

TENTATIVE LESSON PLAN: R1922041
ELECTRONIC CIRCUIT ANALYSIS

| | | |
|--|------------------------------|---------------------------|
| Course Title: Electronic Circuit Analysis | | |
| Section : Sec A & B | Date : 22-03-2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By : B. Ravi | Approved By : HOD |

Tools: Black Board, Micro Soft Teams App (Online Class)

| No. of Periods | TOPIC | Date | Mode of Delivery |
|--|--|--|--|
| UNIT-I Small Signal High Frequency Transistor Amplifier models | | | |
| CO1: Able to and analysis of small signal high frequency transistor amplifier using BJT and FET | | | |
| T1: Integrated Electronics- J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. | | | |
| T2: Electronic Circuit Analysis- S. Salivahanan, N. Suresh Kumar, Tata Mc-Graw Hill, Second Edition | | | |
| 1 | Amplifier Revision | From: 22-03-2021 To: 20-4-2021 | Lecture Interspersed With Micro Soft Teams App and discussions |
| 2 | Problems on Amplifier | | |
| 3 | Millers theorem | | |
| 4 | Transistor at high frequencies | | |
| 5 | Hybrid- π common emitter transistor model | | |
| 6 | Hybrid π conductance's | | |
| 7 | Hybrid π capacitances | | |
| 8 | Validity of hybrid π model | | |
| 9 | CE short circuit current gain | | |
| 10 | Current gain with resistive load | | |
| 11 | Frequency response | | |
| 12 | Gain bandwidth product | | |
| 13 | CS an CD Amplifier circuit at high frequencies | | |
| UNIT-II Multi Stage Amplifiers | | | |
| CO2: Able to Design and analysis of multi stage amplifiers using BJT and FET and Differential amplifier using BJT | | | |
| T1: Integrated Electronics- J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. | | | |
| T2: Electronic Circuit Analysis- S. Salivahanan, N. Suresh Kumar, Tata Mc-Graw Hill, Second Edition | | | |
| 14 | Classification of amplifiers, method of coupling | From: 21-04-2021 To: 10-05-2021 | Lecture Interspersed With Micro Soft Teams App and discussions |
| 15 | Cascaded transistor amplifier and its analysis | | |
| 16 | Analysis of two stage RC coupled amplifier | | |
| 17 | Darlington pair amplifier | | |
| 18 | Boot-strap emitter follower | | |
| 19 | Cascode amplifier | | |
| 20 | Differential amplifier using BJT | | |
| 21 | Analysis of multi stage amplifiers using FET | | |
| UNIT-III Feedback Amplifiers | | | |
| CO3: Able to Design and analysis of feedback amplifiers using BJT | | | |
| T1: Integrated Electronics- J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. | | | |

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| T2: Electronic Circuit Analysis- S. Salivahanan, N. Suresh Kumar, Tata Mc-Graw Hill, Second Edition | | | |
| 22 | Feedback principle and concept | From: 11-05-2021 | Lecture Interspersed With Micro Soft Teams App and discussions |
| 23 | Feedback Types | | |
| 24 | Classification of amplifiers | | |
| 25 | Feedback topologies | | |
| 26 | Characteristics of negative feedback amplifiers | | |
| 27 | Generalized analysis of feedback amplifiers | | |
| 28 | Effect of feedback on i/p impedance | | |
| 29 | Effect of feedback on o/p impedance | | |
| 30 | Method of analysis of FB amplifiers | | |
| 31 | Problems | | |
| UNIT-IV Oscillators | | | |
| CO4: Able to Derive the expressions for frequency of oscillation and condition for oscillation of RC and LC oscillators | | | |
| T1: Integrated Electronics- J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. | | | |
| T2: Electronic Circuit Analysis- S. Salivahanan, N. Suresh Kumar, Tata Mc-Graw Hill, Second Edition | | | |
| 32 | Oscillator Principle | From: 1-06-2021 | Lecture Interspersed With Micro Soft Teams App and discussions |
| 33 | Condition for oscillations | | |
| 34 | RC-phase shift oscillator with BJT | | |
| 35 | RC-phase shift oscillator with FET | | |
| 36 | Wein bridge oscillator | | |
| 37 | Generalized analysis of LC Oscillators | | |
| 38 | Hartley oscillator, colpitts oscillator | | |
| 38 | Hartley and Colpitts oscillator with JFET | | |
| 39 | Crystal oscillator | | |
| 40 | Frequency and amplitude stability | | |
| UNIT-V Power Amplifiers & Tuned Amplifiers | | | |
| CO5: Know the classification of the power amplifier and their analysis with performance comparison. Know the classification of the tuned amplifiers and their analysis | | | |
| T1: Integrated Electronics- J. Millman, C. Halkias, Tata Mc-Graw Hill, Second Edition. | | | |
| T2: Electronic Circuit Analysis- S. Salivahanan, N. Suresh Kumar, Tata Mc-Graw Hill, Second Edition | | | |
| 41 | Power Amplifiers: Classification of amplifiers | From: 15-06-2021 | Lecture Interspersed With Micro Soft Teams App and discussions |
| 42 | Efficiency | | |
| 43 | Class A power Amplifiers and their analysis | | |
| 44 | Harmonic Distortions | | |
| 45 | Class B amplifiers and their analysis | | |
| 46 | Class B Push-pull amplifiers and their analysis | | |
| 47 | Complementary symmetry push pull amplifier | | |
| 48 | Class -C power amplifier | | |
| 49 | Class AB power amplifier, Class-D amplifier | | |
| 50 | Thermal stability and Heat sinks | | |
| 51 | Tuned Amplifiers: Series and Parallel Resonance Circuits | | |
| 52 | Q-Factor | | |
| 53 | Capacitance single tuned amplifier | | |

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| 54 | Effect of cascading | | |
| 55 | Double tuned amplifiers | | |
| 56 | Staggered tuned amplifiers | | |

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TENTATIVE LESSON PLAN: R1922042
LINEAR CONTROL SYSTEMS

| | | |
|---|--|-------------------------|
| Course Title: LINEAR CONTROL SYSTEMS | | |
| Section : | Date: 22-03-2021 | Page No: 1 of 3 |
| Revision No: | Prepared by : Mr. K.SATYANARAYANA | Approved by :HOD |

Tools : MS Teams ,PPTs

| No.of periods | Topics | Date | Mode of Delivery |
|---|---|----------------------------|---|
| UNIT –I INTRODUCTION | | | |
| CO1: Understanding the concept of control systems,Representing Mechanical and Electrical Systems using Differential Equations and introduces the concepts of feedback and its advantages to various control systems. | | | |
| TB: I.J.Nagarath and M.Gopal, “ Control System Engineering,” New Age International Publishers, Fifth Edition | | | |
| 1 | Concept of System and Control System | 22.03.21 To 06.04.21 | Lecture interspersed with online MS Teams |
| 2 | Open loop and Closed loop Systems and Differences | | |
| 3 | Different examples of control systems | | |
| 4 | Feed-Back Characteristics, Effects of feedback | | |
| 5 | Mathematical models, Differential equations | | |
| 6 | Impulse Response and transfer functions | | |
| 7 | Translational mechanical systems | | |
| 8 | Problems | | |
| 9 | Rotational mechanical systems | | |
| 10 | Tutorial | | |
| UNIT-II TRANSFERFUNCTION REPRESENTATION & TIME RESPONSE ANALYSIS | | | |
| CO2: Obtaining Transfer Function of a servo motor and the performance metrics to design the control system in time-domain. | | | |
| TB:I.J.Nagarath and M.Gopal, “ Control System Engineering,” New Age International Publishers, Fifth Edition | | | |
| 11 | Transfer Function of DC Servo motor | 07.04.21 To 20.04.21 | Lecture interspersed with online MS Teams |
| 12 | Transfer Function of AC Servo motor | | |
| 13 | Synchro-transmitter and Receiver | | |
| 14 | Block diagram algebra | | |
| 15 | Block diagram representation of systemsconsidering electrical systems as examples | | |
| 16 | Problems | | |
| 17 | Problems | | |
| 18 | Representation by Signal flow graph | | |
| 19 | Reduction using mason’sgain formula | | |
| 20 | Problems | | |
| 21 | Standard test signals | | |
| 22 | Time response of first order systems, Characteristic Equation of Feedback control systems | | |
| 23 | Transient response of second order systems | | |

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| 24 | Transient response of second order systems | | |
| 25 | Problems | | |
| 26 | Time domain specifications | | |
| 27 | Steady state response | | |
| 28 | Steady state errors and error constants | | |
| 29 | Problems | | |
| 30 | Problems | | |
| UNIT-III STABILITY ANALYSIS IN S-DOMAIN & ROOT LOCUS TECHNIQUE | | | |
| CO3: Obtaining the location of roots of linear differential equations having real coefficients and commenting on stability. Locating roots in S-Domain and finding critical value of open-loop gain K for stability of system. | | | |
| TB: I.J. Nagarath and M. Gopal, "Control System Engineering," New Age International Publishers, Fifth Edition | | | |
| 31 | The concept of stability | 21.04.21 To 08.05.21 | Lecture interspersed with online MS Teams |
| 32 | Routh-Hurwitz Stability Criterion | | |
| 33 | Qualitative Stability and Conditional Stability | | |
| 34 | limitations of Routh's stability | | |
| 35 | Root locus concept | | |
| 36 | construction of root loci (Simple problems) | | |
| 37 | Problems | | |
| 38 | Problems | | |
| 39 | Problems | | |
| 40 | Tutorial | | |
| UNIT-IV FREQUENCY RESPONSE ANALYSIS | | | |
| CO4: Analyzing the stability of the system in frequency domain and obtaining frequency domain specifications. | | | |
| TB: I.J. Nagarath and M. Gopal, "Control System Engineering," New Age International Publishers, Fifth Edition | | | |
| 41 | Introduction | 14.05.21 To 08.06.21 | Lecture interspersed with online MS Teams |
| 42 | Correlation between time and frequency response | | |
| 43 | Bode diagrams | | |
| 44 | transfer function from the Bode Diagram | | |
| 45 | Phase margin and Gain margin | | |
| 46 | Stability Analysis from Bode Plots | | |
| 47 | Polar Plots | | |
| 48 | Problems | | |
| 49 | Problems | | |
| 50 | Nyquist Stability Criterion | | |
| 51 | Tutorial | | |
| 52 | Tutorial | | |
| 53 | Tutorial | | |
| UNIT-V CLASSICAL CONTROL DESIGN TECHNIQUES | | | |
| CO5: Compensating system performance using Lag, Lead and Lag-lead controllers and Analyzing the effect of proportionality controllers. | | | |
| TB: I.J. Nagarath and M. Gopal, "Control System Engineering," New Age International Publishers, Fifth Edition | | | |

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|----|--|----------------------------|--|
| 54 | Introduction to Compensation techniques | 09.06.21 To 30.06.21 | Lecture interspersed with online MS Teams |
| 55 | Lag compensator | | |
| 56 | problems | | |
| 57 | Lead compensator | | |
| 58 | Problems | | |
| 59 | Lag-Lead compensator | | |
| 60 | Problems | | |
| 61 | PID Controllers | | |
| 62 | Problems | | |
| 63 | Tutorial | | |
| 64 | Concepts of state, state variables and state model | | |
| 65 | state space representation of transfer function | | |
| 66 | Diagonalization | | |
| 67 | Solving the time invariant state equations | | |
| 68 | Tutorial | | |
| 69 | State Transition Matrix and it's Properties | | |
| 70 | Concepts of Controllability and Observability | | |
| 71 | Tutorial | | |
| 72 | Tutorial | | |

K. Patyowal
Signature of the Faculty

[Handwritten Signature]
PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

S. Sri Gowri
Signature of the HOD

TENTATIVE LESSON PLAN: R1922043 EM WAVES AND TRANSMISSION LINES

| | | |
|--|--------------------------------------|---------------------------|
| Course Title: EM WAVES AND TRANSMISSION LINES | | |
| Section: A & B | Date : 22/03/2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By : P.Koteswara Rao | Approved By : HOD |

Tools: MS Teams, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|---|---|--|----------------------------|
| UNIT-I TRANSMISSION LINES-I | | | |
| CO1 : Demonstrate and compute various parameters for transmission lines using either a smith chart or classical theory | | | |
| TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001. | | | |
| 1 | Types, Parameters | From: 22.03.2021 To: 16.04.2021 | Online Class with MS Teams |
| 2 | T & π equivalent circuits | | |
| 3 | Transmission Line Equations | | |
| 4 | Primary & Secondary Constants | | |
| 5 | Expression for Characteristic Impedance | | |
| 6 | Propagation Constant | | |
| 7 | Phase & group Velocities | | |
| 8 | Infinite Line Concepts | | |
| 9 | Lossless lines/Low Loss Characterization | | |
| 10 | Distortion – Condition for Distortion less lines and Minimum Attenuation | | |
| 11 | Loading - Types of Loading | | |
| 12 | Illustrative Problems | | |
| UNIT-II TRANSMISSION LINES-II | | | |
| CO2: Design matching networks for loaded transmission lines | | | |
| TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001. | | | |
| 13 | Input Impedance Relations, SC and OC Lines | From: 17.04.2021 To: 28.04.2021 | Online Class with MS Teams |
| 14 | Reflection Coefficient, VSWR | | |
| 15 | Low loss radio frequency lines | | |
| 16 | UHF Transmission lines | | |
| 17 | $\lambda/4$, $\lambda/2$, $\lambda/8$ Lines – Impedance Transformations | | |
| 18 | Smith Chart – Construction and Applications | | |
| 19 | Smith Chart – Construction and Applications | | |


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| 20 | Quarter wave transformer | From: 29.04.2021 | Online Class with MS Teams | |
| 21 | Single and Double Stub Matching | | | |
| 22 | Illustrative Problems | | | To: 01.05.2021 |
| UNIT-III ELECTROSTATICS | | | | |
| CO3: An in depth analysis of electro static fields with help of Coulomb's Law & Gauss Law | | | | |
| TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001 | | | | |
| 23 | Review of Coordinate System | From: 03.05.2021 | Online Class with MS Teams | |
| 24 | Coulomb's Law | | | |
| 25 | Electric Field Intensity, Electric Flux Density | | | |
| 26 | Gauss Law and Applications | | | |
| 27 | Electric Potential, Maxwell's Two Equations for ESF | | | |
| 28 | Energy Density, Illustrative Problems | | | |
| 29 | Convection and Conduction Currents | | | |
| 30 | Dielectric Constant, Continuity Equation, Relaxation Time | | | |
| 31 | Poisson's and Laplace's Equations | | | |
| 32 | Capacitance: Parallel Plate, Coaxial capacitors | | | |
| 33 | Illustrative Problems | | | To: 20.05.2021 |
| 34 | Illustrative Problems | | | |
| UNIT-IV MAGNETOSTATICS & MAXWELL EQUATIONS (TIME VARYING FIELD) | | | | |
| CO4: An in depth analysis of magneto static fields with help of Biot-Savart's Law and Ampere's Circuital Law & To Derive Maxwell Equations in Time Varying Fields. | | | | |
| TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001. | | | | |
| 35 | Biot-Savart Law, Ampere's Circuital Law and Applications | From: 22.05.2021 | Online Class with MS Teams | |
| 36 | Magnetic Flux Density, Maxwell Equations for MSF | | | |
| 37 | Magnetic Scalar and Vector Potentials | | | |
| 38 | Forces due to Magnetic Fields | | | |
| 39 | Ampere's Force Law, Inductances, Magnetic Energy | | | |
| 40 | Illustrative Problems | | | |
| 41 | Faraday's Law and Transformer emf | | | |
| 42 | Inconsistency of Ampere's Law | | | |
| 43 | Displacement Current Density | | | |
| 44 | Maxwell's Equations in Different Final Forms | | | |
| 45 | Conditions at Boundary Surface: Dielectric-Dielectric Interfaces | | | To: 10.06.2021 |
| 46 | Dielectric-Conductor Interfaces | | | |

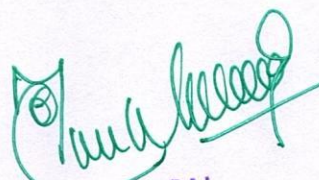
UNIT-V EM WAVE CHARACTERISTICS-I & II

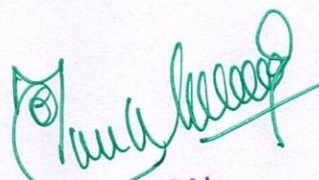
CO5: Interpret the effects of lossy and low loss dielectrics and conductors upon the propagation of electromagnetic waves, and predict this process in specific applications & Able to demonstrate the reflection and refraction of waves at boundaries.

TB: " Elements of Electromagnetics", Matthew N.O. Sadiku, Oxford Univ. Press, 3rd ed., 2001.

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| 47 | Wave Equations for Conducting and Dielectric Media | From: 11.06.2021 | To: 30.06.2021 | Online Class with MS Teams |
| 48 | Uniform Plane Waves – Definition, All Relations Between E & H, Sinusoidal Variations | | | |
| 49 | Wave Propagation in Lossy and Lossless Dielectrics | | | |
| 50 | Wave Propagation in free space | | | |
| 51 | Wave Propagation in good conductors | | | |
| 52 | Skin depth | | | |
| 53 | Polarization & Types | | | |
| 54 | Illustrative Problems | | | |
| 55 | Illustrative Problems | | | |
| 56 | Reflection and Refraction of Plane Waves | | | |
| 57 | Normal and Oblique Incidences for both Perfect Conductor and Perfect Dielectrics | | | |
| 58 | Brewster Angle, Critical Angle, Total Reflection | | | |
| 59 | Surface Impedance | | | |
| 60 | Poynting Vector , Poynting Theorem – Applications | | | |
| 61 | Power Loss in a Plane Conductor | | | |
| 62 | Illustrative Problems | | | |


Signature of Faculty


S Sri Gowri
Signature of HOD


PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN:R1922044
ANALOG COMMUNICATIONS

| | | |
|--|-------------------------------------|--------------------------|
| Course Title: ANALOG COMMUNICATIONS | | |
| Section : A & B | Date : 22.03.2021 | Page No : 1 to 4 |
| Revision No : 00 | Prepared By : T.Vishnu Priya | Approved By : HOD |

Tools: MS Teams, Black board, PPTs

| S.NO. | TOPIC | Date | Mode of Delivery |
|---|---|--|-------------------------------|
| UNIT-I INTRODUCTION TO COMMUNICATION SYSTEM | | | |
| CO1: Differentiate various Analog modulation and demodulation schemes and their spectral characteristics | | | |
| TB1: Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Edition, 2007. | | | |
| 1 | Introduction to communication system | From 22/03/2021 To 06/04/2021 | Online Class with MS Teams |
| 2 | Need for modulation | | |
| 3 | Frequency Division Multiplexing | | |
| 4 | Amplitude Modulation, Definition | | |
| 5 | Time domain and frequency domain description | | |
| 6 | Single tone modulation | | |
| 7 | Power relations in AM waves, | | |
| 8 | Generation of AM waves, Square law Modulator | | |
| 9 | Switching modulator | | |
| 10 | Detection of AM Waves, Square law detector Envelope detector | | |
| 11 | Tutorial | | |
| UNIT-II DSB & SSB MODULATION | | | |
| CO1: Differentiate various Analog modulation and demodulation schemes and their spectral characteristics | | | |
| TB1: Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Edition, 2007. | | | |
| 12 | DSB time domain and frequency domain description | From 07-04-2021 To 30-04-2021 | Online Class with MS Teams |
| 13 | Power relations, problems | | |
| 14 | Balanced Modulators | | |
| 15 | Ring Modulator | | |
| 16 | Coherent detection of DSB-SC Modulated waves | | |
| 17 | COSTAS Loop | | |
| 18 | Hilbert Transform | | |
| 19 | Pre-envelope, Band pass Signals | | |

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| 20 | Frequency domain description of SSB | | Online classes with MS Teams |
| 21 | Frequency discrimination method for SSB generation | | |
| 22 | Time domain description of SSB | | |
| 23 | Phase discrimination method of SSB Generation | | |
| 24 | Demodulation of SSB Waves, Frequency description of VSB | | |
| 25 | Generation of VSB Modulated wave, Time domain description | | |
| 26 | Phase discrimination method of VSB Generation, Envelope detection of a VSB | | |
| 27 | Comparison of AM Techniques, Applications of different AM Systems | | |
| 28 | Tutorial | | |

UNIT-III ANGLE MODULATION

CO1: Differentiate various Analog modulation and demodulation schemes and their spectral characteristics

TB1: Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Edition, 2007.

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| 29 | Basic concepts, Single tone frequency modulation | From 01-05-2021 To 08-05-2021 | Online classes with MS Teams |
| 30 | Problems | | |
| 31 | Narrow band FM, Wide band FM | | |
| 32 | Spectrum Analysis of Sinusoidal FM Wave | | |
| 33 | Constant Average Power, Transmission bandwidth of FM Wave | | |
| 34 | Indirect method of FM generation | | |
| 35 | Direct method of FM generation, Comparison of FM & AM. | | |
| 36 | Detection of FM Waves: Balanced Frequency discriminator, Zero crossing detector | | |
| 37 | Phase locked loop, PROBLEMS | | |
| 38 | Tutorial | 13-05-2021 To 21-05-2021 | |

UNIT-IV TRANSMITTERS & RECEIVERS

CO3: Analyze various functional blocks of radio Transmitters and Receivers.

TB1: Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Edition, 2007.

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| 39 | Classification of Transmitter, AM Transmitter | From 21/05/2021 To 01/06/2021 | Online classes with MS Teams |
| 40 | Effect of feedback on performance of AM Transmitter | | |
| 41 | FM Transmitter – Variable reactance type and phase modulated FM Transmitter | | |
| 42 | frequency stability in FM Transmitter | | |
| 43 | Receiver Types - Tuned radio frequency receiver, | | |
| 44 | Super heterodyne receiver | | |
| 45 | RF section and Characteristics | | |
| 46 | Frequency changing and tracking, AGC | | |
| 47 | FM Receiver | | |
| 48 | Comparison with AM Receiver, limiter | | |
| 49 | Tutorial | | |

UNIT-V NOISE

CO2: Analyze noise characteristics of various analog modulation methods.

CO4: Design simple analog systems for various modulation techniques.

TB1: Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Edition, 2007.

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| 50 | Review of noise and noise sources, Noise figure | From 02-06-2021 To 30-06-2021 | Online classes with MS Teams |
| 51 | Noise in Analog communication Systems | | |
| 52 | Noise in DSB& SSB System | | |
| 53 | Noise in AM System | | |
| 54 | Noise in Angle Modulation Systems | | |
| 55 | Threshold effect in Angle Modulation System | | |
| 56 | Pre-emphasis & de-emphasis | | |
| 57 | Problems | | |
| 58 | PULSE MODULATION: Time Division multiplexing | | |

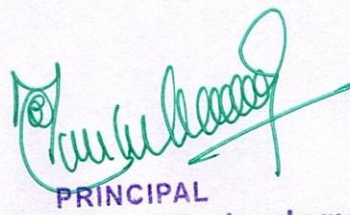
| | | | |
|-----------|--|--|--|
| 59 | Types of Pulse modulation | | |
| 60 | PAM (Single polarity, double Polarity) | | |
| 61 | PWM: Generation & demodulation of PWM, | | |
| 62 | PPM, Generation and demodulation of PPM, | | |
| 63, 64,65 | TDM Vs FDM, Problems, Tutorial | | |

TB1: Principles of Communication Systems - Simon Haykin, John Wiley, 2nd Edition, 2007

TB2: Principles of Communication Systems – H Taub & D. Schilling, Gautam Sahe, TMH, 3 rd Edition, 2007.

TB3: Electronics & Communication System – George Kennedy and Bernard Davis, TMH 2004.

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Signature of Faculty



PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108

S. Sri Goun
Signature of HOD

TENTATIVE LESSON PLAN: R1922045
COMPUTER ARCHITECTURE & ORGANIZATION

| | | |
|---|------------------------------------|---------------------------|
| Course Title: COMPUTER ARCHITECTURE & ORGANIZATION | | |
| Section : A&B | Date : 22.03.2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By : A.V.P.Sarvari | Approved By : HOD |

Tools : Black board, PPTs, Moodle

| No. of Periods | TOPIC | Date | Mode of Delivery |
|---|--|--|------------------------------|
| UNIT –I BASIC STRUCTURE OF COMPUTERS CO1: Student can understand the fundamentals and function of the computer.And also analyze the Performance of a computer using performance equation TB :: Computer Organization, Carl Hamacher, ZvonksVranesic, SafeaZaky, 5thEdition, McGrawHill,2011. | | | |
| 1. | Functional unit | From: 22.03.2021 To: 10.04.2021 | Online Classes with MS Teams |
| 2. | Basic operational concepts | | |
| 3. | Bus structures | | |
| 4. | System software | | |
| 5. | Performance | | |
| 6. | The history of the computer development | | |
| 7. | Instruction and instruction sequencing | | |
| 8. | Register transfer notation | | |
| 9. | Assembly language notation | | |
| 10. | Basic instruction types | | |
| 11. | Tutorial | | |
| UNIT –II ADDRESSING MODES AND TYPE OF INSTRUCTIONS CO2: Understanding of different instruction types and Students can calculate the effective address of an operand by addressing modes TB :: Computer Organization, Carl Hamacher, ZvonksVranesic, SafeaZaky, 5thEdition | | | |
| 12. | Addressing Modes | From: 12.04.2021 To: 23.04.2021 | Online Classes with MS Teams |
| 13. | Basic input output operations | | |
| 14. | The role of stacks and queues in computer programming equation | | |
| 15. | Component of instructions | | |
| 16. | Logic instructions | | |
| 17. | Shift and rotate instructions | | |
| 18. | Arithmetic and logic instructions | | |
| 19. | Branch instructions | | |
| 20. | Addressing modes | | |
| 21. | Input / Output operations | | |
| 22. | Tutorial | | |
| UNIT - III INPUT/OUTPUT ORGANIZATION CO3: Student can Understand the concepts of I/O Organization. TB :: Computer Organization, Carl Hamacher, ZvonksVranesic, SafeaZaky, 5thEdition, McGrawHill,2011. | | | |
| 23. | Accessing I/O devices | From: 26.04.21 To: 22.05.21 | Online Classes with MS Teams |
| 24. | Interrupt hardware | | |
| 25. | Enabling and disabling interrupts | | |

TENTATIVE LESSON PLAN:

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|---|------------------------------------|---------------------------|
| Course Title: COMPUTER ARCHITECTURE & ORGANIZATION | | |
| Section : A&B | Date : 22.03.2021 | Page No : 02 of 03 |
| Revision No : 00 | Prepared By : A.V.P.Sarvari | Approved By : HOD |

Tools : Black board, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|----------------|---|--|------------------------------|
| 26. | Handling multiple devices | From: 26.04.2021 To: 22.05.2021 | Online Classes with MS Teams |
| 27. | Direct memory access | | |
| 28. | Buses: Synchronous bus | | |
| 29. | Asynchronous bus | | |
| 30. | Interface circuits | | |
| 31. | Standard I/O interface | | |
| 32. | Peripheral component interconnect (PCI) bus | | |
| 33. | Universal serial bus (USB) | | |
| 34. | Tutorial | | |

UNIT –IV THE MEMORY SYSTEMS

CO4: Student can understand the concept of memory systems.

TB :: Computer Organization, Carl Hamacher, ZvonksVranesic, SafeaZaky, 5thEdition, McGrawHill,2011.

| | | | |
|-----|-----------------------------------|--|------------------------------|
| 35. | Basic memory circuits | From: 24.05.2021 To: 12.06.2021 | Online Classes with MS Teams |
| 36. | Memory system consideration | | |
| 37. | Read only memory (ROM) | | |
| 38. | PROM, EPROM, EEPROM, Flash memory | | |
| 39. | Cache memories | | |
| 40. | Interleaving | | |
| 41. | Mapping functions | | |
| 42. | Magnetic hard disks | | |
| 43. | Optical disks | | |
| 44. | Tutorial | | |

UNIT –V PROCESSING UNIT

CO5: Student can understand the design of different types of control units.

TB :: Computer Organization, Carl Hamacher, ZvonksVranesic, SafeaZaky, 5thEdition, McGrawHill,2011.


| | | | |
|-----|---|--|------------------------------|
| 45. | Fundamental concepts | From: 14.06.2021 To: 30.06.2021 | Online Classes with MS Teams |
| 46. | Register transfers | | |
| 47. | Performing an arithmetic or logic operation | | |
| 48. | Fetching a word from memory | | |
| 49. | Execution of complete instruction | | |
| 50. | Hardwired control | | |
| 51. | Microinstructions | | |
| 52. | Micro program sequencing | | |

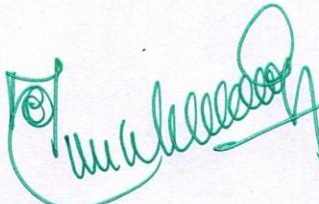
TENTATIVE LESSON PLAN:

| | | |
|---|------------------------------------|---------------------------|
| Course Title: COMPUTER ARCHITECTURE & ORGANIZATION | | |
| Section : A&B | Date : 22.03.2021 | Page No : 03 of 03 |
| Revision No : 00 | Prepared By : A.V.P.Sarvari | Approved By : HOD |

Tools : Black board, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|----------------|---|--|------------------------------|
| 53. | Wide branch addressing | From: 14.06.2021 To: 30.06.2021 | Online Classes with MS Teams |
| 54. | Microinstructions with next address field | | |
| 55. | Tutorial | | |
| | | | |


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TENTATIVE LESSON PLAN: R1922046
MANAGEMENT AND ORGANISATIONAL BEHAVIOUR

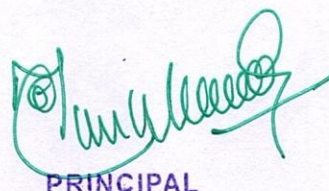
| | | |
|--|-------------------------------|---------------------------|
| Course Title: MANAGEMENT AND ORGANISATIONAL BEHAVIOUR | | |
| Section: A & B | Date : 08/04/2021 | Page No : 01 of 02 |
| Revision No : 00 | Prepared By : B.NAVEEN | Approved By : HOD |

Tools: MS Teams

| S. No | TOPIC | Date (Planned) | Mode of Delivery |
|--|---|--|---|
| UNIT 1: Introduction to MANAGEMENT AND ORGANISATIONS | | | |
| CO1:: student will understand the concept and nature of management, evaluation of management theories, motivation and leadership styles | | | |
| TEXT BOOK: Robins, Stephen P., <i>Fundamentals of Management</i> , Pearson, India. | | | |
| 1 | Management and organizational introductions | From 08/04/2021 To 23/04/2021 | Online Class with MS Teams |
| 2 | concepts of management and organization | | |
| 3 | Nature and Importance of Management | | |
| 4 | Functions of Management, System approach to Management | | |
| 5 | Taylor's Scientific Management Theory | | |
| 6 | Fayol's Principles of Management | | |
| 7 | Leadership Styles, Social responsibilities of Management | | |
| 8 | Designing Organizational Structures | | |
| 9 | Basic concepts related to Organization | | |
| 10 | Departmentation and Decentralization | | |
| 11 | MBO, Process and concepts | | |
| 12 | Management in various sectors and organizations | | |
| UNIT – II: Functional Management | | | |
| CO2:: student will be equipped with concepts of human resources management and marketing management. | | | |
| TEXT BOOK: Robins, Stephen P., <i>Fundamentals of Management</i> , Pearson, India. | | | |
| 13 | Functional Management | From 24/04/2021 TO 08/05/2021 | Online Class with MS Teams |
| 14 | Human Resource Management (HRM) Concepts | | |
| 15 | Basic functions of HR Manager | | |
| 16 | Manpower planning, Recruitment | | |
| 17 | Selection, Training and Development | | |
| 18 | Wage and Salary Administration Performance Appraisal | | |
| 19 | Grievance Handling and Welfare Administration | | |
| 20 | Job Evaluation and Merit Rating | | |
| 21 | Concepts of Marketing | | |
| 22 | Marketing mix elements and marketing strategies | | |
| 23 | Marketing importance in various industries | | |
| 24 | Marketing techniques that can be implemented with the help of strategies. | | |
| UNIT-III: Strategic Management | | | |
| CO3:: Student will get the knowledge of strategic management and its approach in different difficult situations. | | | |
| TEXT BOOK: Robins, Stephen P., <i>Fundamentals of Management</i> , Pearson, India. | | | |
| 25 | Strategic Management and Contemporary | | |
| 26 | Strategic Issues: Mission, Goals, Objectives | | |
| 27 | Policy, Strategy, Programmes | | |
| 28 | Elements of Corporate Planning Process | | |

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|---|--|--|----------------------------------|
| 29 | Environmental Scanning, Value Chain Analysis | From 09/05/2021 TO 25/05/2021 | Online Class with MS Teams |
| 30 | SWOT Analysis | | |
| 31 | Steps in Strategy Formulation and implementation | | |
| 32 | Generic Strategy alternatives | | |
| 33 | Bench Marking | | |
| 34 | Balanced Score Card | | |
| 35 | Contemporary Business Strategies | | |
| UNIT-IV: Individual behaviour | | | |
| CO4:: Student will equipped with the knowledge of individual behavioral patterns with different motivational theories. TEXT BOOK: Subba Rao P., Organizational Behaviour, Himalaya Publishing House. Mumbai. | | | |
| 36 | Perception-Perceptual process | From 27/05/2021 TO 06/06/2021 | Online Class with MS Teams |
| 37 | Impression management | | |
| 38 | Personality development | | |
| 39 | Socialization – Attitude- Process | | |
| 40 | Formation- Positive attitude | | |
| 41 | Change – Learning – Learning organizations | | |
| 42 | Reinforcement Motivation | | |
| 43 | Process- Motives | | |
| 44 | Theories of Motivation: Maslow’s Theory of Human Needs | | |
| 45 | Theory X and Theory Y, Herzberg’s theory | | |
| UNIT-V: Group dynamics and behaviour | | | |
| CO5:: Student will get the knowledge of groups importance in organizations and handling procedure in different areas. TEXT BOOK: Subba Rao P., Organizational Behaviour, Himalaya Publishing House. Mumbai. | | | |
| 46 | Types of Groups, Stages of Group Development | From 07/06/2021 TO 18/06/2021 | Online Class with MS Teams |
| 47 | Group Behaviour and Group Performance | | |
| 48 | Factors, Organizational conflicts | | |
| 49 | Reasons for Conflicts | | |
| 50 | Consequences of Conflicts in Organization | | |
| 51 | Types of Conflicts | | |
| 52 | Strategies for Managing Conflicts | | |
| 53 | Organizational Climate and Culture | | |
| 54 | Stress, Causes and effects | | |
| 55 | coping strategies of stress | | |
| 56 | Strategic approach to the groups in various industries | | |
| 57 | Case studies with suitable examples | | |

B. Naveen
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S. Sri Gowri
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TENTATIVE LESSON PLAN: R1632041 MICROPROCESSORS AND MICROCONTROLLERS

| | | |
|---|-----------------------------------|--------------------------|
| Course Title: MICROPROCESSORS AND MICROCONTROLLERS | | |
| Section : Sec A & B | Date : 21/3/21 | Page No : 1 to 5 |
| Revision No : 00 | Prepared By : B.S.S.TEJESH | Approved By : HOD |

Tools: MS Teams , PPTs

| S.NO. | TOPIC | Date | Mode of Delivery |
|--|---|--|----------------------------|
| UNIT –I 8086/8088 MICROPROCESSORS CO1: Student can understand the basics of 8086 microprocessors. TB : A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000. | | | |
| 1. | Main features | From: 22/3/21 To: 16/4/21 | Online Class with MS Teams |
| 2. | pin diagram/description | | |
| 3. | 8086 microprocessor family | | |
| 4. | 8086 internal architecture | | |
| 5. | GPR REGISTERS | | |
| 6. | INDEX Registers, pointer registers | | |
| 7. | execution unit | | |
| 8. | interrupts and interrupt responses and flag registers | | |
| 9. | 8086 system timing minimum mode | | |
| 10. | maximum mode configuration | | |
| 11. | Tutorial | | |
| UNIT –II PROGRAMMING WITH 8086 MICROPROCESSOR CO2: Able to develop programs for different addressing modes in machine and assembly languages. TB: A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000. | | | |
| 12. | Program development steps | | |
| 13. | Instructions | | |
| 14. | addressing modes | | |

| | | | |
|-----|-----------------------------|--|----------------------------------|
| 15. | assembler directives-1 | From: 17/4/21 To: 30/4/21 | Online Class with MS Teams |
| 16. | assembler directives-1 | | |
| 17. | Program Development Tools-1 | | |
| 18. | Program Development tools-2 | | |
| 19. | Programs-1 | | |
| 20. | Programs-2 | | |
| 21. | Programs-3 | | |

UNIT - III 8086 INTERFACING

CO3: Able to interface 8086 with different peripherals and implement programs.

**TB : A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals",
Tata McGraw Hill Publications, 2000.**

| | | | |
|-----|--|--|----------------------------------|
| 22. | 8254 software programmable timer/counter | From: 1/5/21 To: 8/5/21 | Online Class with MS Teams |
| 23. | Intel 8259 programmable interrupt controller | | |
| 24. | software and hardware interrupt applications | | |
| 25. | Intel8237a DMA controller | | |
| 26. | Intel 8255 programmable peripheral interface | | |
| 27. | alphanumeric displays- LED | | |
| 28. | 7-segment display | | |
| 29. | multiplexed 7-segment display, LCD | | |
| 30. | Intel 8279 programmable keyboard/display Controller | | |
| 31. | stepper motor | | |

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| 32. | A/D and D/A converters | | |
| 33. | Tutorial | | |

UNIT –IV 80386 AND 80486 MICROPROCESSORS

CO4: Student can understand the advanced microprocessor 80386 and co processor 80387.

TB: A.K.Ray, K.M.Bhurchandi,"Advanced Microprocessors and Peripherals", Tata McGraw Hill Publications, 2000.

| | | | |
|-----|---|---|----------------------------------|
| 34. | Introduction | From:13/5/21 To: 26/5/21 | Online Class with MS Teams |
| 35. | programming concepts | | |
| 36. | special purpose registers | | |
| 37. | Pins 80386 | | |
| 38. | Moving to protected mode | | |
| 39. | Virtual mode | | |
| 40. | Memory and memory paging mechanism | | |
| 41. | Architectural differences between 80386 and 80486 microprocessors | | |
| 42. | Tutorial | | |

UNIT –V 8051 MICROCONTROLLER

CO5: Ability to understand the microcontroller and able to write the programs on 8051.

TB: Ajay V Deshmukh,"Microcontrollers", TATA McGraw Hill publications, 2012.

| | | | |
|-----|---|--|----------------------------------|
| 43. | Architecture | From: 26/5/2021 To: 10/6/2021 | Online Class with MS Teams |
| 44. | Pins of 8051 | | |
| 45. | input/output ports and circuits | | |
| 46. | counters/timers | | |
| 47. | serial data input/output | | |
| 48. | interrupts | | |
| 49. | Assembly language programming | | |
| 50. | Reg of 8051 | | |
| 51. | Instructions | | |
| 52. | addressing modes | | |
| 53. | Interfacing: keyboard | | |
| 54. | Interfacing displays (LED, 7-segment display unit) | | |
| 55. | A/D and D/A converters | | |

UNIT - VI PIC MICROCONTROLLERS

CO6 : Student can understand PIC microcontroller and ARM processors.

TB : Ajay V Deshmukh,"Microcontrollers", TATA McGraw Hill publications, 2012.

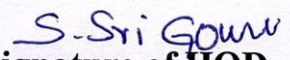
Raj Kamal,"Microcontrollers", Pearson publications, 2009.

| | | | |
|-----|--|--|----------------------------------|
| 56. | Introduction | From: 11/6/21 To: 30/6/21 | Online Class with MS Teams |
| 57. | characteristics of PIC microcontroller | | |
| 58. | PIC microcontroller families | | |
| 59. | memory organization | | |
| 60. | parallel and serial input and output | | |
| 61. | Timers in pic16f877 | | |
| 62. | Interrupts in pic 16f877 | | |

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| 63. | PIC 16F877 architecture | | |
| 64. | Instruction set of the PIC 16F877 | | |
| 65. | tutorial | | |


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TENTATIVE LESSON PLAN: R1632042 MICROWAVE ENGINEERING

| | | |
|--|-------------------------------|---------------------------|
| Course Title: MICROWAVE ENGINEERING | | |
| Section : A & B | Date : 18/03/2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By: T.Manogna | Approved By : HOD |

Tools: Online MS Teams, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|---|--|---|--|
| UNIT-I MICROWAVE TRANSMISSION LINES | | | |
| CO1: Study about the microwave frequencies and waveguides that are used to carry them, various parameters and characteristics of the rectangular waveguides. | | | |
| TB: "Microwave Devices and Circuits", Samuel Y. Liao, 3rd edition, Pearson Education | | | |
| 1 | Microwave transmission lines: introduction | From: 22/03/2021 To: 6/04/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 2 | Microwave Spectrum and Bands, Applications of Microwaves | | |
| 3 | Rectangular Waveguides | | |
| 4 | TE mode analysis | | |
| 5 | TM mode analysis | | |
| 6 | Expressions for Fields | | |
| 7 | Characteristic Equation | | |
| 8 | Cut-off Frequencies, Filter Characteristics | | |
| 9 | Dominant and Degenerate Modes | | |
| 10 | Sketches of TE and TM mode fields | | |
| 11 | Phase and Group Velocities, Wavelengths | | |
| 12 | Impedance Relations | | |
| 13 | Power Transmission and Power Losses | | |
| 14 | Impossibility of TEM mode | | |
| 15 | Related Problems | | |
| UNIT-II CIRCULAR WAVEGUIDES | | | |
| CO2: Study the various parameters and characteristics of the circular waveguides, microstrip lines and cavity resonators. | | | |
| TB: "Microwave Devices and Circuits", Samuel Y. Liao, 3rd edition, Pearson Education | | | |
| 16 | Nature of Fields | From 06/04/2021 To 20/04/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 17 | Characteristic Equation | | |
| 18 | Dominant and Degenerate Modes | | |
| 19 | Micro strip Lines- Introduction | | |
| 20 | Z_0 Relations, Effective Dielectric Constant | | |
| 21 | Losses, Q factor | | |
| 22 | Cavity Resonators | | |
| 23 | Dominant Modes and Resonant Frequencies | | |
| 24 | Q factor and Coupling Coefficients | | |

| No. of Periods | TOPIC | Date | Mode of Delivery |
|--|---|--|--|
| 25 | Excitation techniques | | |
| 26 | Related Problems | | |
| UNIT-III MICROWAVE TUBES | | | |
| CO3: Analyze mathematically the operation of the various tubes or sources used for the transmission of microwave frequencies. | | | |
| TB: "Microwave Devices and Circuits", Samuel Y. Liao, 3rd edition, Pearson Education | | | |
| 27 | Limitations and Losses of conventional tubes | From: 22/04/2021 To: 08/05/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 28 | Microwave tubes – O type and M type classifications | | |
| 29 | O-type tubes : 2 Cavity Klystrons | | |
| 30 | Structure, Reentrant Cavities | | |
| 31 | Velocity Modulation Process | | |
| 32 | Applegate Diagram, Bunching Process | | |
| 33 | Expressions for o/p Power and Efficiency | | |
| 34 | Reflex Klystrons – Structure, | | |
| 35 | Applegate Diagram and Principle of working | | |
| 36 | Mathematical Theory of Bunching | | |
| 37 | Power Output, Efficiency | | |
| 38 | Electronic Admittance, Oscillating Modes | | |
| 39 | Electronic and Mechanical Tuning | | |
| 40 | Related Problems | | |
| UNIT-IV HELIX TWTS | | | |
| CO5: Study the significance, types and characteristics of slow wave structures and cross field tubes for the transmission of the microwave frequencies. | | | |
| TB: "Microwave Devices and Circuits", Samuel Y. Liao, 3rd edition, Pearson Education | | | |
| 41 | Significance, Types | From: 14/05/2021 To: 24/05/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 42 | Characteristics of Slow Wave Structures | | |
| 43 | Structure of TWT | | |
| 44 | Suppression of Oscillations | | |
| 45 | Nature of the four Propagation Constants | | |
| 46 | M-type Tubes Introduction, Cross-field effects | | |
| 47 | Magnetrons – Different Types | | |
| 48 | 8-Cavity Cylindrical Travelling Wave | | |
| 49 | Magnetron – Hull Cut-off and Hartree Conditions | | |
| 50 | Modes of Resonance , PI-Mode Operation | | |
| 51 | Separation of PI-Mode, o/p characteristics | | |
| 52 | Related Problems | | |
| UNIT-V WAVEGUIDE COMPONENTS AND APPLICATIONS | | | |
| CO5: Implement waveguide components and devices for various applications. | | | |
| TB: "Microwave and Radar Engineering", G Sasi Bhushana Rao, Pearson Education | | | |
| 53 | Coupling Mechanisms: Probe, Loop | | |
| 54 | Waveguide Discontinuities: Waveguide irises, | | |

| No. of Periods | TOPIC | Date | Mode of Delivery |
|----------------|---|--|--|
| 55 | Waveguide Attenuators:Resistive Card type | From: 24/05/2021 To: 14/06/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 56 | Waveguide Phase Shifters | | |
| 57 | S-Matrix– Significance, Formulation & Properties | | |
| 58 | S-Matrix Calculations for H-plane Tee | | |
| 59 | S-Matrix Calculations for E-plane Tee | | |
| 60 | Magic Tee, Hybrid Ring | | |
| 61 | Directional Couplers – 2Hole, Bethe Hole | | |
| 62 | Ferrite Components– Faraday Rotation | | |
| 63 | S-Matrix Calculations for Gyrator, Isolator, Circulator | | |
| 64 | Related Problems | | |

UNIT-VI MICROWAVE SOLID STATE DEVICES

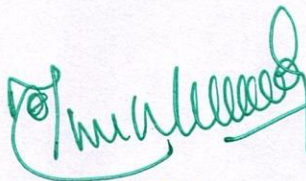
CO6:Analyze the significance, types and characteristics of microwave solid state devices and acquire knowledge in various microwave measurements.

TB1: “Microwave Devices and Circuits”, Samuel Y. Liao, 3rd edition, Pearson Education

TB2:“Microwave and Radar Engineering”, G Sasi Bhushana Rao, Pearson Education

| | | | |
|----|--|--|--|
| 65 | Introduction, Classification, Applications | From: 15/06/2021 To: 30/06/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 66 | TEDs -Gunn Diode – Principle | | |
| 67 | RWH Theory, Characteristics | | |
| 68 | Basic Modes of Operation, Oscillation Modes | | |
| 69 | Avalanche Transit Time Devices | | |
| 70 | IMPATT Diodes - Principle of Operation and Characteristics | | |
| 71 | TRAPATT Diodes- Principle of Operation and Characteristics | | |
| 72 | Related Problems | | |
| 73 | Description of Microwave Bench | | |
| 74 | Different Blocks and their Features | | |
| 75 | Microwave Power Measurement – Bolometer | | |
| 76 | Measurement of Attenuation, Frequency, VSWR | | |
| 77 | Cavity Q, Impedance Measurements | | |


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TENTATIVE LESSON PLAN: R1632043

VLSI Design

| | | |
|----------------------------------|--------------------------------|---------------------------|
| Course Title: VLSI Design | | |
| Section : A & B | Date : 18/03/2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By: D.Ravi Tej | Approved By : HOD |

Tools: Online MS Teams, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|--|--|---|--|
| UNIT –I Introduction, Electrical properties CO1: Student can understand the basic electrical properties TB : Kamran Eshraghian, Douglas and A. Pucknell and Sholeh Eshraghian, Prentice-Hall of India Private Limited, 2005 Edition” ESSENTIALS OF VLSI CIRCUITS AND SYSTEMS” | | | |
| 1 | Introduction to IC technology | From: 22/03/2021 To: 4/04/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 2 | Electrical properties of MOS devices | | |
| 3 | Fabrication of pMOS | | |
| 4 | Fabrication of nMOS | | |
| 5 | Fabrication of CMOS n-well | | |
| 6 | Fabrication of CMOS p-well | | |
| 7 | output conductance, figure of merit | | |
| 8 | I_{ds} VS V_{ds} , aspects of MOS transistor | | |
| 9 | Transconductance | | |
| 10 | Pullup to Pulldown ratio of an Inverter driven by another inverter | | |
| 11 | Inverter driven by one or more pass transistors | | |
| 12 | Alternate forms of pullup, CMOS inverter | | |
| 13 | Latch-up, | | |
| 14 | Bi-CMOS inverter | | |
| 15 | CMOS-BiCMOS comparision | | |
| UNIT –II MOS & Bi-CMOS design Process CO2: Able to develop designing methodologies of MOS devices TB: Kamran Eshraghian, Douglas and A. Pucknell and Sholeh Eshraghian, Prentice-Hall of India Private Limited, 2005 Edition” ESSENTIALS OF VLSI CIRCUITS AND SYSTEMS” | | | |
| 16 | MOS layers | From 04/04/2021 To 22/04/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 17 | Stick diagrams | | |
| 18 | Design rules and layouts | | |
| 19 | General observations on design rules | | |
| 20 | 2 μ m double metal double poly | | |
| 21 | CMOS/BiCMOS rules | | |
| 22 | 1.2 μ m double metal double poly CMOS rules | | |
| 23 | Layout diagrams of NAND and NOR gates | | |

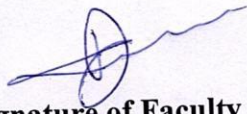
| No. of Periods | TOPIC | Date | Mode of Delivery |
|---|---|--|--|
| 25 | Excitation techniques | | |
| 26 | Related Problems | | |
| UNIT - III Basic circuit concepts CO3: Able to interface the design methodologies with fabrication procedures. TB : Kamran Eshraghian, Douglas and A. Pucknell and Sholeh Eshraghian, Prentice-Hall of India Private Limited, 2005 Edition” ESSENTIALS OF VLSI CIRCUITS AND SYSTEMS” | | | |
| 27 | Sheet resistance & application to MOS transistors and inverters | From: 22/04/2021 To: 06/05/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 28 | Area capacitance of layers | | |
| 29 | Standard unit of capacitance | | |
| 30 | Delay unit, Inverter delays | | |
| 31 | Propagation delays | | |
| 32 | Fan-in & Fan-Out characteristics , choice of layers | | |
| 33 | Transistor switches | | |
| 34 | Realization of gates using NMOS , PMOS and CMOS technologies | | |
| 35 | Sheet resistance | | |
| 36 | application to MOS transistors and inverters | | |
| 37 | wiring capacitances | | |
| 38 | Area capacitance of layers | | |
| 39 | Standard unit of capacitance | | |
| 40 | Delay unit, Inverter delays | | |
| UNIT -IV Sub-System Design CO4: Student can understand the advanced design procedures with partitioning. TB: T2: CMOS Digital Integrated Circuits Analysis and Design- Sung-Mo Kang, Yusuf Leblebici, Tata McGraw- Hill Education, 2003. | | | |
| 41 | Architectural issues, switch logic | From: 14/05/2021 To: 24/05/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 42 | Gate logic | | |
| 43 | Examples of structured design | | |
| 44 | Clocked sequential circuits | | |
| 45 | System considerations | | |
| 46 | General considerations of subsystem design process | | |
| 47 | Illustration of design process | | |
| 48 | tutorial | | |
| 49 | Architectural issues, | | |
| 50 | Gate logic | | |
| 51 | switch logic | | |
| 52 | Clocking on chip mechanism | | |

UNIT -V VLSI Design issues**CO5: Ability to understand the constrains in the front end design of the circuits.****TB: T2: CMOS Digital Integrated Circuits Analysis and Design- Sung-Mo Kang, Yusuf Leblebici, Tata McGraw- Hill Education, 2003..**

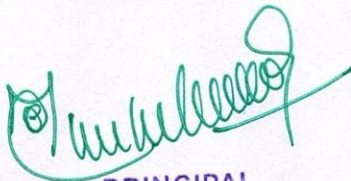
| No. of Periods | TOPIC | Date | Mode of Delivery |
|----------------|--------------------------------------|----------------------------|--|
| 55 | Power calculations | From: 26/05/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 56 | Package selection | | |
| 57 | Clock mechanism, mixed signal design | To: 14/06/2021 | |
| 58 | ASIC design flow | | |
| 59 | FPGA design flow , SoC introduction | | |
| 60 | Design for testability | | |
| 61 | Technology options | | |
| 62 | Power calculations | | |
| 63 | Package selection | | |
| 64 | Clock mechanism, mixed signal design | | |

UNIT - VI FPGA design**CO6 : Student can design the basic models of FPGA for the typical applications of basic circuits.****TB : T2: CMOS Digital Integrated Circuits Analysis and Design- Sung-Mo Kang, Yusuf Leblebici, Tata McGraw- Hill Education, 2003.**

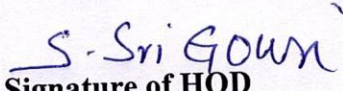
| | | | |
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| 65 | Basic FPGA architecture, FPGA configuration | From: 16/06/2021 | Online class with MS Teams and Lecture interspersed with discussions |
| 66 | Configuration modes, FPGA design process | | |
| 67 | FPGA design flow | To: 30/06/2021 | |
| 68 | FPGA families | | |
| 69 | Step by step approach of FPGA design process on XILINX environment | | |
| 70 | queue and shift register implementation using VHDL | | |
| 71 | Tutorial | | |
| 72 | Basic FPGA architecture, FPGA configuration | | |
| 73 | Scaling using voltage perameers | | |



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S. Sri Goun
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TENTATIVE LESSON PLAN: R1632044
DIGITAL SIGNAL PROCESSING

| | | |
|--|--------------------------------------|--------------------------|
| Course Title: DIGITAL SIGNAL PROCESSING | | |
| Section : Sec A & B | Date : 06/04/2021 | |
| Revision No : 00 | Prepared By : V. SEKHARA BABU | Approved By : HOD |

Tools: ONLINE, PPTs

| S.NO. | TOPIC | Date | Mode of Delivery |
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UNIT –I INTRODUCTION

CO1:: Estimate the spectra of signals that are to be processed by a discrete time filter, and to verify the performance of a variety of modern and classical spectrum estimation techniques

TB1: Digital signal Processing by A.Anand Kumar,PHI

| | | | |
|----|--|---|---|
| 1 | Introduction to Digital Signal Processing | From: 6-04-2021 To: 28-04-2021 | Online Class with MS Teams |
| 2 | Discrete time signals | | |
| 3 | Basic Operations on sequences | | |
| 4 | Classification on signals | | |
| 5 | Classification of Discrete time systems | | |
| 6 | Transfer Function of System | | |
| 7 | Linear constant coefficient difference equations | | |
| 8 | Problems on Linear constant coefficient difference equations | | |
| 9 | Solutions of difference equations using by Z-Transforms | | |
| 10 | Problems on Solutions of difference equations by using Z-Transform | | |
| 11 | Problems | | |

UNIT –II DISCRETE FOURIER SERIES & FOURIER TRANSFORMS

CO2:: Able to Define and use Discrete Fourier Transforms (DFTs)


TB1: Digital signal Processing by A.Anand Kumar,PHI

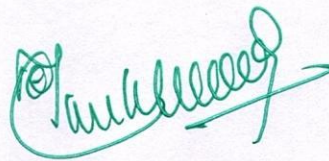
| | | | |
|----|---|--|---|
| 12 | Discrete Fourier Series & Fourier Transforms | From: 29-04-2021 To: 17-05-2021 | Online Class with MS Teams |
| 13 | Properties of discrete Fourier series | | |
| 14 | DFS representation of periodic sequences | | |
| 15 | Discrete Fourier transforms | | |
| 16 | Properties of DFT | | |
| 17 | Linear convolution of sequences using DFT | | |
| 18 | Computation of DFT | | |

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|--|---|--|----------------------------------|
| 19 | Fast Fourier transforms (FFT) | | |
| 20 | Radix-2 decimation in time and decimation in frequency FFT Algorithms | | |
| 21 | Inverse FFT | | |
| 22 | Problems on FFT | | |
| UNIT-III Design Of IIR Digital Filters& Realizations | | | |
| CO3: Able to understand Design of IIR Digital filters and its applications. | | | |
| TB1: Digital signal Processing by A.Anand Kumar,PHI | | | |
| 23 | Design Of IIR Digital Filters& Realizations | From: 18-05-2021 To: 25-05-2021 | Online Class with MS Teams |
| 24 | Analog filter approximations | | |
| 25 | Butter worth filter approximations . | | |
| 26 | Chebyshev filter approximations | | |
| 27 | Design of IIR Digital filters from analog filters | | |
| 28 | Design Examples | | |
| 29 | Analog and Digital frequency transformations Basic structures of IIR systems | | |
| 30 | Basic structures of IIR systems | | |
| UNIT – IV Design Of FIR Digital Filters & Realizations | | | |
| CO5:: able to understand the concepts FIR Digital Filter design | | | |
| TB1: Digital signal Processing by A.Anand Kumar,PHI | | | |
| 31. | Design Of FIR Digital Filters& Realizations | From: 27-05-2021 To: 3-06-2021 | Online Class with MS Teams |
| 32. | Characteristics of FIR Digital Filters | | |
| 35. | Design of FIR Digital Filters using Window Techniques | | |
| 36. | Frequency Sampling technique, | | |
| 37. | Frequency response | | |
| 38. | Comparison of IIR & FIR filters | | |
| 39. | Basic structures of FIR systems | | |
| 40 | Lattice structures | | |
| 41 | Lattice-ladder structures, tutorial | | |
| UNIT –V MULTIRATE SIGNAL PROCESSING | | | |
| CO5:: able to understand the concepts of Decimation, Interpolation | | | |
| TB1: Digital signal Processing by A.Anand Kumar,PHI | | | |
| 42. | Decimation | From: 4-6-2021 To: 11-6-2021 | Online Class with MS Teams |
| 42. | Interpolation | | |
| 43. | Sampling rate conversion | | |
| 44. | Implementation of sampling rate conversion | | |
| 45. | Sub-band Coding of Speech Signals | | |
| 46. | Implementation of Digital Filter Banks | | |
| 47. | Trans-multiplexers | | |
| 48 | problems | | |
| 49 | Design of 1,2 stage Decimator | | |

UNIT - VI INTRODUCTION TO DSP PROCESSORS**CO6 : Able to Program a DSP processor to filter signals****TB1: Digital signal Processing by A.Anand Kumar,PHI**


| | | | |
|-----|--|--|----------------------------------|
| 50 | Introduction to DSP Processors | From: 12-6-2021 To: 28-6-2021 | Online Class with MS Teams |
| 51 | Introduction to programmable DSPs | | |
| 52 | Multiplier and Multiplier Accumulator (MAC) | | |
| 53 | Modified Bus Structures and Memory Access schemes in DSPs Multiple access memory | | |
| 54 | Multiport memory | | |
| 55 | VLSI architecture | | |
| 56. | Pipelining | | |
| 57 | Special addressing modes | | |
| 58 | On-Chip Peripherals | | |
| 59 | Architecture of TMS 320C5X Introduction | | |
| 60. | Bus Structure | | |
| 61 | Central Arithmetic Logic Unit | | |
| 62 | Auxiliary Register | | |
| 63 | Index Register | | |
| 64 | Block Move Address Register | | |
| 65 | Parallel Logic Unit | | |
| 66 | Memory mapped registers | | |
| 67 | Program controller | | |
| 68 | Some flags in the status registers | | |
| 69 | On- chip registers | | |
| 70 | On-chip peripherals | | |


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TENTATIVE LESSON PLAN: R163204A
OOPS Through JAVA

| | | |
|---------------------------------------|-------------------------------------|-------------------------|
| Course Title:OOPS Through JAVA | | |
| Section : A and B | Date:22-03-2021 | Page No: 1 of 3 |
| Revision No: | Prepared by : CH SIVA RAJESH | Approved by :HOD |

Tools : MS Teams , PPTs

| No.of periods | Topics | Date | Mode of Delivery |
|--|---|---------------------------------------|---------------------------------|
| UNIT-I Basics of Object Oriented Programming (OOP) | | | |
| CO1 : Understand the basics of Programming | | | |
| TB:: Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford | | | |
| 1 | Introduction to OOP | From: 22-03-21 To: 6-04-21 | Online classes with MS Teams |
| 2 | procedural programming language | | |
| 3 | object oriented language | | |
| 4 | principles of OOP | | |
| 5 | applications of OOP | | |
| 6 | history of java | | |
| 7 | java features | | |
| 8 | JVM | | |
| 9 | program structure | | |
| 10 | Variables | | |
| 11 | primitive data types | | |
| 12 | identifiers | | |
| 13 | literals | | |
| 14 | operators | | |
| 15 | expressions | | |
| 16 | precedence rules and associativity | | |
| 17 | primitive type conversion and casting | | |
| 18 | flow of control | | |
| UNIT-II JAVA Basics | | | |
| CO2 : Understand the basics of Programming | | | |
| TB:: Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford | | | |
| 19 | Classes and objects | From: 7-04-21 To: 7-04-21 | Online classes with MS Teams |
| 20 | class declaration | | |
| 21 | creating objects | | |
| 22 | methods | | |
| 23 | constructors and constructor overloading | | |
| 24 | garbage collector | | |
| 25 | importance of static keyword and examples | | |
| 26 | this keyword | | |
| 27 | arrays | | |
| 28 | command line arguments | | |
| 29 | nested classes | | |

UNIT-III Inheritance**CO3 : Understand the inheritance and its types****TB:: Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford**

| | | | |
|----|---------------------------------|---------------------------------------|------------------------------|
| 30 | Inheritance | From: 19-04-21 To: 7-05-21 | Online classes with MS Teams |
| 31 | types of inheritance | | |
| 32 | super keyword | | |
| 33 | final keyword | | |
| 34 | overriding and abstract class | | |
| 35 | Interfaces | | |
| 36 | creating the packages | | |
| 37 | using packages | | |
| 38 | importance of CLASSPATH | | |
| 39 | java.lang package | | |
| 40 | Exception handling | | |
| 41 | importance of try, catch | | |
| 42 | throw, throws and finally block | | |
| 43 | user-defined exceptions | | |
| 44 | Assertions. | | |

UNIT-IV Multithreading and iostreams**CO4 : Understand the multithreading concepts and writing and reading data to and from the file.****TB:: Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford**

| | | | |
|----|---|--|------------------------------|
| 45 | thread life cycle | From: 13-05-21 To: 22-05-21 | Online classes with MS Teams |
| 46 | creation of threads | | |
| 47 | thread priorities | | |
| 48 | thread synchronization | | |
| 49 | communication between threads | | |
| 50 | Reading data from files and writing data to files | | |
| 51 | random access file | | |

UNIT-V Applets and Event Handling**CO5 : Understand the applet programming and even handling****TB:: Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford**

| | | | |
|----|------------------------|---------------------------------------|------------------------------|
| 52 | Applet class | From: 24-05-21 To: 9-06-21 | Online classes with MS Teams |
| 53 | Applet structure | | |
| 54 | Applet life cycle | | |
| 55 | sample Applet programs | | |
| 56 | event delegation model | | |
| 57 | sources of event | | |
| 58 | Event Listeners | | |
| 59 | adapter classes | | |
| 60 | inner classes | | |

UNIT-VI AWT

CO6 : Understand the AWT components and listerner interfaces

TB:: Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford

| | | | |
|----|---------------------------|---|---------------------------------|
| 61 | components and containers | From: 11-06-21 To: 19-6-21 | Online classes with MS Teams |
| 62 | Button | | |
| 63 | Label | | |
| 64 | Checkbox | | |
| 65 | Radio Buttons | | |
| 66 | List Boxes | | |
| 67 | Choice Boxes | | |
| 68 | Container class | | |
| 69 | Layouts | | |
| 70 | Menu and Scrollbar | | |

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**TENTATIVE LESSON PLAN: R163204D
BIO-MEDICAL ENGINEERING**

| | | |
|--|---------------------------------------|---------------------------|
| Course Title: BIO-MEDICAL ENGINEERING | | |
| Section : A & B | Date: 21/07/2021 | Page No : 01 of 04 |
| Revision No : 00 | Prepared By: Dr. B. Vanajakshi | Approved By : HOD |

Tools: MS Teams, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|--|--|--|----------------------------|
| UNIT-I INTRODUCTION TO BIOMEDICAL INSTRUMENTATION | | | |
| CO1: Understand the origin of bio-potential and how to measure various physiological parameters from Human body | | | |
| TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 1 | Age of Biomedical Engineering, Development of Biomedical Instrumentation | From: 29-04-2021 To: 23.07.2021 | Online Class with MS Teams |
| 2 | Man Instrumentation System | | |
| 3 | Components of the Man-Instrument System | | |
| 4 | Physiological System of the Body | | |
| 5 | Problems Encountered in Measuring a Living System | | |
| 6 | Sources of Bioelectric Potentials, Muscle, Bioelectric Potentials | | |
| 7 | Resting and Action Potentials | | |
| 8 | Tutorial | | |
| 9 | Propagation of Action Potential | | |
| 10 | Bioelectric Potentials-ECG, EEG and EMG, Evoked Responses | | |
| 11 | Tutorial | | |
| UNIT-II ELECTRODES AND TRANSDUCERS | | | |
| CO2: Understand the principles involved in Electrodes and Transducers used to acquire different bio-potentials | | | |
| TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, katson Books. | | | |
| 12 | Introduction, Electrode Theory, Bio-potential Electrodes, Examples of Electrodes | From: 11-05-2021 To: 21-05-2021 | Online Class with MS Teams |
| 13 | Basic Transducer Principles, Bio-chemical Transducers | | |
| 14 | The Transducer and Transduction Principles | | |
| 15 | Active Transducers | | |
| 16 | Tutorial | | |
| 17 | Passive Transducers, Transducers for Biomedical Applications | | |

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| 18 | Pulse Sensors, Respiration Sensor | | |
| 19 | Transducers with Digital Output | | |
| 20 | Tutorial | | |
| UNIT-III a) CARDIOVASCULAR SYSTEM AND MEASUREMENTS b) MEASUREMENTS IN THE RESPIRATORY SYSTEM CO3: Learn about the positioning and functioning of the cardiovascular system, measurement of parameters related to cardiology TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 21 | The Heart and Cardiovascular System | From: 19-05-2021 To: 26-05-2021 | Online Class with MS Teams |
| 22 | Electro Cardiography | | |
| 23 | Blood Pressure Measurement | | |
| 24 | Measurement of Blood Flow and Cardiac Output | | |
| 25 | Tutorial | | |
| 26 | Measurement of Heart Sound, Plethysmography | | |
| 27 | Tutorial | | |
| UNIT-IV (a) MEASUREMENTS IN THE RESPIRATORY SYSTEM CO4: Understand the basic knowledge about measurements of parameters related to Respiratory system TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 28 | The Physiology of The Respiratory System | From: 27-05-2021 To: 31-05-2021 | Online Class with MS Teams |
| 29 | Tests and Instrumentation for The Mechanics of Breathing | | |
| 30 | Respiratory Therapy Equipment | | |
| 31 | Tutorial | | |
| UNIT-IV (b) PATIENT CARE AND MONITORING CO5: Gain knowledge about fundamental issues and elements of patient care in ICU and Organization of hospitals with quality care TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 32 | Elements of Intensive-Care Monitoring | From: 01-06-2021 To: 10-06-2021 | Online Class with MS Teams |
| 33 | Patient Monitoring Displays | | |
| 34 | Diagnosis, Calibration and Repair ability of Patient-Monitoring Equipment | | |
| 35 | Tutorial | | |
| 36 | Other Instrumentation for Monitoring Patients | | |
| 37 | Organization of the Hospital for Patient-Care Monitoring | | |
| 38 | Tutorial | | |
| 39 | Pacemakers, Defibrillators | | |
| 40 | Radio Frequency Applications of Therapeutic use | | |

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| UNIT-V (a) THERAPEUTIC AND PROSTHETIC DEVICES | | | |
| CO6: Ability to understand diagnosis and therapy related equipments | | | |
| TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 41 | Audiometers and Hearing Aids | From: 11-06-2021 To: 21-06-2021 | Online Class with MS Teams |
| 42 | Myoelectric Arm, Laparoscope | | |
| 43 | Ophthalmology Instruments | | |
| 44 | Anatomy of Vision, Electrophysiological Tests | | |
| 45 | Ophthalmoscope, Tonometer for Eye Pressure Measurement | | |
| 46 | Tutorial | | |
| 47 | Diathermy, Clinical Laboratory Instruments | | |
| 48 | Biomaterials, Stimulators | | |
| 49 | Tutorial | | |
| UNIT-V (b) DIAGNOSTIC TECHNIQUES AND BIO-TELEMETRY | | | |
| CO7: Learn Ultrasound imaging techniques and its usefulness in diagnosis and different types of radio diagnostic techniques | | | |
| TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 50 | Principles of Ultrasonic Measurement | From: 22-06-2021 To: 07-07-2021 | Online Class with MS Teams |
| 51 | Ultrasonic Imaging | | |
| 52 | Ultrasonic Applications of Therapeutic Uses | | |
| 53 | Ultrasonic Diagnosis | | |
| 54 | X-Ray and Radio-Isotope Instrumentations | | |
| 55 | CAT Scan, Emission Computerized Tomography | | |
| 56 | Tutorial | | |
| 57 | MRI | | |
| 58 | Introduction to Biotelemetry | | |
| 59 | Physiological Parameters Adaptable to Biotelemetry | | |
| 60 | The Components of Biotelemetry System, Implantable Units | | |
| 61 | Telemetry for ECG Measurements during Exercise | | |
| 62 | Telemetry for Emergency Patient Monitoring | | |
| 63 | Tutorial | | |
| UNIT-VI MONITORS, RECORDERS AND SHOCK HAZARDS | | | |
| CO8: Understand the importance of patient safety against electrical hazard and functioning of Amplifiers, display devices and signal recorders | | | |
| TB: "Fundamentals of Bio-Medical Instrumentation", Onkar N. Pandey, 4th edition, Katson Books. | | | |
| 64 | Bio-potential Amplifiers, Monitors, Recorders | | |
| 65 | Shock Hazards and Prevention, Physiological | | |

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| 66 | Shock Hazards from Electrical Equipment | From: 08-07-2021 To: 12-07-2021 | Online Class with MS Teams |
| 67 | Methods of Accident Prevention, Isolated Power Distribution System | | |
| 68 | Tutorial | | |

(Dr. B. Vanajakshi)

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TENTATIVE LESSON PLAN: R1642041
CELLULAR AND MOBILE COMMUNICATIONS

| Course Title: CELLULAR AND MOBILE COMMUNICATIONS | | | |
|--|---|-----------------------------------|-------------------------------|
| Section : Sec A & B | Date : 06-04-2021 | Page No : 01 of 03 | |
| Revision No : 00 | Prepared By : P. Ratna Bhaskar | Approved By : HOD | |
| Tools: Black board, PPTs | | | |
| No. of Periods | TOPIC | Date | Mode of Delivery |
| UNIT –I CELLULAR MOBILE RADIO SYSTEMS | | | |
| CO1:: Introducing cellular mobile radio systems and how operation takes place in mobile radio environment | | | |
| TB: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006. | | | |
| 1. | Introduction of cellular mobile systems | 6/4/21 To 20/4/21 | Online classes using MS Teams |
| 2. | Spectrum efficiency considerations | | |
| 3. | Why 800 MHz and history of 800MHz | | |
| 4. | Trunking Efficiency and Basic cellular systems | | |
| 5. | Performance Criteria | | |
| 6. | Uniqueness of Mobile radio environment | | |
| 7. | Delay Spread, Coherence Bandwidth, direct wave path, line of sight path | | |
| 8. | Noise level in cellular system | | |
| 9. | Hexagonal shaped cells | | |
| 10. | Operation of cellular systems | | |
| 11. | Analog and Digital cellular systems | | |
| 12. | Tutorial | | |
| ELEMENTS OF CELLULAR RADIO SYSTEMS DESIGN | | | |
| CO1:: Be acquainted with the role of cellular and mobile communications in frequency management issues.. | | | |
| TB: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006. | | | |
| TB: Wireless Communications-Theodore. S. Rappaport, Pearson education | | | |
| 13. | General description of the problem | 20/4/21 To 22/4/21 | Online classes using MS Teams |
| 14. | Concept of frequency reuse channels | | |
| 15. | Co-channel interference reduction factor | | |
| 16. | Desired C/I from a normal case in an Omnidirectional antenna systems | | |
| 17. | Handoff mechanism and cell splitting | | |
| 18. | Consideration of the components of cellular systems | | |
| 19. | Tutorial | | |
| UNIT –II INTERFERENCE | | | |
| CO2:: Be acquainted with different interference factors influencing cellular and mobile communications. | | | |
| TB: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006. | | | |
| 20. | Introduction of Cochannel Interference | | |
| 21. | Real time cochannel interference measurement at mobile radio transceivers | | |

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| 22. | Design of Omnidirectional antenna in a worst case | 26/4/21 To 4/5/21 | Online classes using MS Teams |
| 23. | Design of a directional antenna system | | |
| 24. | Lowering the antenna height | | |
| 25. | Notch in a tilted antenna pattern | | |
| 26. | Umbrella pattern effect | | |
| 27. | Use of parasitic elements | | |
| 28. | Diversity receiver | | |
| 29. | Types of non-Cochannel interference | | |
| 30. | Adjacent channel interference | | |
| 31. | Near-end-Far-end interference | | |
| 32. | Interference between systems, UHF and long distance interference | | |
| 33. | Tutorial | | |

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| UNIT –III FREQUENCY MANAGEMENT AND CHANNEL ASSIGNMENT | | | |
| CO3:: Be acquainted with the role of cellular and mobile communications in frequency management issues | | | |
| TB:: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006. | | | |
| TB:: Wireless Communications-Theodore. S. Rappaport, Pearson education | | | |
| 34. | Frequency management: Numbering and grouping | 4/5/21 To 6/5/21 | Online classes using MS Teams |
| 35. | Setup, access channels | | |
| 36. | Paging channels | | |
| 37. | Channel assignment to the cell site | | |
| 38. | Fixed channel assignment, adjacent, channel sharing and borrowing | | |
| 39. | Adjacent, channel sharing and borrowing | | |
| 40. | Sectorization and overlaid cells | | |
| CELL COVERAGE FOR SIGNAL AND TRAFFIC | | | |
| CO3:: Be able to efficiently use the background behind developing different path loss and/or radio coverage in cellular environment | | | |
| TB: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006. | | | |
| 41. | General introduction and problems | 6/5/21 To 10/5/21 | Online classes using MS Teams |
| 42. | Mobile point –to-point model (LEE model) | | |
| 43. | Phase difference between a direct path and reflected path | | |
| 44. | Constant standard deviation along a path loss slope and general formula for mobile radio propagation | | |
| 45. | Propagation over water or flat open area | | |

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|-----|---|--|--|
| 46. | Land to mobile transmission over water and problems | | |
| 47. | Foliage loss and propagation in Near –in distance | | |
| 48. | Long distance propagation and form of a point –to-point model | | |
| 49. | Tutorial | | |

UNIT – IV CELLSITE AND MOBILE ANTENNAS

CO4:: Gain the understanding of cellsite antennas and mobile antennas

TB: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006.

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|-----|---|-----------------------------------|-------------------------------|
| 50. | Sum and difference patterns and their synthesis | 10/5/21 To 15/5/21 | Online classes using MS Teams |
| 51. | Omni directional antennas at cellsite | | |
| 52. | Directional antennas for interference reduction | | |
| 53. | Space diversity antennas | | |
| 54. | Umbrella pattern antennas | | |
| 55. | Unique situation at cellsite antennas | | |
| 56. | Mobile roof mounted and glass mounted antennas and high gain antennas | | |
| 57. | Horizontally and vertically oriented space diversity antennas | | |
| 58. | Tutorial | | |

UNIT – V HANDOFF AND DROPPED CALLS

CO5 :: Obtain the knowledge of different handoff techniques and how dropped calls exist

TB:: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006.

TB:: Wireless Communications-Theodore. S. Rappaport, Pearson education

| | | | |
|-----|--|-----------------------------------|-------------------------------|
| 59. | Why handoffs, types of Handoffs and handoff initiation | 18/5/21 To 20/5/21 | Online classes using MS Teams |
| 60. | Delaying handoff and forced handoff | | |
| 61. | Mobile assisted handoff(MAHO) | | |
| 62. | Cellsite handoffs and Intersystem handoff | | |
| 63. | Cell splitting | | |
| 64. | Microcells | | |
| 65. | Vehicle- locating methods | | |
| 66. | Introduction to dropped call rate | | |
| 67. | Formula of dropped call rate | | |
| 68. | Problems | | |
| 69. | Finding the values of Ω and μ | | |
| 70. | Tutorial | | |

UNIT - VI DIGITAL CELLULAR NETWORKS

CO6 : Gain the knowledge of digital cellular networks in different generations.

TB:: Mobile Cellular Telecommunications-W.C.Y. Lee, Tata McGraw Hill 2nd Edition, 2006.

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|-----|---|--|--|
| 71. | GSM Architecture | | |
| 72. | GSM Channels and Channel modes | | |
| 73. | Multiple access scheme | | |
| 74. | TDMA | | |
| 75. | TDMA channel bursts and training sequence | | |

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|-----|--------------------------------------|-------------------------|----------------------------------|
| 76. | CDMA | 22/5/21 To 5/6/21 | Online classes using MS Teams |
| 77. | OFDMA | | |
| 78. | Architecture of 3G cellular systems. | | |
| 79. | Tutorial | | |

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S. Sri Gowri

S. Sri Gowri
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SRK Institute of Technology
ENIKERAPU, VIJAYAWADA-521 108

TENTATIVE LESSON PLAN: R1642042
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

| | | |
|--|-----------------------------------|---------------------------|
| Course Title: ELECTRONIC MEASUREMENTS AND INSTRUMENTATION | | |
| Section : A & B | Date : 06-04-2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By : P. RAVEENDRA | Approved By : HOD |

Tools: MS Teams , PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|--|--|--|----------------------------------|
| UNIT –I | | | |
| CO1:: Select the instrument to be used based on the requirements. | | | |
| TB: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004. | | | |
| 1. | Performance characteristics of instruments | FROM: 06-04-2021 TO: 16-04-2021 | Online Class with MS Teams |
| 2. | Static characteristics Accuracy, Resolution, Precision | | |
| 3. | Expected value, Error, Sensitivity Errors in Measurement | | |
| 4. | Expected value, Error, Sensitivity Errors in Measurement | | |
| 5. | Dynamic Characteristics-speed of response | | |
| 6. | Fidelity, Lag and Dynamic error. | | |
| 7. | Dynamic Characteristics-speed of response | | |
| 8. | Fidelity, Lag and Dynamic error. | | |
| 9. | DC Voltmeters- Multi-range | | |
| 10. | DC Voltmeters- Multi-range | | |
| 11. | Range extension/Solid state and differential voltmeters | | |
| 12. | Tutorial | | |
| 13. | AC voltmeters- multi range, range extension | | |
| 14. | Shunt Thermo couple type RF ammeter | | |
| 15. | Ohmmeters series type, shunt type | | |
| 16. | Multimeter for Voltage, Current and resistance elements | | |
| 17. | Tutorial | | |
| UNIT –II | | | |
| CO2:: Understand and analyze different signal generators and analyzers | | | |
| TB: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004. | | | |
| 18. | Signal Generator- fixed and variable | FROM: 17-04-2021 TO: 30-04-2021 | Online Class with MS Teams |
| 19. | AF oscillators, AF sine wave signal generators | | |
| 20. | AF square wave signal generators | | |
| 21. | Function Generators Square pulse, Random noise | | |
| 22. | Sweepgenerator | | |
| 23. | Arbitrary waveformgenerator | | |
| 24. | Wave Analyzers | | |
| 25. | Harmonic Distortion Analyzers | | |
| 26. | Spectrum Analyzers | | |
| 27. | Digital Fourier Analyzers | | |
| 28. | Tutorial | | |

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| UNIT – III | | | |
| CO3:: Understand the design of oscilloscopes for different applications | | | |
| TB:: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004. | | | |
| 29. | Oscilloscopes CRT features ,vertical amplifiers | FROM: 01-05-2021 | Online Class with MS Teams |
| 30. | horizontal deflection system | | |
| 31. | sweep, trigger pulse, delay line | | |
| 32. | sync selector circuits, simple CRO | | |
| 33. | Triggered sweep CRO | | |
| 34. | Dual beam CRO ,Dual trace oscilloscope | | |
| 35. | Sampling oscilloscope, | | |
| 36. | storage oscilloscope | | |
| 37. | digital readout oscilloscope, DSO | | |
| 38. | Lissajous method of frequency measurement | | |
| 39. | Standardspecifications of CRO | | |
| 40. | probes for CRO- Active & Passive, attenuator type | | |
| 41. | Tutorial | | |
| UNIT –IV | | | |
| CO4:: Use AC and DC bridges for relevant parameter measurement | | | |
| TB:: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004. | | | |
| 42. | AC Bridges Measurement of inductance- Maxwell’s bridge. | FROM: 21-05-2021 | Online Class with MS Teams |
| 43. | Anderson bridge. | | |
| 44. | Measurement of capacitance -Shearing Bridge | | |
| 45. | Wheat stone bridge | | |
| 46. | Wien’s Bridge | | |
| 47. | Errors and precautions in using bridges | | |
| 48. | Q-meter. | | |
| 49. | Tutorial | | |
| UNIT – V | | | |
| CO5 :: Design different transducers for measurement of different parameters | | | |
| TB:: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004. | | | |
| 50. | Transducers | FROM: 31-05-2021 | Online Class with MS Teams |
| 51. | active & passive transducers | | |
| 52. | Resistance, Capacitance, | | |
| 53. | inductance | | |
| 54. | Strain gauges | | |
| 55. | LVDT | | |
| 56. | Piezo Electric transducers | | |
| 57. | Resistance Thermometers | | |
| 58. | Thermocouples | | |
| 59. | Thermistors | | |

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| 00. | SENSISTORS | | |
| 61. | Tutorial | | |
| UNIT - VI | | | |
| CO6 :Design different transducers for measurement of different parameters | | | |
| TB::Electronic Measurements & Instrumentations by K. Lal Kishore, PearsonEducation - 2005. | | | |
| 62. | Measurement of physical parameters | FROM: 17-06-2021 | Online Class with MS Teams |
| 63. | Measurement of force | | |
| 64. | Measurement of pressure, velocity | | |
| 65. | Measurement of humidity, moisture | | |
| 66. | Measurement of SPEED, proximity | | |
| 67. | Measurement of SPEED, proximity | | |
| 68. | Measurement of Displacement | | |
| 69. | Data acquisition systems | | |
| 70. | Data acquisition systems | | |
| 71. | Tutorial | | |

TB1:: Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.

TB2::Electronic Measurements & Instrumentations by K. Lal Kishore, PearsonEducation - 2005.

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TENTATIVE LESSON PLAN: R1642043
SATELLITE COMMUNICATIONS

| | | |
|---|---|---------------------------|
| Course Title: Satellite Communications | | |
| Section: A & B | Date :06-04-2021 | Page No : 01 of 03 |
| Revision No : 00 | Prepared By : K.VENKATESWARA RAO | Approved By : HOD |

Tools : MS Teams, PPTs

| No. of Periods | TOPIC | Date | Mode of Delivery |
|---|--|--|----------------------------------|
| <p>UNIT –I INTRODUCTION, ORBITAL MECHANICS AND LAUNCHERS CO 1: student will be introduced to Understand the basic concepts, applications, frequencies used and types of satellite communications & the concept of look angles, launches and launch vehicles and orbital effects in satellite communications. T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003. T2: Satellite Communications Engineering – Wilbur L. Pritchard, Robert A Nelson and Henri G. Suyderhoud, 2nd Edition, Pearson Publications, 2003.</p> | | | |
| 1. | Origin of Satellite Communications | From: 06-04-21 To: 13-06-21 | Online Class with MS Teams |
| 2. | Historical Back-ground | | |
| 3. | Basic Concepts of Satellite Communications | | |
| 4. | Frequency allocations for Satellite services | | |
| 5. | Applications | | |
| 6. | Future Trends of Satellite Communications | | |
| 7. | Tutorial | | |
| 8. | Orbital Mechanics | | |
| 9. | Look Angle determination | | |
| 10. | Orbital perturbations | | |
| 11. | Orbit determination, radius derivation | | |
| 12. | launches and launch vehicles | | |
| 13. | Orbital effects in communication systems performance | | |
| 14. | Tutorial | | |
| <p>UNIT –II SATELLITE SUBSYSTEMS CO 2: Student can understand about various satellite subsystems and its functionality. T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.</p> | | | |
| 15. | Attitude and orbit control system | From: 27-04-21 To: 06-05-21 | Online Class with MS Teams |
| 16. | Telemetry, Tracking, Command and monitoring | | |
| 17. | power systems | | |
| 18. | communication subsystems | | |
| 19. | Satellite antennas | | |
| 20. | Equipment reliability and Space qualification | | |
| 21. | Tutorial | | |
| <p>UNIT - III SATELLITE LINK DESIGN CO 3: Student can understand the concepts of satellite link design and calculation of C/N ratio. T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.</p> | | | |
| 22. | Basic transmission theory | | |

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| 23. | system noise temperature and G/T ratio | From: 06-05-21 To: 13-06-21 | Online Class with MS Teams |
| 24. | Design of down links | | |
| 25. | Design of down links | | |
| 26. | up link design | | |
| 27. | up link design | | |
| 28. | Design of satellite links for specified C/N | | |
| 29. | Tutorial | | |
| 30. | System design example | | |
| 31. | System design example | | |

UNIT - IV MULTIPLE ACCESS

CO 4: Student can understand the concepts of multiple access and various types of multiple access techniques in satellite systems.

T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

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| 32. | Frequency division multiple access (FDMA) | From: 13-05-21 To: 25-06-21 | Online Class with MS Teams |
| 33. | Intermodulation | | |
| 34. | Calculation of C/N | | |
| 35. | Time division Multiple Access (TDMA) | | |
| 36. | Frame structure | | |
| 37. | Examples | | |
| 38. | Satellite Switched TDMA | | |
| 39. | Onboard processing | | |
| 40. | DAMA | | |
| 41. | Tutorial | | |
| 42. | Code Division Multiple access (CDMA) | | |
| 43. | Spread spectrum transmission and reception | | |

UNIT – V EARTH STATION TECHNOLOGY & LOW EARTH ORBIT AND GEO-STATIONARY SATELLITE SYSTEMS

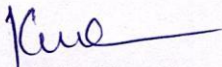
CO 5: student can understand the concepts of Earth Station Technology & Low Earth Orbit and Geo-Stationary satellite systems.

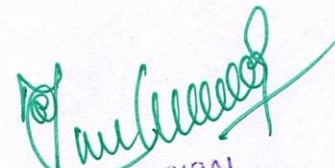
T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.

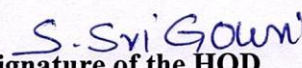
T2: Satellite Communications Engineering – Wilbur L. Pritchard, Robert A Nelson and Henri G.Snyderhoud, 2nd Edition, Pearson Publications, 2003.

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| 44. | Introduction | From: 25-05-21 To: 09-06-21 | Online Class with MS Teams |
| 45. | Transmitters | | |
| 46. | Receivers | | |
| 47. | Antennas | | |
| 48. | Tracking systems | | |
| 49. | Terrestrial interface | | |
| 50. | Primary power test methods | | |
| 51. | Orbit consideration | | |
| 52. | coverage and frequency considerations | | |
| 53. | Delay & Throughput considerations | | |
| 54. | System considerations | | |

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| 55. | Operational NGSO constellation Designs | | |
| 56. | Tutorial | | |
| <p>UNIT – VI SATELLITE NAVIGATION & THE GLOBAL POSITIONING SYSTEM CO 6: Student can understand the concepts of satellite navigation, architecture and applications of GPS. T1: Satellite Communications – Timothy Pratt, Charles Bostian and Jeremy Allnutt, WSE, Wiley Publications, 2nd Edition, 2003.</p> | | | |
| 57. | Radio and Satellite Navigation | From: 10-06-21 To: 22-06-21 | Online Class with MS Teams |
| 58. | GPS Position Location principles | | |
| 59. | GPS Receivers and codes | | |
| 60. | Satellite signal acquisition, GPS Navigation Message | | |
| 61. | GPS signal levels | | |
| 62. | GPS receiver operation | | |
| 63. | GPS C/A code accuracy | | |
| 64. | Differential GPS | | |
| 65. | Differential GPS | | |
| 66. | Tutorial | | |


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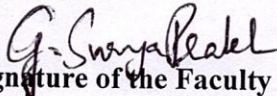
TENTATIVE LESSON PLAN: R164204A
WIRELESS SENSOR NETWORKS

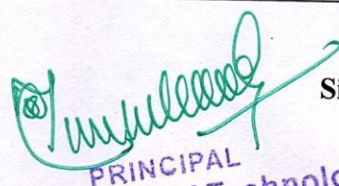
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|---|--------------------------------------|---------------------------|
| Course Title: WIRELESS SENSOR NETWORKS | | |
| Section : A & B | Date : 9/4/21 | Page No : 01 of 03 |
| Revision No : | Prepared By : G SURYA PRAKASH | Approved By : HOD |


Tools: MS Teams , PPT

| No. of Periods | TOPIC | Date | Mode of Delivery |
|--|--|---|----------------------------|
| UNIT –I OVERVIEW OF WIRELESS SENSOR NETWORKS | | | |
| CO1: To understand basics of Wireless Sensor Networks and challenges faced in designing Sensor nodes and Wireless Sensor Networks. TB: Feng Zhao & Leonidas J. Guibas, "Wireless Sensor Networks- An Information Processing Approach", Elsevier, 2007. | | | |
| 1 | Key definitions of sensor networks | From: 9-4-21 To: 28-4-21 | Online Class with MS Teams |
| 2 | Advantages of sensor Networks and Driving Applications | | |
| 3 | Unique constraints an challenges | | |
| 4 | Enabling Technologies for Wireless Sensor Networks | | |
| 5 | Single-Node Architecture - Hardware Components, Energy Consumption of Sensor Nodes | | |
| 6 | Operating Systems and Execution Environments | | |
| 7 | Network Architecture -Sensor Network Scenarios | | |
| 8 | Optimization Goals and Figures of Merit, Gateway Concepts | | |
| 9 | Single-Node Architecture - Hardware Components, Energy Consumption of Sensor Nodes | | |
| 11 | Tutorial | | |
| UNIT-II NETWORKING Technologies | | | |
| CO2: To understand PANs, MANETs and WANETs. TB: Ad Hoc Wireless Networks: Architectures and Protocols - C. Siva Ram Murthy and B.S.Manoj, 2004, PHI | | | |
| 12 | Physical Layer and Transceiver Design Considerations | From: 29-4-21 To: 4-5-21 | Online Class with MS Teams |
| 13 | Personal area network (PAN), it's topology | | |
| 14 | Hidden node and exposed node problem | | |
| 15 | Topologies of MANETs, WANETs | | |
| 16 | Tutorial | | |
| UNIT-III MAC Protocols for Wireless Sensor Networks | | | |
| CO3: To understand the issues in designing MAC protocol for WSN and to know different MAC protocols used for WSN. TB: Ad Hoc Wireless Networks: Architectures and Protocols - C. Siva Ram Murthy and B.S.Manoj, 2004, PHI | | | |
| 17 | Issues in Designing a MAC protocol for Ad Hoc Wireless Networks | From: 5-5-21 To: 13-5-21 | Online Class with MS Teams |
| 18 | Design goals of a MAC Protocol for Ad Hoc Wireless Networks | | |
| 19 | Classifications of MAC Protocols, | | |
| 20 | Contention - Based Protocols | | |
| 21 | Contention - Based Protocols | | |
| 22 | Contention - Based Protocols | | |
| 23 | Contention - Based Protocols with reservation Mechanisms | | |
| 24 | Contention - Based Protocols with reservation Mechanisms | | |
| 25 | Contention - Based Protocols with reservation Mechanisms | | |
| 26 | Contention – Based MAC Protocols with Scheduling Mechanisms | | |
| 27 | Contention – Based MAC Protocols with Scheduling Mechanisms | | |
| 28 | MAC Protocols that use Directional Antennas | | |
| 30 | Other MAC Protocols – Tutorial | | |

| UNIT-IV ROUTING PROTOCOLS | | | |
|--|---|--|----------------------------|
| CO4: To understand the issues in designing routing protocol for WSN and to know different routing protocols used for WSN. TB: Ad Hoc Wireless Networks: Architectures and Protocols - C. Siva Ram Murthy and B.S.Manoj, 2004, PHI | | | |
| 32 | Introduction, Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks | From: 14-5-21 To: 31-5-21 | Online Class with MS Teams |
| 33 | Classification of Routing Protocols | | |
| 34 | Table –Driven Routing Protocols | | |
| 35 | Table –Driven Routing Protocols | | |
| 36 | On – Demand Routing Protocols | | |
| 37 | On – Demand Routing Protocols | | |
| 39 | Hybrid Routing Protocols | | |
| 40 | Routing Protocols with Efficient Flooding Mechanisms | | |
| 41 | Hierarchical Routing Protocols | | |
| 43 | Power – Aware Routing Protocols | | |
| 44 | Proactive Routing- Tutorial | | |
| UNIT-V TRANSPORT LAYER AND SECURITY PROTOCOLS | | | |
| CO6: To understand the issues in designing transport layer and security protocol for WSN and to know different transport layer and security protocols used for WSN. TB: Ad Hoc Wireless Networks: Architectures and Protocols - C. Siva Ram Murthy and B.S.Manoj, 2004, PHI | | | |
| 46 | Introduction | From: 1-6-21 To: 8-6-21 | Online Class with MS Teams |
| 47 | Issues in Designing a Transport Layer Protocol | | |
| 48 | Design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks | | |
| 49 | Classification of Transport Layer Solutions | | |
| 50 | TCP Over Ad Hoc Wireless Networks | | |
| 51 | TCP Over Ad Hoc Wireless Networks | | |
| 52 | Other Transport Layer Protocol for Ad Hoc Wireless Networks | | |
| 53 | Tutorial | | |
| UNIT- VI SECURITY IN AD HOC WIRELESS NETWORKS, SENSOR NETWORK PLATFORMS AND TOOLS, APPLICATIONS OF WSN | | | |
| CO7: To understand types of security attacks in WSN and to design protocols providing security in wireless sensor networks. To understand sensor network platforms and to understand some applications of WSN TB: Ad Hoc Wireless Networks: Architectures and Protocols - C. Siva Ram Murthy and B.S.Manoj, 2004, PHI | | | |
| 54 | Network Security Requirements | From: 9-6-21 To: 30-6-21 | Online Class with MS Teams |
| 55 | Issues and Challenges in Security Provisioning | | |
| 56 | Network Security Attacks, Key Management | | |
| 57 | Secure Routing in Ad Hoc Wireless Networks | | |
| 58 | Sensor Node Hardware – Berkeley Motes | | |
| 59 | Programming Challenges | | |
| 60 | Node-level software platforms, Node-level Simulators | | |
| 61 | State-centric programming | | |
| 62 | APPLICATIONS of WSN: Ultra wide band radio communication | | |
| 63 | Wireless fidelity systems, Future directions | | |
| 64 | Home automation, smart metering | | |
| 65 | Tutorial | | |


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