duster | | |
| 47 | **2/10** | 30-10-2017 | Segment displays, Dot matrix displays, Bar graph displays. Cathode ray tubes, | ,, | | |
| 48 | **3/10** | 31-10-2017 | Light emitting diodes, Liquid crystal displays | ,, | | |
| 49 | **4/10** | 03-11-2017 | Nixes, Incandescent, Fluorescent, Liquid vapour and Visual displays, Display multiplexing and zero suppression. | ,, | | |
| 50 | **5/10** | 04-11-2017 | **Recording Devices**: Introduction, Strip chart recorders, Galvanometer recorders, Null balance recorders, | ,, | Assignment -V | |
| 51 | **6/10** | 09-11-2017 | Potentiometer type recorders, Bridge type recorders, LVDT type<br>recorders | ,, | | |
| 52 | **7/10** | 10-11-2017 | Circular chart and X_Y recorders. Magnetic tape recorders, Direct recording, | ,, | | |
| 53 | **8/10** | 13-11-2017 | Frequency modulation recording, Pulse duration modulation recording, Digital tape recording | ,, | | |
| 54 | **9/10** | 15-11-2017 | Ultraviolet recorders. Biomedical recorders, Electro Cardio Graph(ECG) | ,, | | |
| 55 | **10/10** | 16-11-2017 | Electroencephalograph, Electromyography. Noise in reproduction | ,, | | |

Signature of faculty Signature of HOD Signature of Principal