

Lesson Plan

Teacher- Anil Kumar

Class- B.Sc. Third Year, 6th Semester

Sec.-A

Subject: Atomic and molecular spectroscopy

Session- 2023-24

| Week | Topic |
|----------------------|---|
| 06/02 to 10/02/2024 | Atomic spectra, Bohr Atomic model, atomic excitation |
| 12/02 to 17/02/2024 | Energy levels and spectra, Franck-Hertz experiment. |
| 19/02 to 24/02/2024 | Vector atom model, quantum number associated with vector atom model, |
| 26/02 to 02/03/2024 | Penetrating and non-penetrating orbits. |
| 04/03 to 09/03/2024 | Spectral lines in different series of alkali spectra |
| 11/03 to 16/03/2024 | Spin orbit interaction and doublet separation, revision of unit-1 |
| 18/03 to 22/03/2024 | LS and jj coupling, Zeeman effect, Paschen back effect |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Stark effect, discrete set of electronic energy levels in molecules |
| 08/03 to 13/04/2024 | Rotational spectra, vibrational spectra, Raman effect, test of unit-1. |
| 15/04 to 20/04/2024 | Main features of laser, spatial and temporal coherence, assignment |
| 22/04 to 27/04/2024 | Einstein coefficients and possibility of amplification, threshold condition, revision of unit-2 |
| 29/04/ to 30/04/2024 | Ruby laser and helium neon laser. |

Lesson Plan

Teacher- Praveen Kumar

Class- B.Sc. Third Year, 6th Semester

Sec.-A

Subject: Nanomaterials and Applications

Session- 2023-24

| Week/Days | Name of Topic |
|------------------------|---|
| 06/02/24 to 10/02/2024 | Basic Idea of Band Structure, Metals, Insulators, Semi-Conductors |
| 12/02/24 to 17/02/2024 | Variation of Density of States and Band Gap With Size of Crystals |
| 19/02/24 to 24/02/2024 | Quantum Confinement, Electron Confinement Into One, Two and Three Dimensions |
| 26/02/24 to 02/03/2024 | Infinitely Deep Square Well Potentials, Quantum Well, Wire and Dot |
| 04/03/24 to 09/03/2024 | Bottom Up and Top Down Approaches for Synthesis of Nanomaterials. Test of Unit-1 |
| 11/03/24 to 16/03/2024 | Sol-Gel Process, Core Shell Nanoparticles, Ball Milling |
| 18/03/24 to 22/03/2024 | Chemical Vapour Deposition Techniques, Lithography, Two- Dimensional Nanostructures |
| 23/03/24 to 31/03/2024 | Vacations for Holi |
| 01/04/24 to 06/04/2024 | Carbon Molecules, New Carbon Structures, Carbon Clusters, C60 and Other Bucky Balls. Test of Unit-2 |
| 08/04/24 to 13/04/2024 | Structures of C60 and Larger Fullerenes, Graphene, Carbon Nanotubes, |
| 15/04/24 to 20/04/2024 | Fabrication Techniques, Structure, Properties: Electrical, Mechanical, and Vibrational Properties and Applications of Carbon Nanotubes. |
| 22/04/24 to 27/04/2024 | Basic Principle and Idea of Instrumentation for Characterization of Nanostructures, X-Ray Diffraction Technique, Transmission Electron Microscope (TEM) |
| 29/04/24 to 30/04/2024 | Raman Spectroscopy, Atomic Force Microscopy, Scanning Tunnelling Microscopy. Test of Unit- 3. |

Lesson Plan

Teacher- Madan Singh

Class- B.Sc. Third Year, 6th Semester

Sec.-B

Subject: Atomic and molecular spectroscopy, nanomaterials and applications

Session- 2023-24

| Week | Topic |
|----------------------|--|
| 06/02 to 10/02/2024 | Atomic spectra, Bohr Atomic model, energy levels and spectra, correspondence principle, atomic excitation |
| 12/02 to 17/02/2024 | Franck-Hertz experiment, vector atom model, quantum number associated with vector atom model, penetrating and non-penetrating orbits, |
| 19/02 to 24/02/2024 | Spectral lines in different series of alkali spectra, spin orbit interaction and doublet separation, LS and jj coupling, Zeeman effect |
| 26/02 to 02/03/2024 | Paschen back effect, Stark effect, discrete set of electronic energy levels in molecules, rotational spectra, vibrational spectra, Raman effect, test of unit-1. |
| 04/03 to 09/03/2024 | Main features of laser, spatial and temporal coherence, Einstein coefficients and possibility of amplification, threshold condition, ruby laser and helium neon laser. |
| 11/03 to 16/03/2024 | Basic idea of band structure, metal, insulator, semi-conductor, variation of density of state and band gap with size of crystal |
| 18/03 to 22/03/2024 | Quantum confinement, electron confinement in 1d, 2d, 3d infinite deep square well potentials. Quantum wire, well, and dot |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Bottom up and top-down approaches for synthesis of nanomaterials, sol-gel process, core shell nanoparticles, ball milling, and chemical vapour deposition techniques. |
| 08/03 to 13/04/2024 | Lithography, two-dimensional nanostructures, carbon molecules, new carbon structures, carbon clusters, C ₆₀ and other Buckyballs, test of unit-2 |
| 15/04 to 20/04/2024 | Structures of C ₆₀ and larger Fullerenes, carbon nanotubes, fabrication techniques, structural, electrical, mechanical, and vibrational properties of carbon nanotubes. |
| 22/04 to 27/04/2024 | Characterization of nanostructures, X-ray diffraction technique, TEM, SEM |
| 29/04/ to 30/04/2024 | Raman Spectroscopy, atomic force spectroscopy, Test of unit- 3. |

Lesson Plan

Teacher- Anita Yadav

Class- B.Sc. Third Year, 6th Semester

Sec.-C

Subject: Atomic and molecular spectroscopy, nanomaterials and applications

Session- 2023-24

| Week | Topic |
|----------------------|--|
| 06/02 to 10/02/2024 | Atomic spectra, Bohr Atomic model, energy levels and spectra, correspondence principle, atomic excitation |
| 12/02 to 17/02/2024 | Franck-Hertz experiment, vector atom model, quantum number associated with vector atom model, penetrating and non-penetrating orbits, |
| 19/02 to 24/02/2024 | Spectral lines in different series of alkali spectra, spin orbit interaction and doublet separation, LS and jj coupling, Zeeman effect |
| 26/02 to 02/03/2024 | Paschen back effect, Stark effect, discrete set of electronic energy levels in molecules, rotational spectra, vibrational spectra, Raman effect, test of unit-1. |
| 04/03 to 09/03/2024 | Main features of laser, spatial and temporal coherence, Einstein coefficients and possibility of amplification, threshold condition, ruby laser and helium neon laser. |
| 11/03 to 16/03/2024 | Basic idea of band structure, metal, insulator, semi -conductor, variation of density of state and band gap with size of crystal |
| 18/03 to 22/03/2024 | Quantum confinement, electron confinement in 1 d ,2d 3d infinite deep square well potentials. Quantum wire, well, and dot |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Bottom up and top-down approaches for synthesis of nanomaterials, sol-gel process, core shell nanoparticles, ball milling, and chemical vapour deposition techniques. |
| 08/03 to 13/04/2024 | Lithography, two- dimensional nanostructures, carbon molecules, new carbon structures, carbon clusters, C60 and other Buckyballs, test of unit-2 |
| 15/04 to 20/04/2024 | Structures of C60 and larger Fullerenes, carbon nanotubes, fabrication techniques, structural, electrical, mechanical, and vibrational properties of carbon nanotubes. |
| 22/04 to 27/04/2024 | Characterization of nanostructures, X-ray diffraction technique, TEM, SEM |
| 29/04/ to 30/04/2024 | Raman Spectroscopy, atomic force spectroscopy, Test of unit- 3. |

Lesson Plan

Teacher- Sheela

Class- B.Sc. Third Year, 6th Semester

Sec.-D

Subject: Atomic and molecular spectroscopy, nanomaterials and applications

Session- 2023-24

| Week | Topic |
|----------------------|--|
| 06/02 to 10/02/2024 | Atomic spectra, Bohr Atomic model, energy levels and spectra, correspondence principle, atomic excitation |
| 12/02 to 17/02/2024 | Franck-Hertz experiment, vector atom model, quantum number associated with vector atom model, penetrating and non-penetrating orbits, |
| 19/02 to 24/02/2024 | Spectral lines in different series of alkali spectra, spin orbit interaction and doublet separation, LS and jj coupling, Zeeman effect |
| 26/02 to 02/03/2024 | Paschen back effect, Stark effect, discrete set of electronic energy levels in molecules, rotational spectra, vibrational spectra, Raman effect, test of unit-1. |
| 04/03 to 09/03/2024 | Main features of laser, spatial and temporal coherence, Einstein coefficients and possibility of amplification, threshold condition, ruby laser and helium neon laser. |
| 11/03 to 16/03/2024 | Basic idea of band structure, metal, insulator, semi-conductor, variation of density of state and band gap with size of crystal |
| 18/03 to 22/03/2024 | Quantum confinement, electron confinement in 1 d ,2d 3d infinite deep square well potentials. Quantum wire, well, and dot |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Bottom up and top-down approaches for synthesis of nanomaterials, sol-gel process, core shell nanoparticles, ball milling, and chemical vapour deposition techniques. |
| 08/03 to 13/04/2024 | Lithography, two- dimensional nanostructures, carbon molecules, new carbon structures, carbon clusters, C60 and other Buckyballs, test of unit-2 |
| 15/04 to 20/04/2024 | Structures of C60 and larger Fullerenes, carbon nanotubes, fabrication techniques, structural, electrical, mechanical, and vibrational properties of carbon nanotubes. |
| 22/04 to 27/04/2024 | Characterization of nanostructures, X-ray diffraction technique, TEM, SEM |
| 29/04/ to 30/04/2024 | Raman Spectroscopy, atomic force spectroscopy, Test of unit- 3. |

Lesson Plan

Teacher- Priya

Class- B.Sc. Second Year, 4thSemester

Sec.- A

Subject: Semiconducting devices, quantum mechanics

Session- 2023-24

| Week | Topic |
|----------------------|---|
| 06/02 to 10/02/2024 | Semiconductor, diodes, barrier formation, drift and diffusion currents, half wave and full wave rectifier |
| 12/02 to 17/02/2024 | Ripple factor and rectifier efficiency, BJT characteristics of CB, CE, CC configurations, active, cut off and saturation regions, relation between current gain, load line analysis ad Q point. |
| 19/02 to 24/02/2024 | FET: FET, MOSFET, comparison of BJT ad FET, amplifier classification, voltage divider bias circuit |
| 26/02 to 02/03/2024 | RC coupled amplifier, feedback in amplifiers, advantages of negative feedback |
| 04/03 to 09/03/2024 | Operational amplifier, CMRR, closed loop gain and virtual ground |
| 11/03 to 16/03/2024 | Applications of operational amplifier: Differentiator, Integrator, Inverting and noninverting amplifiers |
| 18/03 to 22/03/2024 | Black body radiation, photoelectric effect, old quantum theory, Compton effect, debroglie hypothesis |
| 23/03 to 31/03/2024 | holi break |
| 01/04 to 06/04/2024 | Wave function and its properties, orthogonality and normalization of wave function, time dependent ad independent Schrodinger wave equations, moment energy operators, Test of unit 1. |
| 08/03 to 13/04/2024 | Commutator relations of various operators, eigen value and eigen function, |
| 15/04 to 20/04/2024 | Stationary states and expectation values of dynamical quantities, particle in 1D infinite square well,1D potential barrier, reflection and transmission coefficient |
| 22/04 to 27/04/2024 | Solution of Schrodinger equation for harmonic oscillator, spherical harmonics, space quantization, stern Gerlach experiment |
| 29/04/ to 30/04/2024 | Gyromagnetic ratio and bohr magneton, Test of unit 2. |

Lesson Plan

Teacher- Sonia

Class- B.Sc. Second Year, 4thSemester

Sec.- B

Subject: Semiconducting devices, quantum mechanics

Session- 2023-24

| Week | Topic |
|----------------------|---|
| 06/02 to 10/02/2024 | Semiconductor, diodes, barrier formation, drift and diffusion currents, half wave and full wave rectifier |
| 12/02 to 17/02/2024 | Ripple factor and rectifier efficiency, BJT characteristics of CB, CE, CC configurations, active, cut off and saturation regions, relation between current gain, load line analysis ad Q point. |
| 19/02 to 24/02/2024 | FET: FET, MOSFET, comparison of BJT ad FET, amplifier classification, voltage divider bias circuit |
| 26/02 to 02/03/2024 | RC coupled amplifier, feedback in amplifiers, advantages of negative feedback |
| 04/03 to 09/03/2024 | Operational amplifier, CMRR, closed loop gain and virtual ground |
| 11/03 to 16/03/2024 | Applications of operational amplifier: Differentiator, Integrator, Inverting and noninverting amplifiers |
| 18/03 to 22/03/2024 | Black body radiation, photoelectric effect, old quantum theory, Compton effect, debroglie hypothesis |
| 23/03 to 31/03/2024 | holi break |
| 01/04 to 06/04/2024 | Wave function and its properties, orthogonality and normalization of wave function, time dependent ad independent Schrodinger wave equations, moment energy operators, Test of unit 1. |
| 08/03 to 13/04/2024 | Commutator relations of various operators, eigen value and eigen function, |
| 15/04 to 20/04/2024 | Stationary states and expectation values of dynamical quantities, particle in 1D infinite square well,1D potential barrier, reflection and transmission coefficient |
| 22/04 to 27/04/2024 | Solution of Schrodinger equation for harmonic oscillator, spherical harmonics, space quantization, stern Gerlach experiment |
| 29/04/ to 30/04/2024 | Gyromagnetic ratio and bohr magneton, Test of unit 2. |

Lesson Plan

Teacher- Pawan Singh

Class- B.Sc. Second Year, 4thSemester

Sec.- C

Subject: Semiconducting devices, quantum mechanics

Session- 2023-24

| Week | Topic |
|----------------------|---|
| 06/02 to 10/02/2024 | Semiconductor, diodes, barrier formation, drift and diffusion currents, half wave and full wave rectifier |
| 12/02 to 17/02/2024 | Ripple factor and rectifier efficiency, BJT characteristics of CB, CE, CC configurations, active, cut off and saturation regions, relation between current gain, load line analysis ad Q point. |
| 19/02 to 24/02/2024 | FET: FET, MOSFET, comparison of BJT ad FET, amplifier classification, voltage divider bias circuit |
| 26/02 to 02/03/2024 | RC coupled amplifier, feedback in amplifiers, advantages of negative feedback |
| 04/03 to 09/03/2024 | Operational amplifier, CMRR, closed loop gain and virtual ground |
| 11/03 to 16/03/2024 | Applications of operational amplifier: Differentiator, Integrator, Inverting and noninverting amplifiers |
| 18/03 to 22/03/2024 | Black body radiation, photoelectric effect, old quantum theory, Compton effect, debroglie hypothesis |
| 23/03 to 31/03/2024 | holi break |
| 01/04 to 06/04/2024 | Wave function and its properties, orthogonality and normalization of wave function, time dependent ad independent Schrodinger wave equations, moment energy operators, Test of unit 1. |
| 08/03 to 13/04/2024 | Commutator relations of various operators, eigen value and eigen function, |
| 15/04 to 20/04/2024 | Stationary states and expectation values of dynamical quantities, particle in 1D infinite square well,1D potential barrier, reflection and transmission coefficient |
| 22/04 to 27/04/2024 | Solution of Schrodinger equation for harmonic oscillator, spherical harmonics, space quantization, stern Gerlach experiment |
| 29/04/ to 30/04/2024 | Gyromagnetic ratio and Bohr magneton, Test of unit 2. |

Lesson Plan

Teacher- Manoj Kumar

Class- B.Sc. First Year, 2nd Semester

Sec.- A

Subject: Mechanics, Waves and electrodynamics

Session- 2023-24

| Week (Feb.) | Topics |
|-------------|---|
| 1 (6-10) | UNIT 1: - Constraints, Generalised coordinates, principle of virtual work |
| 2(12-17) | Lagrange's eq ⁿ of D' Alembert principle and its applications, Lagrange's eq ⁿ from Hamilton's principle. |
| 3(19-24) | Unit 2: - Gallilean transformation, conservation laws, Newtonian relativity principle |
| 4(26-29) | Michelson -Morley experiment, Lorentz transformation, length contraction, time dilation. |

| Week(March) | Topics |
|-------------|---|
| 1(1-2) | Unit3: - Velocity addition theorem, variation of mass with velocity, Dopler effect, transformation of energy and momentum. |
| 2(4-9) | UNIT 4: - Hooke's law, relation between elastic constraint, Poisson ratio in terms of elastic constraints, twisting couple on a cylinder. |
| 3(11-16) | Determination of rigidity modulus by static torsion, Determination of rigidity modulus and moment of inertia and Possion ratio by Searles method. |
| 4(18-23) | Unit1: -Faraday's law, Lenz's law, eqn of continuity, Maxwell's equations, pointing vector EM wave propagation. |
| 5(25-30) | Holiday of Holi |

| Week(April) | Topics |
|-------------|--|
| 1(1-6) | UNIT 2: -Linearity and super principle (1) oscillations having equal frequencies and (2) oscillations having different frequencies, super position of two perpendicular HO, Lissajous figures. |
| 2(8-13) | Unit3: - Solution of wave eqn, super position principal Group velocity, phase velocity, wave front, Huygens principle, velocity of sound wave, reflection and transmtion of sound wave at a boundary. |
| 3(15-20) | Unit4: - string as a force oscillator, reflections and transmission of wave on a string at a boundary, travelling and standing waves on a string, normal modes of a string, reflections and transmission of energy |
| 4(22-27) | REVISION |
| 5(29-30) | TEST |

Lesson Plan

Teacher- Nidhi

Class- B.Sc. First Year, 2nd Semester

Sec.- B

Subject: Mechanics, Waves and electrodynamics

Session- 2023-24

| Week (Feb.) | Topics |
|-------------|---|
| 1 (6-10) | UNIT 1: - Constraints, Generalised coordinates, principle of virtual work |
| 2(12-17) | Lagrange's eq ⁿ of D' Alembert principle and its applications, Lagrange's eq ⁿ from Hamilton's principle. |
| 3(19-24) | Unit 2: - Gallilean transformation, conservation laws, Newtonian relativity principle |
| 4(26-29) | Michelson -Morley experiment, Lorentz transformation, length contraction, time dilation. |

| Week(March) | Topics |
|-------------|---|
| 1(1-2) | Unit3: - Velocity addition theorem, variation of mass with velocity, Dopler effect, transformation of energy and momentum. |
| 2(4-9) | UNIT 4: - Hooke's law, relation between elastic constraint, Poisson ratio in terms of elastic constraints, twisting couple on a cylinder. |
| 3(11-16) | Determination of rigidity modulus by static torsion, Determination of rigidity modulus and moment of inertia and Possion ratio by Searles method. |
| 4(18-23) | Unit1: -Faraday's law, Lenz's law, eqn of continuity, Maxwell's equations, pointing vector EM wave propagation. |
| 5(25-30) | Holiday of Holi |

| Week(April) | Topics |
|-------------|--|
| 1(1-6) | UNIT 2: -Linearity and super principle (1) oscillations having equal frequencies and (2) oscillations having different frequencies, super position of two perpendicular HO, Lissajous figures. |
| 2(8-13) | Unit3: - Solution of wave eqn, super position principal Group velocity, phase velocity, wave front, Huygens principle, velocity of sound wave, reflection and transmtion of sound wave at a boundary. |
| 3(15-20) | Unit4: - string as a force oscillator, reflections and transmission of wave on a string at a boundary, travelling and standing waves on a string, normal modes of a string, reflections and transmission of energy |
| 4(22-27) | REVISION |
| 5(29-30) | TEST |

Lesson Plan

Teacher- Monika

Class- B.Sc. First Year, 2nd Semester

Sec.- C

Subject: Mechanics, Waves and electrodynamics

Session- 2023-24

| Week (Feb.) | Topics |
|-------------|---|
| 1 (6-10) | UNIT 1: - Constraints, Generalised coordinates, principle of virtual work |
| 2(12-17) | Lagrange's eq ⁿ of D' Alembert principle and its applications, Lagrange's eq ⁿ from Hamilton's principle. |
| 3(19-24) | Unit 2: - Gallilean transformation, conservation laws, Newtonian relativity principle |
| 4(26-29) | Michelson -Morley experiment, Lorentz transformation, length contraction, time dilation. |

| Week(March) | Topics |
|-------------|---|
| 1(1-2) | Unit3: - Velocity addition theorem, variation of mass with velocity, Dopler effect, transformation of energy and momentum. |
| 2(4-9) | UNIT 4: - Hooke's law, relation between elastic constraint, Poisson ratio in terms of elastic constraints, twisting couple on a cylinder. |
| 3(11-16) | Determination of rigidity modulus by static torsion, Determination of rigidity modulus and moment of inertia and Possion ratio by Searles method. |
| 4(18-23) | Unit1: -Faraday's law, Lenz's law, eqn of continuity, Maxwell's equations, pointing vector EM wave propagation. |
| 5(25-30) | Holiday of Holi |

| Week(April) | Topics |
|-------------|--|
| 1(1-6) | UNIT 2: -Linearity and super principle (1) oscillations having equal frequencies and (2) oscillations having different frequencies, super position of two perpendicular HO, Lissajous figures. |
| 2(8-13) | Unit3: - Solution of wave eqn, super position principal Group velocity, phase velocity, wave front, Huygens principle, velocity of sound wave, reflection and transmtion of sound wave at a boundary. |
| 3(15-20) | Unit4: - string as a force oscillator, reflections and transmission of wave on a string at a boundary, travelling and standing waves on a string, normal modes of a string, reflections and transmission of energy |
| 4(22-27) | REVISION |
| 5(29-30) | TEST |

Lesson Plan

Teacher- Saneh Lata

Class- Phy (hons), 2ndSemester

Sec.- A

Subject: India's contribution to science

Session- 2023-24

| | |
|----------------------|--|
| 21/02 to 24/02/2024 | Planetary kinematics, the early transitions of siddhanta |
| 26/02 to 02/03/2024 | Brief idea of Yuga system of india and phases of moon,rising and setting of stars and planets |
| 04/03 to 09/03/2024 | Samrat yantra, disha yantra, cakra yantra, jaiprakash yantra,phalaka yantra |
| 11/03 to 16/03/2024 | Kapala yantra,nalaka yantra,dhanur yantra,chatal yantra, gola yantra |
| 18/03 to 22/03/2024 | Karttari yantra,pitha yantra and chatra yantra,test of unit1 |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Life and work of indian scientists: sir Jagdish Chandra Bose,P.C. Ray, Srinivasa Ramanujan,test of unit 2. |
| 08/03 to 13/04/2024 | Sir C.V. Raman, Meghnad Shah, Satyender nath Bose, S.S. Bhatnagar, |
| 15/04 to 20/04/2024 | Revision of unit 2, assignments and presentations regarding life and history. |
| 22/04 to 27/04/2024 | Life and work of Homi Jehangir Bhabha, Vikram Sarabhai |
| 29/04/ to 30/04/2024 | Test of unit 3. |

Lesson Plan

Teacher- Seema

Class- B.Sc. Third Year, 6th Semester

Sec.- B

Subject: Electrical, Circuits and Network Skills

Session- 2023-24

| Week | Topic |
|-------------------------|--|
| 06/02 to 10/02/2024 | Voltage, current, Resistance and power, ohm's law, series-parallel combination, Ac electricity and dc electricity, familiarization with the multimeter, voltmeter and ammeter |
| 12/02 to 17/02/2024 | Understanding electrical circuits; main electric circuit elements and their combination, rules to analyze DC sourced electrical circuits, current and voltage drop across the DC circuit elements, single-phase and three- phase alternating current sources |
| 19/02 to 24/02/2024 | Rules to analyze AC sourced electrical circuits, real, imaginary and complex power compents of AC power factor, saving energy, electrical schematics |
| 26/02 to 02/03/2024 | Power circuits, control circuits, reading of circuit schematics, tracking the connections of elements and identify current flow and voltage drop, test of unit-1. |
| 04/03 to 09/03/2024 | DC Power sources, AC/DC generators, inductance, capacitance and impedance, operation of transformers, electric motors; single, three phase and DC motors |
| 11/03 to 16/03/2024 | Basics design, interfacing DC or AC sources to control heaters and motors, speed and power of an ac motor |
| 18/03 to 22/03/2024 | Solid- state devices; resistors, inductors and capacitors with DC or AC sources, test of unit- 2 |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Electrical protection: Relays, fuses and disconnect switches, circuit breakers, overload devices, grounded- faults protections |
| 08/03 to 13/04/2024 | Grounding and isolating, phase reversal, surge protection, interfacing DC and AC sources to control elements |
| 15/04 to 20/04/2024 | Electrical wiring: different types of conductors and cables, basics of wiring-star and delta connection |
| 22/04 to 27/04/2024 | Voltage drop and losses across cables and conductors, instruments to measure current, voltage, power in DC and AC circuits, insulation |
| 29/04/ to 30/04/2024 | Solid and stranded cable, conduit, cable trays, splices: wirenuts, crimps, terminal blocks, split bolts, and solder, preparation of extension board, Test of unit- 3. |

Lesson Plan

Teacher- Rahul Baretia

Class- Phy (hons), 2ndSemester

Sec.- A

Subject: PHYSICS-II

Session- 2023-24

| Week | Topic |
|----------------------|--|
| 06/02 to 10/02/2024 | The equipartition theorem, Degrees of freedom, specific heat |
| 12/02 to 17/02/2024 | Blackbody radiation, photoelectric effect, Compton effect |
| 19/02 to 24/02/2024 | Electron interference and Diffraction, wavelike properties of particles |
| 26/02 to 02/03/2024 | De Broglie hypothesis, wave packets, Heisenberg uncertainty principle, its relation and examples , test of unit-1. |
| 04/03 to 09/03/2024 | Schrodinger wave equation, operators |
| 11/03 to 16/03/2024 | Eigen values and eigen function, wave function and its probabilistic interpretation |
| 18/03 to 22/03/2024 | Group and phase velocity, simple one-dimension problem, particle in a box, concept of degeneracy |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Bohr's model of atom and atomic spectra, intrinsic spin |
| 08/03 to 13/04/2024 | Franck-Hertz experiment, tunnelling, Basics idea Fermions and Bosons, test of unit-2 |
| 15/04 to 20/04/2024 | Basics of semiconductors, Band Theory, P-N junction diodes and its characteristics, Transistors and its characteristics |
| 22/04 to 27/04/2024 | Qualitative idea of rectifiers, amplifiers and oscillators, circuit theorems, Thevenin's theorem, Norton's theorem |
| 29/04/ to 30/04/2024 | Maximum power transfer theorem, opto-electronics devices: solar cells, Basics of logic gates (OR,AND,NOT),Test of unit- 3. |

Lesson Plan

Teacher- Dr. Rajesh Kumar Sharma

Class-B.Sc. second year, 4th Semester

Sec.-B

Subject: Renewable Energy and Energy Harvesting

Paper Code-20USECP 704

Session- 2023-24

| Week | Topic |
|----------------------|---|
| 06/02 to 10/02/2024 | Introduction to fossil fuels and alternative Energy sources |
| 12/02 to 17/02/2024 | Detail study of various type of energy sources with their method of conversion and pros and cons: Nuclear energy, wind energy, solar Cell. |
| 19/02 to 24/02/2024 | Detail study of various type of energy sources with their method of conversion and pros and cons: Ocean Thermal Energy, Tidal energy, Biomass energy and conversion and Hydroelectricity. |
| 26/02 to 02/03/2024 | Detail study of generation of energy of type: solar water heater, Solar cooker, Solar pond, Solar green House and solar distillation. |
| 04/03 to 09/03/2024 | Photovoltaic system: need and Characteristics, PV models and equivalent circuits and sun tracking system and test of Unit-1 |
| 11/03 to 16/03/2024 | Wind Energy harvesting : fundamental, wind turbines and its type, different electrical machines in wind turbines etc. |
| 18/03 to 22/03/2024 | Ocean Energy and Tidal Energy: Its potential against wind and solar, wave characteristics and statistics, wave energy devices etc. |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Ocean biomass, Geothermal energy and its resources, geothermal technologies etc And test of Unit-2 |
| 08/03 to 13/04/2024 | Hydropower energy: its resources, technologies, Impact on environment etc |
| 15/04 to 20/04/2024 | Physics and characteristics of Piezoelectric energy (PZE) harvesting : mathematical model, PZE generators and applications etc. |
| 22/04 to 27/04/2024 | Human power, Electromagnetic Energy harvesting : genetors, mathematical model and applications etc. |
| 29/04/ to 30/04/2024 | Carbon captured technologies, cell, batteries, power consumptions, sustainabilities and applications impact on environment. |

Lesson Plan

Teacher- Sheela

Class-B.Sc. second year, 4th SemesterSec.-A

Subject: Renewable Energy and Energy Harvesting, Paper Code-20USECP 704

Session- 2023-24

| week | Topic |
|----------------------|---|
| 06/02 to 10/02/2024 | Introduction to fossil fuels and alternative Energy sources |
| 12/02 to 17/02/2024 | Detail study of various type of energy sources with their method of conversion and pros and cons: Nuclear energy, wind energy, solar Cell. |
| 19/02 to 24/02/2024 | Detail study of various type of energy sources with their method of conversion and pros and cons: Ocean Thermal Energy, Tidal energy, Biomass energy and conversion and Hydroelectricity. |
| 26/02 to 02/03/2024 | Detail study of generation of energy of type: solar water heater, Solar cooker, Solar pond, Solar green House and solar distillation. |
| 04/03 to 09/03/2024 | Photovoltaic system: need and Characteristics, PV models and equivalent circuits and sun tracking system and test of Unit-1 |
| 11/03 to 16/03/2024 | Wind Energy harvesting : fundamental, wind turbines and its type, different electrical machines in wind turbines etc. |
| 18/03 to 22/03/2024 | Ocean Energy and Tidal Energy: Its potential against wind and solar, wave characteristics and statistics, wave energy devices etc. |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Ocean biomass, Geothermal energy and its resources, geothermal technologies etc And test of Unit-2 |
| 08/03 to 13/04/2024 | Hydropower energy: its resources, technologies, Impact on environment etc |
| 15/04 to 20/04/2024 | Physics and characteristics of Piezoelectric energy(PZE) harvesting : mathematical model, PZE generators and applications etc. |
| 22/04 to 27/04/2024 | Human power, Electromagnetic Energy harvesting : genetors, mathematical model and applications etc. |
| 29/04/ to 30/04/2024 | Carbon captured technologies, cell, batteries, power consumptions, sustainabilities and applications impact on environment. |

Lesson Plan

Teacher- Rahul Baretia

Class- B.Sc. Third Year, 6th Semester

Sec.- A

Subject: Electrical, Circuits and Network Skills

Session- 2023-24

| Week | Topic |
|-------------------------|--|
| 06/02 to 10/02/2024 | Voltage, current, Resistance and power, ohm's law, series-parallel combination, Ac electricity and dc electricity, familiarization with the multimeter, voltmeter and ammeter |
| 12/02 to 17/02/2024 | Understanding electrical circuits; main electric circuit elements and their combination, rules to analyze DC sourced electrical circuits, current and voltage drop across the DC circuit elements, single-phase and three- phase alternating current sources |
| 19/02 to 24/02/2024 | Rules to analyze AC sourced electrical circuits, real, imaginary and complex power compents of AC power factor, saving energy, electrical schematics |
| 26/02 to 02/03/2024 | Power circuits, control circuits, reading of circuit schematics, tracking the connections of elements and identify current flow and voltage drop, test of unit-1. |
| 04/03 to 09/03/2024 | DC Power sources, AC/DC generators, inductance, capacitance and impedance, operation of transformers, electric motors; single, three phase and DC motors |
| 11/03 to 16/03/2024 | Basics design, interfacing DC or AC sources to control heaters and motors, speed and power of an ac motor |
| 18/03 to 22/03/2024 | Solid- state devices; resistors, inductors and capacitors with DC or AC sources, test of unit- 2 |
| 23/03 to 31/03/2024 | Holi break |
| 01/04 to 06/04/2024 | Electrical protection: Relays, fuses and disconnect switches, circuit breakers, overload devices, grounded- faults protections |
| 08/03 to 13/04/2024 | Grounding and isolating, phase reversal, surge protection, interfacing DC and AC sources to control elements |
| 15/04 to 20/04/2024 | Electrical wiring: different types of conductors and cables, basics of wiring-star and delta connection |
| 22/04 to 27/04/2024 | Voltage drop and losses across cables and conductors, instruments to measure current, voltage, power in DC and AC circuits, insulation |
| 29/04/ to 30/04/2024 | Solid and stranded cable, conduit, cable trays, splices: wirenuts, crimps, terminal blocks, split bolts, and solder, preparation of extension board, Test of unit- 3. |

