**Lesson Plan**

Name of the Assistant Professor:-Mr. Kamaljeet Singh

Class and Section:-B.Sc. 5th semester (section –A & B)

Subject : Physics( Nuclear Physics)

**JULY & AUGUEST 2023**

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| **Topics** |
| **Unit I: Nuclear Structure and Properties of Nuclei**  Nuclear composition (p-e and p-n hypotheses), Nuclear properties; Nuclear size, spin,  parity, statistics, magnetic dipole moment, quadruple moment (shape concept). |
| Determination of mass by Bain-Bridge, Bain-Bridge and Jordan mass spectrograph.  Determination of charge by Mosley Law |
| Determination of size of nuclei by Rutherford  Back Scatteringmass and binding energy, systematic of nuclear binding energy, nuclear  stability |

**SEPTEMBER 2023**

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| **Topics** |
| **Unit II: Nuclear Radiation decay Processes**  Alpha-disintegration and its theory. Energetics of alpha-decay, Origin of continuous beta  spectrum (neutrino hypothesis), types of beta-decay and energetics of beta-decay. Nature  of gamma rays, Energetics of gamma rays. |
| **Radiation interaction**  Interaction of heavy charged particles (Alpha particles); Energy loss of heavy charged  particle (idea of Bethe formula, no derivation), Range and straggling of alpha particles.  Geiger-Nuttal law. |
| Interaction of light charged particle (Beta-particle), Energy loss of  beta-particles (ionization), Range of electrons, absorption of beta-particles. |
| Interaction of Gamma Ray; Passage of Gamma radiations through matter (Photoelectric, Compton and pair production effect) electron-positron annihilation. Absorption of Gamma rays (Mass attenuation coefficient) and its application. |
| ASSIGNMENT |

**OCTOBER 2023**

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| **Topics** |
| **Unit III: Nuclear Accelerators**  Linear accelerator, Tendem accelerator |
| Cyclotron and Betatron accelerators |
| **Nuclear Radiation Detectors.**  Gas filled counters; Ionization chamber, proportional counter, |
| G.M. Counter (detailed study), Scintillation counter and semiconductor detector. |
| CLASS TEST |

**NOVEMBER 2023**

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| **Topics** |
| **Unit IV:**  **Nuclear reactions.**  Nuclear reactions, Elastic scattering, Inelastic scattering, Nuclear disintegration |
| Photonuclear reaction, Radiative capture, Direct reaction, Heavy ion reactions and  spallation Reactions |
| Conservation laws, Q-value and reaction threshold |
| **Nuclear Reactors.**  Nuclear Reactors, General aspects of Reactor Design. Nuclear fission and fusion reactors,  (Principle, construction, working and use). |

**DECEMBER 2023**

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| **revision** |

**Lesson Plan**

Name of the ASSISTANT PROFESSOR:- Mr. MUKESH

Class and Section:-B.Sc. 3rd semester (section –A&B)

Subject : Physics (**Wave and optics I** )

**JULY & AUGUST 2023**

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| **Topics** |
| **Unit-1: Interference I** |
| Interference by Division of Wave front: Young’s double slit experiment, Coherence, |
| Conditions of interference, Fresnel's biprism and its applications to determine the |
| wavelength of sodium light and thickness of a mica sheet, Lloyd's mirror, Difference |
| between Bi-prism and Llyod mirror fringes, phase change on reflection. |

**SEPTEMBER 2023**

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| **Topics** |
| **Unit 2: Interference II** |
| Interference by Division of Amplitude: Plane parallel thin film, production of colors in |
| thin films, classification of fringes in films, Interference due to transmitted light and |
| reflected light, wedge shaped film, Newton's rings, Interferometer: Michelson's |
| interferometer and its applications to (i) Standardization of a meter (ii) determination of |
| wavelength. |
| **ASSIGNMENT** |

**OCTOBER 2023**

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| **Topics** |
| **Unit- 3: Diffraction I** |
| Fresnel’s diffraction: Fresnel’s assumptions and half period zones, rectilinear propagation |
| of light, zone plate, diffraction at a straight edge, rectangular slit and circular aperture, |
| diffraction due to a narrow slit and wire. |
| **CLASS TEST** |

**NOVEMBER 2023**

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| **Topics** |
| **Unit -4: Diffraction II** |
| Fraunhoffer diffraction: single-slit diffraction, double-slit diffraction, N-slit diffraction, |
| plane transmission granting spectrum, dispersive power of grating, limit of resolution, |
| Rayleigh's criterion, resolving power of telescope and a grating. Differences between |
| prism and grating spectra. |

**DECEMBER 2023**

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| **revision** |

**Lesson Plan**

Name of the Assistant Professor: -Dr. Narender

Class and Section:-B.Sc. 5th semester (section – B & A)

Subject : Physics( Quantum & Laser Physics)

**JULY & AUGUST 2023**

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| **Topics** |
| **Unit I: Origin quantum physics (Experimental basis)**  Overview, scale of quantum physics, boundary between classical and quantum phenomena, Photon, Photoelectric effect, Compton effect (theory and result), Frank-Hertz experiment, de-Broglie hypothesis. Davisson and Germer experiment |
| G.P. Thomson experiment. Phase velocity, group velocity and their relation. Heisenberg's  uncertainty principle. Time energy and angular momentum, position uncertainty. |
| Uncertainty principle from de Broglie wave. (Wave-particle duality). Gamma Ray Microscope, Electron diffraction from a slit. Derivation of 1-D time-dependent Schrodinger wave equation (subject to force, free particle). |
| Time-independent Schrodinger wave equation, eigen values, eigen functions, wave functions and its significance. Orthogonality and Normalization of function, concept of observer and operator. Expectation values of dynamical quantities, probability current density |

**SEPTEMBER 2023**

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| **Topics** |
| **Unit II: Application of Schrodinger wave equation:**  (i) Free particle in one-dimensional box (solution of Schrodinger wave equation, eigen functions, eigen values, quantization of energy and momentum, nodes and anti nodes, zero point energy). |
| (ii) One dimensional step potential E > Vo (Reflection and Transmission coefficient)  (iii) One dimensional step potential E < Vo (penetration depth calculation). |
| (iv) One dimensional potential barrier, E > Vo (Reflection and Transmission coefficient)  (v) One-dimensional potential barrier, E < Vo (penetration or tunneling coefficient). |
| (vi) Solution of Schrodinger equation for harmonic oscillator (quantization of energy, Zero-point energy, wave equation for ground state and excited states). |
| ASSIGNMENT |

**OCTOBER 2023**

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| **Topics** |
| **Unit III: Laser Physics –I**  Absorption and emission of radiation, Main features of a laser: Directionality, high  intensity, high degree of coherence, spatial and temporal coherence |
| Einstein's coefficients and possibility of amplification, momentum transfer, life time of a level |
| kinetics of optical absorption ((two and three level rate equation, Fuchbauer landerburg formula).population inversion: A necessary condition for light amplification, resonance  cavity, laser pumping, |
| Threshold condition for laser emission, line broadening mechanism, homogeneous and inhomogeneous line broadening (natural, collision and Doppler broadening). |
| CLASS TEST |

**NOVEMBER 2023**

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| **Topics** |
| **Unit IV: Laser Physics – II**  He-Ne laser and RUBY laser (Principle, Construction and working) |
| Optical properties of semiconductor, |
| Semiconductor laser (Principle, Construction and working) |
| Applications of lasers in the field of medicine and industry. |

**DECEMBER 2023**

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| **Revision** |

**Lesson Plan**

Name of the Extension Lecturer:- Mr. ASHISH KUMAR

Class and Section:-B.Sc. 3rd semester (section –A & B)

Subject:-Physics (Computer programming and Thermodynamics)

**JULY & AUGUST 2023**

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| **Topics** |
| **UNIT-1: Computer Programming**  Computer organization, Binary representation, Algorithm development, Flow charts and  their interpretation. |
| FORTRAN Preliminaries: Integer and floating point arithmetic  expression, built in functions, |
| executable and non-executable statements, input and output statements, Formats, IF, DO and GO TO statements, Dimension arrays, |
| function and function subprogram. |

**SEPTEMBER 2023**

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| **Topics** |
| **UNIT –2: Applications of FORTRAN programming** |
| Algorithm, Flow Chart and Programming for Print out of natural numbers, Range of the |
| set of given numbers, Ascending and descending order, Mean and standard deviation, |
| Least square fitting of curve, Roots of quadratic equation, Product of two matrices, |
| Numerical integration (Trapezoidal rule and Simpson 1/3 rule) . |
| **Assignments** |

**OCTOBER 2023**

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| **Topics** |
| **UNIT-3: Thermodynamics-I** |
| Thermodynamic system and Zeroth law of thermodynamics. First law of thermodynamics |
| and its limitations, reversible and irreversible process. Second law of thermodynamics |
| and its significance, Carnot theorem, Absolute scale of temperature, Absolute Zero and |
| magnitude of each division on work scale and perfect gas scale, Joule’s free expansion, , |
| Joule Thomson effect, Joule-Thomson (Porous plug) experiment, conclusions and |
| explanation, analytical treatment of Joule Thomson effect. Entropy, calculations of |
| entropy of reversible and irreversible process , T-S diagram, entropy of a perfect gas, |
| Nernst heat law(third law of thermodynamics), Liquefaction of gases, (oxygen, air, |
| hydrogen and helium), Solidification of He below 4K, Cooling by adiabatic |
| demagnetization. |
| CLASS TEST |

**NOVEMBER 2023**

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| **Topics** |
| **UNIT-4: Thermodynamics-II** |
| Derivation of Clausius-Clapeyron and Clausius latent heat equation and their |
| significance,specific heat of saturated vapours,phase diagrame and triple point of a |
| substance, development of Maxwell thermodynamical relations. Thermodynamical |
| functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) |
| and the relations between them, derivation of Maxwell thermodynamical relations from |
| thermodynamical functions,Application of Maxwell relations: relations between two |
| specific heats of gas, Derivation of Clausius-Clapeyron and Clausius equation,variation |
| of intrinsic energy with volume for (i) perfect gas (ii)Vanderwall gas (iii)solids and |
| liquids , derivation of Stefans law, adiabatic compression and expention of gas & |
| deduction of theory of Joule Thomson effect |

**DECEMBER 2023**

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| **revision** |

**Lesson Plan**

Name of the Extension Lecturer:-Mr. YASHPAL

Class and Section:-B.Sc. 5th semester (section –C)

Subject : Physics( Nuclear Physics)

**JULY & AUGUEST 2023**

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| **Topics** |
| **Unit I: Nuclear Structure and Properties of Nuclei**  Nuclear composition (p-e and p-n hypotheses), Nuclear properties; Nuclear size, spin,  parity, statistics, magnetic dipole moment, quadruple moment (shape concept). |
| Determination of mass by Bain-Bridge, Bain-Bridge and Jordan mass spectrograph.  Determination of charge by Mosley Law |
| Determination of size of nuclei by Rutherford  Back Scatteringmass and binding energy, systematic of nuclear binding energy, nuclear  stability |

**SEPTEMBER 2023**

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| **Topics** |
| **Unit II: Nuclear Radiation decay Processes**  Alpha-disintegration and its theory. Energetics of alpha-decay, Origin of continuous beta  spectrum (neutrino hypothesis), types of beta-decay and energetics of beta-decay. Nature  of gamma rays, Energetics of gamma rays. |
| **Radiation interaction**  Interaction of heavy charged particles (Alpha particles); Energy loss of heavy charged  particle (idea of Bethe formula, no derivation), Range and straggling of alpha particles.  Geiger-Nuttal law. |
| Interaction of light charged particle (Beta-particle), Energy loss of  beta-particles (ionization), Range of electrons, absorption of beta-particles. |
| Interaction of Gamma Ray; Passage of Gamma radiations through matter (Photoelectric, Compton and pair production effect) electron-positron annihilation. Absorption of Gamma rays (Mass attenuation coefficient) and its application. |
| ASSIGNMENT |

**OCTOBER 2023**

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| **Topics** |
| **Unit III: Nuclear Accelerators**  Linear accelerator, Tendem accelerator |
| Cyclotron and Betatron accelerators |
| **Nuclear Radiation Detectors.**  Gas filled counters; Ionization chamber, proportional counter, |
| G.M. Counter (detailed study), Scintillation counter and semiconductor detector. |
| CLASS TEST |

**NOVEMBER 2023**

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| **Topics** |
| **Unit IV:**  **Nuclear reactions.**  Nuclear reactions, Elastic scattering, Inelastic scattering, Nuclear disintegration |
| Photonuclear reaction, Radiative capture, Direct reaction, Heavy ion reactions and  spallation Reactions |
| Conservation laws, Q-value and reaction threshold |
| **Nuclear Reactors.**  Nuclear Reactors, General aspects of Reactor Design. Nuclear fission and fusion reactors,  (Principle, construction, working and use). |

**DECEMBER 2023**

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| **revision** |

**Lesson Plan**

**Name:-Mrs. Rachna**

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| Class and Section | B.Sc. 1st SEMESTER (Section B) |
| Name of the Course | Mechanics |
| Course Code | B23-PHY-101 |
| Course Type:(CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC) | CC/MCC |

**SEPTEMBER 2023**

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| Topics |
| Special Theory of Relativity: Introduction Michelson’s Morley experiment and its Outcomes, Postulates of special theory of relativity |

**OCTOBER 2023**

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| Topics |
| Lorentz Transformations, Simultaneity and order of events, Lorentz contraction, Time dilation, |

**NOVEMBER 2023**

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| Topics |
| Relativistic transformation of velocity, relativistic addition of velocities, variation of mass-energy equivalence, |

**DECEMBER 2023**

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| Topics |
| Relativistic Doppler effect, Revision |

**Lesson Plan**

**Name:- Mrs. Rachna**

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| Class and Section | B.Sc./ BCA/ B.Com/ B.Com(Hons) 1st Semester Section H & I |
| Name of the Course | Human Values and Ethics |
| Course Code | B- VAC 101 |
| Course Type:(CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC) | VAC |

**SEPTEMBER 2023**

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| Week | Topics |
| 3 | Course Introduction - Need, Content and Process for Value Education Understanding the need, content and process for Value Education. (Students should be aware of the difference among skills, values and ethics and their respective need sin life.) |
| 4 | Classification of Value Education: understanding Personal Values, Social Values, |

**OCTOBER 2023**

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| Week | Topics |
| 1 | Moral Values & Spiritual Values; Understanding the difference between ideology and values. Understanding Harmony with self, Society and Nature. |
| 2 | Practical: Debate and discussion on the need and nature of value education; Students should be encouraged to find and analyze suitable case studies to Understand various types of values. |
| 3 | Human Values and Ethics Meaning and nature of human values; Significance of human values in life; |
| 4 | Relation between values and ethics. Relevance of Human values: Integrity Empathy, Loksangrah, Brahmvihara.. |
| 5 | Theory of Naya (Jainism), Deontology, Virtue Ethics, Utilitarianism Practical: Students should be divided in small groups and should be motivated to reflect upon their values |

**NOVEMBER 2023**

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| Week | Topics |
| 1 | Teacher should make an environment to make them realizethat everyone has a set of values arisen from their family, social, cultural, religious, and political contexts, some of which correspond to more “human” and “universal” frameworks. |
| 2 | This exercise is to encourage students to articulate their values and put them into conversation with values from other contexts. |
| 3 | Integrated Personality and Well-being Understanding the relationship among: Self, Identity and Personality. |
| 4 | Understanding Integrated Personality – with the three gunas theory of Sankhya, the four Antah-karanas (inner instruments) in Yoga, and Panchkosha (five sheaths) in Upanishad. |
| 5 | Approaching comprehensive understanding of well-being and its relation to Happiness. |

**DECEMBER 2023**

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| Week | Topics |
| 1 | Practical: Bhrumadhya Dhyan, Chakra Dhyan, Preksha Dhyan, Sakshi Bhava Dhyan, Vipassana, Yog Nidra, Partipakshabhava (yogic way of cognitive restructuring) |
| 2 | Professional Ethics and Global Citizenship Nature, characteristics and scope of professional ethics; |
| 3 | Types of Professional Ethics Professional Values: Trusteeship, Inclusiveness, Commitment, Sustainability, Accountability, Transparency, and Impartiality. |
| 4 | Values for Global Citizenship: Equality, Justice, and Human Dignity. Nature and need of competency based education; Types of Competencies, Core |
| 5 | Competencies: communication, teamwork, planning and achieving goals, Functional Competencies: analytical thinking, knowledge sharing and learning, decision making, partnership building. |

**Lesson Plan**

Name of the Extension Lecturer: - Mrs. RACHNA

Class and Section:-B.Sc. 5th semester (section – C)

Subject : Physics( Quantum & Laser Physics)

**AUGUST 2023**

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| **Topics** |
| **Unit I: Origin quantum physics (Experimental basis)**  Overview, scale of quantum physics, boundary between classical and quantum phenomena, Photon, Photoelectric effect, Compton effect (theory and result), Frank-Hertz experiment, de-Broglie hypothesis. Davisson and Germer experiment |
| G.P. Thomson experiment. Phase velocity, group velocity and their relation. Heisenberg's  uncertainty principle. Time energy and angular momentum, position uncertainty. |
| Uncertainty principle from de Broglie wave. (Wave-particle duality). Gamma Ray Microscope, Electron diffraction from a slit. Derivation of 1-D time-dependent Schrodinger wave equation (subject to force, free particle). |
| Time-independent Schrodinger wave equation, eigen values, eigen functions, wave functions and its significance. Orthogonality and Normalization of function, concept of observer and operator. Expectation values of dynamical quantities, probability current density |

**SEPTEMBER 2023**

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| **Topics** |
| **Unit II: Application of Schrodinger wave equation:**  (i) Free particle in one-dimensional box (solution of Schrodinger wave equation, eigen functions, eigen values, quantization of energy and momentum, nodes and anti nodes, zero point energy). |
| (ii) One dimensional step potential E > Vo (Reflection and Transmission coefficient)  (iii) One dimensional step potential E < Vo (penetration depth calculation). |
| (iv) One dimensional potential barrier, E > Vo (Reflection and Transmission coefficient)  (v) One-dimensional potential barrier, E < Vo (penetration or tunneling coefficient). |
| (vi) Solution of Schrodinger equation for harmonic oscillator (quantization of energy, Zero-point energy, wave equation for ground state and excited states). |
| ASSIGNMENT |

**OCTOBER 2023**

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| **Topics** |
| **Unit III: Laser Physics –I**  Absorption and emission of radiation, Main features of a laser: Directionality, high  intensity, high degree of coherence, spatial and temporal coherence |
| Einstein's coefficients and possibility of amplification, momentum transfer, life time of a level |
| kinetics of optical absorption ((two and three level rate equation, Fuchbauer landerburg formula).population inversion: A necessary condition for light amplification, resonance  cavity, laser pumping, |
| Threshold condition for laser emission, line broadening mechanism, homogeneous and inhomogeneous line broadening (natural, collision and Doppler broadening). |
| CLASS TEST |

**NOVEMBER 2023**

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| **Topics** |
| **Unit IV: Laser Physics – II**  He-Ne laser and RUBY laser (Principle, Construction and working) |
| Optical properties of semiconductor, |
| Semiconductor laser (Principle, Construction and working) |
| Applications of lasers in the field of medicine and industry. |

**DECEMBER 2023**

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| **Revision** |

**Lesson Plan**

**Name:-Dr. Balkrishna Kandpal**

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| Class and Section | B.Sc. 1st SEMESTER (Section C) |
| Name of the Course | Mechanics |
| Course Code | B23-PHY-101 |
| Course Type:(CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC) | CC/MCC |

**SEPTEMBER 2023**

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| Week | Topics |
| 3 | **Fundamentals of Dynamics:** Rigid body, Moment of Inertia, Radius of  Gyration, Theorems of perpendicular and parallel axis (with proof), Moment of Inertia of ring, Disc |
| 4 | Angular Disc, Solid cylinder, Solid  sphere, Hollow sphere, Rectangular plate, Square plate, Solid cone, |

**OCTOBER 2023**

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| Week | Topics |
| 1 | Triangular plate, Torque, Rotational Kinetic Energy, Angular momentum,  Law of conservation of angular momentum, |
| 2 | Rolling motion, condition for pure rolling, acceleration of body rolling down an inclined plane, |
| 3 | Wheel, Moment of Inertia of an irregular body. |
| 4 | **Elasticity:** Deforming force, Elastic limit, stress, strain and their types,  Hooke’s law, Modulus of rigidity, Relation between shear angle and angle  of twist, elastic energy stored/volume in an elastic body, Elongation  produced in heavy rod due to its own weight and elastic potential energy  stored in it |
| 5 | Tension in rotating rod, Poisson’s ratio and its limiting value,  Elastic Constants and their relations. Torque required for twisting cylinder,  Hollow shaft is stiffer than solid one. Bending of beam, bending moment  and its magnitude |

**NOVEMBER 2023**

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| Week | Topics |
| 1 | Flexural rigidity, Geometrical moment of inertia for beam of rectangular cross-section and circular cross-section. Bending of cantilever (loaded by a weight W at its free end), |
| 2 | Weight of cantilever uniformly distributed over its entire length. Dispersion of a centrally loaded beam supported at its ends, determination of elastic constants for material of wire by Searle’s method. |
| 3 | Special Theory of Relativity: Michelson’s Morley experiment and its  outcomes, Postulates of special theory of relativity, Lorentz  Transformations, Simultaneity and order of events, |
| 4 | Lorentz contraction,  Time dilation, Relativistic transformation of velocity, relativistic addition  of velocities, |
| 5 | variation of mass-energy equivalence, relativistic Doppler effect, |

**DECEMBER 2023**

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| Week | Topics |
| 1 | Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere. |
| 2 | Motion of a particle under central force field, |
| 3 | Two body problem and its reduction to one body problem and its solution, compound pendulum or physical pendulum in form of elliptical lamina and expression of time period, |
| 4 | determination of g by means of bar pendulum, Normal coordinates and normal modes |
| 5 | Normal modes of vibration for given spring mass system, possible angular  frequencies of oscillation of two identical simple pendulums of length (l)  and small bob of mass (m) joined together with spring of spring constant |

**Lesson Plan**

**Name:-Dr. Balkrishna Kandpal**

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| Class and Section | B.Sc. /B.A./B.Com 1st Semester (Odd Roll Nos.) |
| Name of the Course | SEC-SKILL ENHANCEMENT COURSE  (Electrical Circuit Network Skills) |
| Course Code | B23-SEC-225 |
| Course Type:(CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC) | SEC-2 |

**SEPTEMBER 2023**

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| Week | Topics |
| 3 | Introduction to Electricity and Circuits: Basics of Electricity, Electric charges (positive and negative), |
| 4 | Conductors, Insulators, Basic components of a circuit: battery, wires, bulb, switch etc. |

**OCTOBER 2023**

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| Week | Topics |
| 1 | Basic Electricity Principles: Voltage, Current, Resistance, and Power, |
| 2 | Ohm's law, Series, Parallel, and series-parallel combinations. Heating effects of current and applications, |
| 3 | AC Electricity (Live, Neutral and Earth), frequency, DC Electricity (Positive and Negative poles). |
| 4 | Understanding Electrical Circuits: AC and DC Voltage Sources, Current and voltage drop across the DC circuit elements. Kirchhoff’s laws. |
| 5 | Instruments to measure current, voltage, power in DC and AC circuits. Familiarization with multimeter,. |

**NOVEMBER 2023**

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| Week | Topics |
| 1 | voltmeter, and ammeter, Insulation |
| 2 | Preparation of extension board. Joints in electrical conductors. Techniques of soldering. Electrical Protection: Relays |
| 3 | Fuses and disconnect switches, Circuit breakers, Overload devices, Surge protection. |
| 4 | Ground-fault protection. Earthing and its types. |
| 5 | Smart Technology: Smart Switches, Wi fi enabled switches, Smart Bulbs, Ways to make Smart home. |

**DECEMBER 2023**

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| Week | Topics |
| 1 | Estimation of electric load, average electricity bill calculation. |
| 2 | Electrical Appliances: Fan, Bulb, Electric Iron, LEDs, Working of DC & AC Motor, Water Pump, |
| 3 | Water Cooler and Air Conditioner. |
| 4 | Comparison of Invertor & Non-Invertor Air Conditioners. |
| 5 | Invertor, Offgrid & ongrid Solar Systems for home. Ways to save electricity. |

**Lesson Plan**

**Name:-Dr. BalkrishnaKandpal**

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| Class and Section | B.A. 1st Semester Section D& E |
| Name of the Course | Human Values and Ethics |
| Course Code | B- VAC 101 |
| Course Type:(CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC) | VAC |

**SEPTEMBER 2023**

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| Week | Topics |
| 3 | Course Introduction - Need, Content and Process for Value Education Understanding the need, content and process for Value Education. (Students should be aware of the difference among skills, values and ethics and their respective need sin life.) |
| 4 | Classification of Value Education: understanding Personal Values, Social Values, |

**OCTOBER 2023**

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| Week | Topics |
| 1 | Moral Values & Spiritual Values; Understanding the difference between ideology and values. Understanding Harmony with self, Society and Nature. |
| 2 | Practical: Debate and discussion on the need and nature of value education; Students should be encouraged to find and analyze suitable case studies to Understand various types of values. |
| 3 | Human Values and Ethics Meaning and nature of human values; Significance of human values in life; |
| 4 | Relation between values and ethics. Relevance of Human values: Integrity Empathy, Loksangrah, Brahmvihara.. |
| 5 | Theory of Naya (Jainism), Deontology, Virtue Ethics, Utilitarianism Practical: Students should be divided in small groups and should be motivated to reflect upon their values |

**NOVEMBER 2023**

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| Week | Topics |
| 1 | Teacher should make an environment to make them realizethat everyone has a set of values arisen from their family, social, cultural, religious, and political contexts, some of which correspond to more “human” and “universal” frameworks. |
| 2 | This exercise is to encourage students to articulate their values and put them into conversation with values from other contexts. |
| 3 | Integrated Personality and Well-being Understanding the relationship among: Self, Identity and Personality. |
| 4 | Understanding Integrated Personality – with the three gunas theory of Sankhya, the four Antah-karanas (inner instruments) in Yoga, and Panchkosha (five sheaths) in Upanishad. |
| 5 | Approaching comprehensive understanding of well-being and its relation to Happiness. |

**DECEMBER 2023**

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| Week | Topics |
| 1 | Practical: Bhrumadhya Dhyan, Chakra Dhyan, Preksha Dhyan, Sakshi Bhava Dhyan, Vipassana, Yog Nidra, Partipakshabhava (yogic way of cognitive restructuring) |
| 2 | Professional Ethics and Global Citizenship Nature, characteristics and scope of professional ethics; |
| 3 | Types of Professional Ethics Professional Values: Trusteeship, Inclusiveness, Commitment, Sustainability, Accountability, Transparency, and Impartiality. |
| 4 | Values for Global Citizenship: Equality, Justice, and Human Dignity. Nature and need of competency based education; Types of Competencies, Core |
| 5 | Competencies: communication, teamwork, planning and achieving goals, Functional Competencies: analytical thinking, knowledge sharing and learning, decision making, partnership building. |

LESSON PLAN

Name-Renu Jakhar Class -mdc physics(A&B)

Session -2023-24 Semester- 1st

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| S. NO. | MONTH | TOPIC |
| 1 | SEPTEMBER 2023 | Physics-Nature, scope & excitement, Major discoveries in physics, major contribution by Indian Physicists, Physics in relation to other sciences, Impact of Physics on Society, latest developments In Science and Technology. System of Measuring Units-Need for measurement, measuring process, concept of mass, length, time; Fundamental and derive units, system of units, concepts of error, types of error (only definition), Accuracy and precision in measurement, least count and applications of measuring  instruments -Vernier caliper, Screw Gauge  **assignment -1** |
| 2 | OCTOBER 2023 | Motion of objects in one dimension- position of the object, origin/reference point, frame of reference, definitions and examples of motion in one, two  and three dimension, Scalar and Vector quantities, description of motion along a straight line- distance and displacement, uniform motion and non-  uniform motion, average and instantaneous speed, average and |instantaneous velocity, acceleration; graphical analysis of straight line  motion- distance- time graph, velocity-time graph.  Unit-3 Causes of motion- concept of force, Newton's Ist law of motion, inertia and mass; Newton's 2 law of motion, momentum and force; 3 law of motion,  daily life applications of Newton's laws of motion.  Universal law of gravitation and its importance  **Class test** |
| 3 | NOVEMBER 2023 | acceleration due to gravity and free fall of a body; mass and weight of an object on Earth and moon,  concept of thrust and pressure and importance in daily life.  Unit -4 Work, energy, types of energy-Kinetic energy and Potential energy, P.E. of an object at a height; law of conservation of energy and its applications.  Conservation of linear and angular momentum, collision (elastic and inelastic) and conservation laws in collisions- importance in daily life. |

LESSON PLAN

Name-Renu Jakhar Class -B.Sc physics(A&B)

Session -2023-24 Semester- 1st

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| S. NO. | MONTH | TOPIC |
| 1 | SEPTEMBER 2023 | Unit 2 Elasticity: Deforming force, Elastíc limit, stress, strain and their types, Hooks law, Module of elasticity Relation between shear angle and angle  of twist, elastic energy stored/volume in an elastic body, Elongation produced in heavy rod due to its own weight and elastic potential energy stored in it, Poisson's ratio and its limiting value, Relation between Young modulus, Bulk modulus and Poisson ratio. Derive the Relation between  Young's modulus, Bulk modulus and Modulus of rigidity. Torque required for twisting cylinder, Bending of beam, bending moment and its  magnitude, Bending of cantilever (loaded by a weight W at its free end), weight of cantilever uniformly distributed over its entire length. Dispersion of a centrally loaded beam supported at its ends, determination of elastic constants for material of wire by Scarle's method.  Assignment 1 |
| 2 | OCTOBER 2023 | Unit-3 Special Theory of Relativity: Michelson's Morley experiments and its outcome, Postulate of special theory of relativity, Lorentz Transformation, Simultancity and order of events, Lorentz contraction, Time dilation, Relativistic transformation of velocity, relativistic addition of velocities, variation of mass-energy equivalence relativistic Doppler effect. Class test |
| 3 | NOVEMBER 2023 | Unit-4 Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere. Motion of a particle under  central force , Two body problem and its reduction to one body problem and its solution, determination of g by means of bar pendulum, Normal coordinates and normal modes, Normal modes of vibration for  given spring mass system, possible angular frequencies of oscillation of two identical simple pendulums of length () and small bob of mass (m)  joined together with spring of spring constant (k.) |

**Lesson Plan**

Name-Renu Jakhar

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| Class and Section | B.A. 1st Semester Section F & G |
| Name of the Course | Human Values and Ethics |
| Course Code | B- VAC 101 |
| Course Type:(CC/MCC/MDC/CC-M/ DSEC/VOC/DSE/PC/AEC/VAC) | VAC |

**SEPTEMBER 2023**

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| Week | Topics |
| 3 | Course Introduction - Need, Content and Process for Value Education Understanding the need, content and process for Value Education. (Students should be aware of the difference among skills, values and ethics and their respective need sin life.) |
| 4 | Classification of Value Education: understanding Personal Values, Social Values, |

**OCTOBER 2023**

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| Week | Topics |
| 1 | Moral Values & Spiritual Values; Understanding the difference between ideology and values. Understanding Harmony with self, Society and Nature. |
| 2 | Practical: Debate and discussion on the need and nature of value education; Students should be encouraged to find and analyze suitable case studies to Understand various types of values. |
| 3 | Human Values and Ethics Meaning and nature of human values; Significance of human values in life; |
| 4 | Relation between values and ethics. Relevance of Human values: Integrity Empathy, Loksangrah, Brahmvihara.. |
| 5 | Theory of Naya (Jainism), Deontology, Virtue Ethics, Utilitarianism Practical: Students should be divided in small groups and should be motivated to reflect upon their values |

**NOVEMBER 2023**

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| Week | Topics |
| 1 | Teacher should make an environment to make them realizethat everyone has a set of values arisen from their family, social, cultural, religious, and political contexts, some of which correspond to more “human” and “universal” frameworks. |
| 2 | This exercise is to encourage students to articulate their values and put them into conversation with values from other contexts. |
| 3 | Integrated Personality and Well-being Understanding the relationship among: Self, Identity and Personality. |
| 4 | Understanding Integrated Personality – with the three gunas theory of Sankhya, the four Antah-karanas (inner instruments) in Yoga, and Panchkosha (five sheaths) in Upanishad. |
| 5 | Approaching comprehensive understanding of well-being and its relation to Happiness. |

**DECEMBER 2023**

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| Week | Topics |
| 1 | Practical: Bhrumadhya Dhyan, Chakra Dhyan, Preksha Dhyan, Sakshi Bhava Dhyan, Vipassana, Yog Nidra, Partipakshabhava (yogic way of cognitive restructuring) |
| 2 | Professional Ethics and Global Citizenship Nature, characteristics and scope of professional ethics; |
| 3 | Types of Professional Ethics Professional Values: Trusteeship, Inclusiveness, Commitment, Sustainability, Accountability, Transparency, and Impartiality. |
| 4 | Values for Global Citizenship: Equality, Justice, and Human Dignity. Nature and need of competency based education; Types of Competencies, Core |
| 5 | Competencies: communication, teamwork, planning and achieving goals, Functional Competencies: analytical thinking, knowledge sharing and learning, decision making, partnership building. |