Dharmabad Shikshan Sanstha's

LAL BAHADUR SHASTRI MAHAVIDHYALAYA, DHARMABAD

PROFORMA FOR PROGRAM AND COURSE OUT COME (2.6.1)

Name Of the Teacher: **Dr Kanse K S** Academic Year: **2022-23**

Program: B.Sc. Class: First Year Sem I Subject: Physics

Course Code: CCPI (Sec A) Paper I Paper Title: Mechanics and Properties of Matter

Unit No	Unit Name	Topics	Unit wise outcome
I	Mechanics	Laws of Mechanics (Newton's Laws of Motion), Newton's Law of Gravitation, Keplar's Law of Planetary Motion, Gravitational Field, Gravitational Intensity, Gravitational Potential, Gravitational Potential energy, Conservation Law, Work, Power, Kinetic Energy (Work Energy Theorem), Conservation of energy for a particle energy function, Motion of a body near the surface of earth, Types of conservative and non- conservative forces	Will be able to determine gravitational force, intensity, potential etc corresponding any two objects as well as work, power kinetic energy etc.
II	Surface Tension	Molecular Forces, Surface Tension & its explanation, Pressure difference across a curved surface, Expression for Excess Pressure inside a Spherical Drop and spherical Soap Bubble, Surface Tension by Jaeger's Method, Surface Tension by Ferguson Method.	Can find experimentally surface tension of any surface and excess pressure across any curved surface.
III	Viscosity	Introduction, Coefficient of Viscosity, Streamline flow, critical velocity, Reynolds Number & its significance, Bernoullies Theorem, Poiseuille's equation for the flow of liquid through a tube, Experimental determination of coefficient viscosity by Poiseuille's Method.	Can determine coefficient of viscosity of any fluid.
IV	Elasticity	Introduction, Hooke's Law, Elastic Constants (Y, K & ή), Poisson's Ratio, Twisting couple on a cylinder or a (wire), Torsional pendulum ,Bending	Can determine the young, rigidity and

		of Beam, Bending Moment, Cantilever (Weight of the beam is ineffective, Weight of the beam is effective), Depression of a Beam supported at the ends and loaded at the Centre, Determination of Y by bending of beam.	bulk modulus of any material.

Specify Course outcome: After completion of this course the students will be able to

1) Calculate gravitational potential, gravitational potential energy and gravitational intensity of any objects.
2) Determine viscosity of fluids, surface tension of various surfaces and can also find all modulus of elasticity.

Signature of Teacher

Dr Kanse K S

Name of the Teacher: **Dr Y. S. Joshi** Department: **Physics**

Program: B.Sc. Class: First Year Sem I Subject: Physics

Course Code: CCP- I (Sec B) Paper No. II Paper Title: Mathematical methods in Physics

Unit Number	Unit Name	Topics	Unit-wise Outcomes
I	Complex variables	Introduction, Definition, complex algebra (Addition, Subtraction, Multiplication, Division, conjugate complex number), Argand diagram, Graphical representation of Sum, Difference, product and Quotient of complex number, Properties of moduli ,arguments and geometry of complex numbers, Rectangular, polar and exponential form of complex numbers.	Students will be able to apply the concept of complex variables
II	Vector Analysis	Introduction to Scalars, Vectors, Dot products and Cross Product of two vectors, Vector triple product, Scalar triple product, Scalar and vector field , Gradient of a scalar field , Divergence of a vector field and Curl of a vector field and their Physical interpretation , Laplacian Operator ($\square^2$), Line integral, Surface integral, Volume integral, Gauss's divergence theorem, Stoke's theorem, (Statements only),Vector identities.	1. Knowledge of concepts in vectors. 2. Use of them to understand various phenomenon and their physical significance
III	Partial Differentiation	Definition of Partial Differentiation, Order or Successive Differentiation, total Differentiation and Chain rule, Change of variables from Cartesian to Polar Co-ordinates, Condition for maxima and minimum (without proof), Linear Homogeneous Partial differential equations with constant coefficients, Rules for finding the complementary function.	This unit will enable the students to solve the problems related to partial differentiation..
IV	Fourier series	Introduction of Periodic Functions, Definition of Fourier Series, Evaluation of the coefficients of Fourier series, Cosine series, Sine series, Dirichlet's Conditions, Graphical representations of even and odd functions, Advantages of Fourier series, Physical applications of Fourier series analysis: Square wave and half wave Rectifier.	Fourier Analysis unit will enable the studetns to analyze the periodic functions.

Specify Course Outcome:

After completion of this course students will be able

1. To apply the concept of vectors and complex variables to various physical quantities.
2. This course will also enable the students to solve the problems related to partial differentiation. Fourier Analysis unit will enable the students to analyze the periodic functions.

Signature of Teacher

Dr Y. S. Joshi

Name of the Teacher: **Dr TAK A S** Academic Year: **2021-22**

Program: B.Sc. Class : First Year Sem II Subject: Physics

Course Code: CCPII (Sec A) Paper III Paper Title : Heat and Thermodynamics

Unit No	Unit Name	Topics	Unit wise outcome
I	Thermometry	Types of Thermometers, Centigrade and Fahrenheit scale, relation between Celsius, Kelvin, Fahrenheit & Rankine scales, Platinum resistance thermometer, Seebeck effect.	Majority students passed
II	Real Gases and Their Behavior	Behavior of gases at high pressure, Boyle temperature, Andrew's Experiment on CO2, Amagat's Experiment, Vander wall's Equation of State, Critical Constants, Corresponding states, Coefficients of Vander wall's Equation, Reduced Equation of State, Joule Thomson Porous Plug Experiment, Temperature of Inversion, Relation between Boyle temperature and Temperature of Inversion	Majority students passed
III	Transport Phenomenon in Gases	Molecular Collisions, Mean free path, Expression for mean free path, Transport Phenomena, Viscosity of Gases, Thermal Conductivity of Gases, Diffusion, Inter relation between three transport coefficients.	Majority students passed
IV	Thermodynamics and Thermodynamical Relations	First Law of Thermodynamics, Relation connecting P, V and T in an Adiabatic Process, Second Law of Thermodynamics (Kelvin and Clausius statements), Carnot's cycle, Carnot's heat Engine, Carnot's Theorem, Entropy, Entropy of Irreversible processes entropy of reversible process, Third Law of Thermodynamics. Internal energy, Helmholtz' function, Enthalpy, Gibb's function, Maxwell's Thermodynamical Relations, T- dS equations, Clausius-Clapeyron latent heat equations.	Majority students passed

Specify Course outcome : All students acquired fundamental knowledge and are ready to acquire advance knowledge necessary for research skill development

Signature of Teacher

Dr Tak A S

Name Of the Teacher : **Dr Y. S. Joshi** Academic Year : **2021-22**

Department: **Physics** Class : First Year Sem II

Course Code: CCP- II (Sec B) Paper IV Paper Title: Electricity and Magnetism

Unit Number	Unit Name	Topics	Unit-wise Outcomes
I	Electrostatics and Magnetostatics	Concept of electric field, electric flux, Gauss's law, conservative nature of electric filed, concept of electric potential, potential energy of a system of charges, energy density in an electric field. Concept of Magnetic Field (**B)** and magnetic flux (Φ), Lorentz Force, Force on a current carrying conductor, Biot and Savert,s Law, Applications of Biot-Savert,s law to straight and circular current carrying conductor, Amperes circuital law (Integral form), Curl of magnetic field (Ampere's circuital law differential form). Motion of charged particles in uniform electric field, Motion of charged particle in magnetic field, Maxwell's displacement current.	Students understands the concepts of static and dynamical electrical magnetic fields.
II	Magnetization	Introduction, Magnetic Induction (**B)**, Flux density, Intensity of magnetization (**I)**, Intensity of magnetizing field (**H**) Permeability, Susceptibility, Relation between Permeability and Susceptibility, Hysteresis curve, Brief introduction of ferromagnetic, paramagnetic and diamagnetic phenomenon, I-H curve By magnetometer method, Principle and construction of Moving coil type Ballistic Galvanometer with theory (**qαθ**).	Able to understand the Concepts of magnetization and principle of Galvanometer.
III	Time Varying (Dynamic) Fields (Waves)	Definition of electromagnetic induction, Faraday's Law of Electromagnetic Induction, Lenz's law, Self induction, Self induction of a Solenoid, Mutual induction, Mutual Induction of a pair of coil, Work done in establishing current in an inductance, Mutual inductance of a Co axial solenoids, Problems.	Knowledge of the Electromagntic induction
IV	Alternating Current circuits	Brief introduction to AC through Capacitor and Inductor, Nature of Impedance(z) and Reactance(**x**) of Inductance (**zL&xl**),	Understand the basic difference between the DC

		Capacitance (**zc&xc**) and Resistance(**zR&xR**), Complex number and J-operator, Complex Impedance and reactance, Application of Complex numbers in solving AC Circuit (Not vector diagram), L-C-R (Series resonance and Parallel resonance) circuits. Power in AC circuit and Power Factor, Principle, working and types of transformers (step up and step down with figures), Current, voltage and turns ratio of transformer, Efficiency of transformer, AC bridges (Wheatstone bridge).	and AC circuits and their functioning.

Specify Course outcome:

1. This course is of most applied nature and will enable the students to understand the role of electricity in everyday life, relate electrical conduction.
2. To understand the working principles of various electrical components and gadgets.

Signature of Teacher

Dr. Y S Joshi

Name Of the Teacher **: Dr Kanse K. S** Academic Year : **2021-22**

Program: B.Sc. Class : Second Year Sem III Subject: Physics

Course Code :CCP III (Sec A) Paper VI Paper Title : Wave and Oscillations

Unit Number	Unit Name	Topics	Unit-wise outcome
Unit. I	Waves	Wave velocity and particle velocity, Differential equation of wave motion, Energy of a plane progressive wave, Equation of motion of a vibrating string, Frequency and period of vibration of a string	Will be able to determine various physical parameters of waves.
Unit. II	Stationary waves	Analytical treatment of stationary waves (closed end & open end pipe at the other end), Investigation of pressure and density changes at displacement, Nodes and Antinodes, Distribution of Energy in a stationary wave, Energy is not transferred in a stationary waves.	Will be able to determine various physical parameters of waves.
Unit III	Free and Forced Vibrations	Free Vibrations, Undamped vibrations, Damped Vibrations. Damped SHM in an electrical circuit. Forced Vibrations, Resonance and Sharpness of Resonance, Phase of Resonance ,Examples of forced and resonant vibrations	Will be able to determine various physical parameters of waves.
Unit IV	Acoustics and Ultrasonics	Reverberation, Reverberation time, Derivation of Reverberation Time (Sabine's formula), Absorption coefficient, Determination of absorption coefficient, Acoustic measurements, Conditions for good acoustical designs of an auditorium, Ultrasonics, Piezoelectric Oscillator, Magnetostriction Oscillator, Detection of ultrasonic waves, Acoustic grating, Application of Ultrasonic Waves	Will be able to determine reverberation time of an auditorium and can generate ultrasonic waves by any of the methods.

Specify Course outcome: After completion of this course the students will be able to

1) Determine various physical parameters of waves
2) Determine reverberation time of an auditorium and can generate ultrasonic waves by any of the methods
3) Different between free and forced vibrations
4) Determine reverberation time of an auditorium and can generate ultrasonic waves by any of the methods.

Signature of Teacher

Dr. Kanse K S

Name of the Teacher: **Dr Tak A S** Academic Year: **2021-22**

Program: B.Sc. Class: Second Year Sem III Subject: Physics

Course Code: CCP III (Sec B)Paper VII Paper Title : Statistical Physics, Electromagnetics and Theory of Relativity

Unit No	Unit Name	Topics	Unit wise outcome
I	Statistical Basis and Thermodynamics	Reverberation, Reverberation time, Derivation of Reverberation Time (Sabine's formula), Absorption coefficient, Determination of absorption coefficient, Acoustic measurements, Conditions for good acoustical designs of an auditorium, Ultrasonics, Piezoelectric Oscillator, Magnetostriction Oscillator, Detection of ultrasonic waves, Acoustic grating, Application of Ultrasonic Waves	Majority students passed
II	Classical Statistics and Quantum Statistics	Phase space, Maxwell-Boltzmann Distribution law, Quantum Statistics-Bose- Einstein Distribution law, Fermi- Dirac Distribution law, comparison of M. B., B.E. and F. D. statistics, application of Quantum statistics to Photon gas and Electron gas	Majority students passed
III	Electromagnetic Theory and Maxwell's Equations	Ampere's Law and Steady State current, Generalization of Ampere's Law and displacement current, Maxwell's Equations, Derivation of Maxwell's Equations, The electromagnetic Energy and Poynting Vector, The wave Equation for free space.	Majority students passed
IV	Relativity	Introduction, frame of reference, Postulates of Special Theory of Relativity, Galilean Transformations, Lorentz Transformations, Length Contraction, Time dilation, Velocity addition, relativity of mass, Mass energy relation. (	Majority students passed

Specify Course outcome : All students acquired fundamental knowledge and are ready to acquire advance knowledge necessary for research skill development

Signature of Teacher

Dr Tak A S

Name of the Teacher: **Dr Kanse K S** Academic Year: **2021-22**

Program: B.Sc. Class : Second Year Sem VI Subject: Physics

Course Code :CCPIV (Sec A) Paper VIII Paper Title : Optics and Lasers

Unit Number	Unit Name	Topics	Unit-wise outcome
Unit. I	Geometrical Optics	Cardinal Points of an Optical System (six points), Coaxial Lens System (equivalent focal length and cardinal points), Huygens Eyepiece, Ramsden Eyepiece and their cardinal points.	Will be able to determine cardinal points and focal length of lens systems
Unit. II	Interference and Diffractions	Interference: Newton's Rings, Determination of wavelength of Sodium light, Michelson Interferometer, Determination of wavelength of monochromatic light. Diffraction: Fresnel and Fraunhofer diffraction, Fraunhofer's diffraction due to single and double slit, Plane diffraction grating, Determination of wavelength of Sodium light, Rayleigh criterion, Resolving power of grating.	Will be able to determine wavelength by interference and diffraction. And also RP optical instruments
Unit III	Polarization	Polarization by Reflection, Brewster's law, Malus law, Double refraction, Nicol prism, Nicol prism as an analyzer, Huygen's explanation of double Refraction in Uniaxial crystals , Quarter wave plate, Half wave plate, Optical Activity , Specific rotation, Laurent's half shade polarimeter.	Will be able to polarize ordinary light and analyze polarized light
Unit IV	Lasers	Spontaneous & stimulated emission, absorption, Einstein coefficients (definitions), Population inversion, Optical & electrical pumping, Properties of lasers, He-Ne laser	Will be able to understand the process of production of laser

Specify Course outcome : After completion of this course the students will be able to

1) Determine cardinal points and focal length of lens systems
2) Determine wavelength by interference and diffraction. And also RP optical instruments
3) Polarize ordinary light and analyze polarized light.
4) Understand the process of production of laser.

Signature of Teacher

Dr. Kanse K S

Name Of the Teacher: **Dr Tak A S** Academic Year : **2021-22**

Program: B.Sc. Class: Second Year Sem IV Subject: Physics

Course Code :CCPIV (Sec B) Paper IX Paper Title : Basic Electronics

Unit No	Unit Name	Topics	Unit wise outcome
I	Semiconductor Diodes	Semiconductor, Types of semiconductor, P-N Junction diode, Zener diode, Light Emitting Diode, Photodiode, Varactor diode and their V/I characteristics	Majority students passed
II	Bipolar Junction Transistors (BJT	Transistor Connections: Common base, common emitter, common collector, Characteristics of common base, common emitter, common collector connections, Hybrid parameters (or h parameters) Determination of h-parameters, Analysis of common emitter amplifier and common collector amplifier using hparameters (current gain, voltage gain, power gain, input resistance and output resistance)	Majority students passed
III	Operational Amplifier	Basic circuit of differential amplifier, common Mode and differential mode signals, block diagram of OpAmp, schematic symbol, ideal Characteristics, input offset voltage; input offset current, input bias current, input impedance, Output impedance, open loop gain, CMRR, Slew rate, Inverting amplifier and noninverting amplifier	Majority students passed
IV	Sinusoidal Oscillators	Oscillator, Types of sinusoidal Oscillators, Oscillatory circuit, Positive feedback Amplifier-Oscillator, Barkhausen Criterion, Hartley oscillator, Colpitt's oscillator, R-C Network, Phase shift oscillator	Majority students passed

Specify Course outcome: All students acquired fundamental knowledge and are ready to acquire advance knowledge necessary for research skill development

Signature of Teacher

Dr Tak A S

Name Of the Teacher : **Dr Tak A S** Academic Year **2021-22**

Program: B.Sc. Class : Third Year Sem V Subject: Physics

Course Code :DSEP I (Sec A) Paper XII Paper Title : Quantum Mechanics

Unit No	Unit Name	Topics	Unit wise outcome
I	Particle Properties of Waves	Introduction, Photoelectric Effect, Quantum Theory of Light, The Compton Effect, de Broglie waves, Wave function, de Broglie Wave Velocity, Wave and Group velocities, G. P. Thomson experiment, The Uncertainty principle and its applications	Majority students passed
II	Schrödinger's Equation	Introduction, Schrödinger's Equation: Time dependent form, Probability current, Expectation Values, Operators, Schrödinger's Equation: Steady-state form, Eigen values and Eigen functions, Problems	Majority students passed
III	Applications of Quantum Mechanics	Introduction, The particle in a box: energy quantization, The particle in a box: wave functions, The particle in a box: Momentum Quantization, The Harmonic Oscillator, The Harmonic Oscillator-Energy level, The particle in a three dimensional box	Majority students passed
IV	Quantum Theory of Hydrogen Atom	Schrödinger's equation for the Hydrogen Atom in spherical polar co- ordinates, separation of Variables, Quantum numbers –Total quantum number, Orbital quantum number, Magnetic quantum number, spin quantum number	Majority students passed

Specify Course outcome: All students acquired fundamental knowledge and are ready to acquire advance knowledge necessary for research skill development

Signature of Teacher

Dr Tak A S

Name Of the Teacher :**Dr Chawhan A G** Academic Year **2021-22**

Program: B.Sc. Class Third Year Sem V Subject: Physics

Course Code : DSEP I (SecB) Paper XIIIA Paper Title : Solid State Physics

Unit No	Unit Name	Topics	Unit wise outcome
I	Crystal Structure	Introduction, Crystal Lattices and Translation vectors, Unit cell, Basis, Symmetry operations, Point groups, space group, Types of lattices, Simple crystal structure (HCP, FCC, BCC, SC), Structure of Diamond, NaCl, Problems.	Knowledge about Crystal Lattices & Translation vectors, Unit Cell, Basis. Different types of Symmetry Operations, Method of calculations Packing fraction of SC, BCC, FCC, HCP crystal Structure.
II	Bonding in Solids and X-Ray Diffraction	Inter atomic forces and types of bonding, ionic bond, covalent bond, metallic bond, hydrogen bond, Vander-waal's bond. X-ray diffraction, Bragg's law, Laue's method, Rotating crystal method	Knowledge about Crystal Lattices & Translation vectors, Unit Cell, Basis. Different types of Symmetry Operations, Method of calculations Packing fraction of SC, BCC, FCC, HCP crystal Structure.
III	Thermal Properties of Solids	Specific heat of gases, Specific heat of solids, Classical theory of Lattice heat Capacity, Einstein's theory of heat Capacity, Debye's theory of specific heat of solids, Limitations of Debye model	Calculations of Specific heat of Monoatomic, Diatomic & Triatomic Gases. Derivations of Total Energy & Specific heat by using Classical theory. Failure of Classical theory , Derivations of Total Energy & Specific heat by using Einstein's theory & behaviour of specific heat at high & Low temperature. Failure of Einstein's theory ,Derivations of Total Energy & Specific heat by using Debye's theory & behaviour of specific heat at high & Low temperature

IV	Free Electron Theory of Metals	The outstanding properties of metals, Drude-Lorentz theory, Thermal conductivity, Electrical conductivity, Widemann- Franz relation, Somerfield Model, Electrical conductivity and Ohms law, Electronic specific heat, Thermoionic emission, escape of electrons from metal.	Explain Drude-Lorentz theory, Derivation of Thermal & Electrical conductivity and Wiedeman-Franz Relation. Detailed analysis of Sommerfeld's theory, Calculation of Electronic Specific heat, Theory of Thermionic Emission & Escape of electrons from metals

Specify Course outcome: After completion of this course students will be able to
1. Understanding of crystal systems.
2. Understand of various types bonds existing in solid.
3. Understand various theories related to calculation of Specific heat of Solids.
4. Understand concepts of Thermal & Electrical conductivity, Ohm's law, Thermionic Emission & Escape of electrons from metals

Specify Program outcome
The course provides fundamental knowledge of Crystallography, principles behind the formation of matter their structure & physical properties. The course also enables the students to understand the relationship between the internal structure & various properties of matter like periodicity, structure & bonding in solids. At the end of this course, student will be able to classify the materials in different classes based on their physical, thermal, electrical & magnetic properties.

Signature of Teacher

Dr Chawhan A G

Name Of the Teacher: **Dr Kanse K S** Academic Year 2021-**22**

Program: B.Sc. Class: Third Year Sem VI Subject: Physics

Course Code: DSEPII (SecA) Paper XIV Paper Title: Atomic, Molecular and Nuclear Physics :

Unit No	Unit Name	Topics	Unit wise outcome
I	Atomic Physics	The Vector Atom Model, Quantum numbers associated with the vector atom model, LS and J-J coupling, The Pauli's exclusion Principle, Selection rules, Intensity rules, Interval rule, Normal Zeeman effect, Anomalous Zeeman effect, Stark effect.	Will be able to understand various properties of atomic physics
II	Molecular Spectra	Regions of Electromagnetic Spectra, Classification of Molecular Spectra, Theory of pure rotational spectra, Theory of rotation-vibration spectra, Raman Effect, Experimental study,	Will be able to study and analyze various properties of molecular spectra.
III	Nuclear Fission and Nuclear Reactions	Nuclear Fission, the fission products, energy release in fission, nuclear transmutation reactions, Conservation laws, Nuclear reaction kinematics	Will be able to understand nuclear fission and allied properties.
IV	Nuclear Fusion and its applications	Nuclear fusion, p-p chain reaction as the source of energy in the Sunlike stars, thermal nuclear reactor, the neutron cycle, controlled and uncontrolled thermonuclear reactions.	Will be able to understand nuclear fission and allied properties.

Specify Course outcome After completion of this course the students will be able to

1) Understand various properties of atomic physics
2) Study and analyze various types of molecular spectra
3) Understand nuclear fission and allied properties
4) Apply principle of nuclear fusion to various thermonuclear process

Signature of Teacher

Dr Kanse K S

Name Of the Teacher : **Dr Chawhan A G** Academic Year **2021-22**

Program: B.Sc. Class Third Year Sem VI Subject: Physics

Course Code : DSEP II (Sec B) Paper XVA Paper Title : Digital and Communication Electronics

Unit No	Unit Name	Topics	Unit wise outcome
I	Number Systems	Number System:- Decimal numbers, Binary numbers, Binary arithmetic, Ones complement representation, Twos complement representation, Octal Numbers, Hexadecimal numbers, Inter-conversions of number systems, Binary coded decimal (BCD), Gray code, Excess-3 code.	Explain Binary numbers, & Binary Arithmetic, One's & Two's complement representation. Explain Octal & Hexadecimal number system. Inter conversion of from one number system to other number system , BCD numbers system, Obtain Gray & Excess codes of given binary numbers
II	Logic Gates	AND gate, OR gate, NOT gate, NAND gate, NOR gate, EX-OR and EX-NOR gates, Universal properties of NAND and NOR gates. Boolean operations, logic expressions for 2,3 & 4 inputs, laws of Boolean algebra, De -Morgen's theorems, SOP form of Boolean expressions, simplification of Boolean expressions using K- maps (up to 4 variables),Half adder, Full adder	Study of Logic gates like AND ,OR ,NOT ,NAND, NOR , EX-OR & EX-NOR with truth tables & logic symbols. Study of Boolean algebra, De-Morgan's theorem. Deriving logic expressions for 2,3 & 4 inputs. Study of SOP form of Boolean expressions using K-maps (upto 4 variables), Half & full Adder
III	Modulation and Demodulation	Introduction, Types of Modulation, Expression for A. M. voltage, AM waves, Frequency spectrum of AM wave, Power Output in AM, Expression for frequency modulated voltage, Principle of demodulation, linear diode AM detector or demodulator.	Study different types of Modulation. Derive expression for AM wave & power relations of AM wave. Derive expression for FM wave. Study of general principles of demodulation and working of Linear diode detector.
IV	Communication Electronics	Introduction, Block diagram of basic communication	Study of Basic communication system by means of block

		system, Essential elements of A.M. Transmitter. A.M. receiver: Turned Radio Frequency (TRF) Receiver, Super heterodyne receiver, Characteristics of radio receivers: sensitivity, selectivity, fidelity & their measurements.	diagram. Study of functions of AM receivers & working of Tuned Radio frequency receiver, Superheterodyne receiver with the help of block diagram. Study of Characteristics of Radio Receivers like Sensitivity, Selectivity fidelity & their measurements

Specify Course outcome: After completion of this course students will be able to
1. Understanding of various number systems and their inter conversion.
2. Understand working of various types of Logic gates & the simplification of logic expression.
3. Understand working of AM & FM communication system.
4. Understand working of AM radio receivers.

Specify Program outcome

The course enables the students to understand the importance of inter convertibility of various number systems, principles of various digital gates and working of various communication systems. After completing this course students will be in a position to know the working of AM & FM communication systems i.e. modulators, demodulators, transmitters & receivers

Signiture of Teacher

Dr Chawhan A G