DYAL SINGH COLLEGE, KARNAL

Lesson Plan	session 2019-20

Name of the Associate Professor   Prof. Rajesh Arora

Class and Section: B.Sc NM A& B

Subject :   Wave & Optics

Week	Days	Topics	
		sem 3rd and 4th	**sem 1st and 2nd**
1	July 16-20,2019	Interference by Division of Wave front: Young's double slit experiment, Coherence, Conditions of interference	Basic concepts of Classical mechanics Mechanics of single and system of particles, Conversion law of linear momentum
2	July22-27,2019	Fresnel's biprism and its applications to determine the wavelength of sodium light and thickness of a mica sheet	Angular momentum and mechanical energy for a particle and a system of particles, Centre of Mass and equation of motion, Constrained Motion
3	July 29- Aug 3, 2019	Lloyd's mirror, Difference between Bi-prism and Llyod mirror fringes,	Generalized Notations Degrees of freedom and Generalized coordinates,
4	Aug. 5- 10,2019	phase change on reflection, problems discussion, numericals	Transformation equations, Generalized Displacement, Velocity, Acceleration, Momentum
5	Aug. 12-17,2019	Interference by Division of Amplitude: Plane parallel thin film, production of colors in thin films	Force and Potential, Hamilton's variational principle
6	Aug. 19-24,2019	classification of fringes in films, Interference due to transmitted light and reflected light, wedge shaped film	Lagrange's equation of motion from Hamilton's principle, Linear Harmonic oscillator
7	Aug. 26-31,2019	Newton's rings, it's applications	Simple pendulum, Atwood's machine

8	Sep. 2-7, 2019	Interferometer: Michelson's interferometer and its applications	Frame of reference, limitation of Newton's law of motion, Inertial frame of reference, Galilean transformation
9	Sep.9-14,2019	Fresnel's diffraction: Fresnel's assumptions and half period zones	Frame of reference with linear acceleration, Classical relativity- Galilean invariance
10	Sep.16-21,2019	rectilinear propagation of light, zone plate	Transformation equation for a frame of reference- inclined to an inertial frame and Rotating frame of reference,
11	Sep.24-28,2019	diffraction at a straight edge, rectangular slit and circular aperture, narrow slit and wire	Non-inertial frames-The accelerated frame of reference and rotating frame of reference , Effect of centrifugal and coriolis forces due to Earth's rotation, Fundamental frame of reference, Michelson-Morley's experiment,concept of Einstein's relativity.
12	Sep. 30- Oct.5, 2019	Fraunhoffer diffraction: single-slit diffraction, double-slit diffraction, N-slit diffraction, plane transmission granting spectrum	Applications of theory of relativity: Special theory of relativity, Lorentz co-ordinate and physical significance of Lorentz invariance, Length Contraction, Time Dilation, Twin Paradox, Velocity addition theorm
13	Oct. 7-12, 2019	dispersive power of grating, limit of resolution, Rayleigh's criterion, resolving power of telescope and a grating	Variation of mass with velocity, Mass energy equivalence, Transformation of relativistic momentum and energy,
14	Oct. 14-19, 2019	prism and grating spectra	relation between relativistic momentum and energy, Mass, velocity, momentum and energy of zero rest mass.
15	Oct. 21-23, 2019	revision	revision of syllabi

16	Jan. 1-4,2020	Polarization: Polarisation by reflection, refraction and scattering, Malus Law, Phenomenon of double refraction	Rotation of rigid body, Moment of inertial, Torque, angular momentum, Kinetic Energy of rotation. Theorem of perpendicular and parallel axes (with proof)
17	Jan. 6-11,2020	Huygen's wave theory of double refraction (Normal and oblique incidence), Analysis of polarized Light	Moment of inertia of solid sphere, hollow sphere, spherical shell, solid cylinder
18	Jan. 13-18, 2020	Nicol prism, Quarter wave plate and half wave plate, production and detection of (i) Plane polarized light (ii) Circularly polarized light and (iii) Elliptically polarized light	hollow cylinder and solid bar of rectangular cross–section, Fly wheel
19	Jan. 20-25,2020	Optical activity, Fresnel's theory of optical rotation, Specific rotation, Polarimeters (half shade and Biquartz)	Moment of inertia of an irregular body, Acceleration of a body rolling down on an inclined plane
20	Jan. 27 -Feb 1,2020	Fourier theorem and Fourier series, evaluation of Fourier coefficient, importance and limitations of Fourier theorem	Elasticity, Stress and Strain, Hook's law, Elastic constant and their relations, Poisson's ratio, Torsion of cylinder and twisting couple
21	Feb 3-8,2020	even and odd functions, Fourier series of functions f(x) between (i) 0 to 2pi, (ii) –pi to pi, (iii) 0 to pi	Determination of coefficient of modulus of rigidity for the material of wire by Maxwell's needle, Bending of beam
22	Feb. 10-15, 2020	(iv) –L to L, complex form of Fourier series, Application of Fourier theorem for analysis of complex waves	Cantilever and Centrally loaded beam, Determination of Young's modulus for the material of the beam and Elastic constants for the material of the wire by Searle's method.

23	Feb.17-22,2020	half and full wave rectifier outputs	Assumption of Kinetic theory of gases, pressure of an ideal gas (with derivation), Kinetic interpretation of Temperature
24	Feb. 24-29,2020	Parseval identity for Fourier Series, Fourier integrals,Fourier transforms and its properties	Ideal Gas equation, Degree of freedom, Law of equipartition of energy and its application for specific heat of gases
25	March 2-7, 2020	Application of Fourier transform (i) for evaluation of integrals, (ii) for solution of ordinary differential equations	Real gases, Vander wall's equation, Brownian motion(Qualitative)
26	March 16-21,2020	FT of $f(x) = e^{-x^2/2}$, problems discussion and numerical	Maxwell's distribution of speed and velocities (derivation required)
27	March, 23-28,2020	Matrix methods in paraxial optics, effects of translation and refraction,derivation of thin lens and thick lens formulae, unit plane, nodal planes, system of thin lenses.	Experimental verification of Maxwell's law of speed distribution
28	March 30 - April 4,2020	Optical fiber, Critical angle of propagation, Mode of Propagation, Acceptance angle, Fractional refractive index change	most probable speed, average and r.m.s. speed, Mean free path, Transport of energy and momentum, Diffusion of gases
29	April 6-11, 2020	Numerical aperture, Types of optics fiber, Normalized frequency, Pulse dispersion, Attenuation, Applications, Fiber optic Communication, Advantages	revision of syllabi
30	April, 13-18, 2020	revision of syllabi	revision of syllabi
31	April 20-25,2020	revision of syllabi	revision of syllabi
32	April27-30,2020	revision of syllabi	revision of syllabi

Week	Days	
		sem 1st and 2nd
1	July 16-20,2019	Gradient of a scalar and its physical significance, Line, Surface and Volume integrals of a vector and their physical significance
2	July22-27,2019	Flux of a vector field, Divergence and curl of a vector and their physical significance, Gauss's divergence theorem
3	July 29- Aug 3, 2019	Stoke's theorem. Derivation of electric field E from potential as gradient
4	Aug. 5- 10,2019	Derivation of Laplace and Poisson equations, Electric flux, Gauss's Law
5	Aug. 12-17,2019	Mechanical force of charged surface, Energy per unit volume.
6	Aug. 19-24,2019	Magnetic induction, Magnetic flux, Solenoidal nature of vector field of induction, properties of B
7	Aug. 26-31,2019	Electronic theory of dia and paramagnetism, Domain theory of ferromagnetism (Langevin's theory)
8	Sep. 2-7, 2019	Cycle of magnetization-hystresis,loop (Energy dissipation, Hystresis loss and importance of Hystresis Curve)
9	Sep.9-14,2019	Maxwell equations and their derivations, Displacement current, Vector and Scalar potentials

10	Sep.16-21,2019	Boundary conditions at interface between two different media, Poynting vector and Poynting theorem.
11	Sep.24-28,2019	A.C. circuit analysis using complex variable with (a) Capacitance and Resistance (CR)
12	Sep. 30- Oct.5, 2019	(b) Resistance and Inductance (LR) (c) Capacitance and Inductance (LC),and (d) Capacitance, Inductance and Resistance (LCR)
13	Oct. 7-12, 2019	numerical probloems
14	Oct. 14-19, 2019	Series and parallel resonance circuit, Quality factor (sharpness of resonance).
15	Oct. 21-23, 2019	revision of syllabi
16	Jan. 1-4,2020	Energy bands in solids, Intrinsic and extrinsic semiconductors, carrier mobility and electrical resistivity of semiconductors
17	Jan. 6-11,2020	Hall effect, p-n junction diode and their characteristics,
18	Jan. 13-18, 2020	Zener and Avalanche breakdown, Zener diode, Zener diode as a voltage regulator
19	Jan. 20-25,2020	Light emitting diodes (LED), Photoconduction in semiconductors, Photodiode, Solar Cell
20	Jan. 27 -Feb 1,2020	p-n junction as a rectifier, half wave rectifier

21	Feb 3-8,2020	filters (series inductor, shunt capacitance, L-section or choke, π and R.C. filter circuits)
22	Feb. 10-15, 2020	Transistors : Junction transistors, Working of NPN and PNP transistors
23	Feb.17-22,2020	Three configurations of transistor (C-B, C-E, C-C modes),Common base, common emitter and common collector characteristics of transistor
24	Feb. 24-29,2020	Constants of a transistor and their relation,Advantages and disadvantages of C-E configuration
25	March 2-7, 2020	D.C. load line .Transistor biasing; various methods of transistor biasing and stabilization,Amplifiers, Classification of amplifiers
26	March 16-21,2020	common base and common emitter amplifiers, coupling of amplifiers,various methods of coupling
27	March, 23-28,2020	Resistance- Capacitance (RC), coupled amplifier (two stage, concept of band width, no derivation),Feedback in amplifiers, advantages of negative feedback, emitter follower, distortion in amplifiers

28	March 30 - April 4,2020	Oscillators, Principle of oscillation, classification of oscillators,Tuned collector common emitter oscillator, Hartley oscillator, C.R.O. (Principle and Working).
29	April 6-11, 2020	revision of syllabi
30	April, 13-18, 2020	revision of syllabi
31	April 20-25,2020	revision of syllabi
32	April27-30,2020	revision of syllabi

R.Arora

DYAL SINGH COLLEGE, KARNAL

Lesson Plan

session 2021-22

Name of the Associate Professor   Dr. Rajni Seth

Class and Section: B.Sc NM A& B

Physics : Classical Mechanics and theory of relativity, Properties of Matter and Kinetic Theory of Gases

Subject:

Week	Days	Topics
1	Oct 25-30, 2021	Basic concepts of Classical mechanics Mechanics of single and system of particles, Conversion law of linear momentum
2	Nov. 8-13 , 2021	Angular momentum and mechanical energy for a particle and a system of particles, Centre of Mass and equation of motion, Constrained Motion
3	Nov.15-20 , 2021	Generalized Notations Degrees of freedom and Generalized coordinates,
4	Nov. 22-27, 2021	Transformation equations, Generalized Displacement, Velocity, Acceleration, Momentum
5	Nov. 29-Dec. 4,2021	Force and Potential, Hamilton's variational principle
6	Dec.6-11, 2021	Lagrange's equation of motion from Hamilton's principle, Linear Harmonic oscillator
7	Dec.13-18 , 2021	Simple pendulum, Atwood's machine
8	Dec.20- 24, 2021	Frame of reference, limitation of Newton's law of motion, Inertial frame of reference, Galilean transformation
9	Dec 27, 2021 - Jan 1,2022	Frame of reference with linear acceleration, Classical relativity- Galilean invariance
10	Jan 3-8, 2022	Transformation equation for a frame of reference- inclined to an inertial frame and Rotating frame of reference,

11	Jan.10-15, 2022	Non-inertial frames-The accelerated frame of reference and rotating frame of reference , Effect of centrifugal and coriolis forces due to Earth's rotation, Fundamental frame of reference, Michelson- Morley's experiment,concept of Einstein's relativity.
12	Jan. 17-22, 2022	Applications of theory of relativity: Special theory of relativity, Lorentz co-ordinate and physical significance of Lorentz invariance, Length Contraction, Time Dilation, Twin Paradox, Velocity addition
13	Jan. 24-29, 2022	theorem, Variation of mass with velocity, Mass energy equivalence, Transformation of relativistic momentum and energy,
14	Jan 31, Feb1-5, 2022	relation between relativistic momentum and energy, Mass, velocity, momentum and energy of zero rest mass.
15	Feb. 7-12,2022	revision of syllabus
16	Feb. 14-19, 2022	Rotation of rigid body, Moment of inertial, Torque, angular momentum, Kinetic Energy of rotation. Theorem of perpendicular and parallel axes (with proof)
17	Feb. 21-22, 2022	Moment of inertia of solid sphere, hollow sphere, spherical shell, solid cylinder
18	April 1-2, 2022	hollow cylinder and solid bar of rectangular cross–section, Fly wheel
19	April 4-9, 2022	Moment of inertia of an irregular body, Acceleration of a body rolling down on an inclined plane
20	April 11-16,2022	Elasticity, Stress and Strain, Hook's law, Elastic constant and their relations, Poisson's ratio, Torsion of cylinder and twisting couple
21	April 18-23, 2022	Determination of coefficient of modulus of rigidity for the material of wire by Maxwell's needle, Bending of beam
22	April 25-30, 2022	Cantilever and Centrally loaded beam, Determination of Young's modulus for the material of the beam and Elastic constants for the material of the wire by Searle's method.
23	May 2-7,2022	Assumption of Kinetic theory of gases, pressure of an ideal gas (with derivation), Kinetic interpretation of Temperature

24	May 9-14, 2022	Ideal Gas equation, Degree of freedom, Law of equipartition of energy and its application for specific heat of gases
25	May 16-21,2022	Real gases, Vander wall's equation, Brownian motion(Qualitative)
26	May23-28, 2022	Maxwell's distribution of speed and velocities (derivation required)
27	May 30-31- June 1-4,2022	Experimental verification of Maxwell's law of speed distribution
28	June 6-11, 2022	most probable speed, average and r.m.s. speed, Mean free path, Transport of energy and momentum, Diffusion of gases
29	June 13-16, 2022	revision of syllabus
30	*June 13-18,2022*	revision of syllabus
31	*June 20-25, 2022*	revision of syllabus
32	*June 27-30, July1-2,2022*	revision of syllabus

R.Arora

DYAL SINGH COLLEGE, KARNAL
2019-20
Lesson Plan

Name of the teacher: **Dr. Devinder Singh**
Class and Section: **B.Sc. - 5th Semester (A & B)**
Subject: **Nuclear Physics**

Week	Date	Topics
1	16.07.2019 to 20.07.2019	Introduction, Nuclear composition - proton-electron hypothesis and proton-neutron hypothesis.
2	22.07.2019 to 27.07.2019	Nuclear mass and binding energy, systematics of nuclear binding energy, nuclear stability.
3	29.07.2019 to 03.08.2019	Nuclear size, spin, parity, statistics. Nuclear magnetic dipole moment and qudrupole moment.
4	05.08.2019 to 10.08.2019	Detrimination of nuclear mass by Bain-Bridge spectrometer, Bain-Bridge and Jordan mass spectrograph, Determination of charge by Mosley Law, Determination of size of nucleus by Rutherford Back Scattering
5	12.08.2019 to 17.08.2019	Alpha-disintegration and its theory. Energeties of alpha-decay. Origin of continuous beta spectrum (neutrino hypothesis), types of beta-decay and energetics ot beta-decay.
6	19.08.2019 to 24.08.2019	Nature of gamma rays. Energetics of gamma rays. Interaction of heavy, charged particles (Alpha particles) Energies loss of heavy Charged particle (idea of Bethe formula, no derivation).
7	26.08.2019 to 31.08.2019	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.
8	02.09.2019 to 07.09.2019	Interaction of Gamma Ray: Passage of Gamma radiations through matter (Photoelectric. Compton and pair production effect) electron-position annihilation. Absorption of Gamma rays (Mass attenuation coefficient) and its application.

9	09.09.2019 to 14.09.2019	Revision, Assignmets, Test
10	16.09.2019 to 21.09.2019	Linear accelerator and Tendem acclerator.
11	23.09.2019 to 28.09.2019	Cyclotron and Betatron acclerators,
12	30.09.2019 to 05.10.2019	Ionization chamber, proportional counter. GM. Counter (detailed study),
13	07.10.2019 to 12.10.2019	Seintillation counter and semicounductor detector.
14	14.10.2019 to 19.10.2019	Nuclear reactions, Elastic scattering, Inelastic scattering, Nuclear disintegration, photonuclear reaction, Radiative capture Direct-reaction, Heavy ion reactions and spallation reactions.
15	21.10.2019 to 26.10.2019	Conservation laws, Q-value and reaction Threshold.
16	28.10.2019 to 31.10.2019	Nuclear fission and fusion reactors, (Principle, construction, working and uses).

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DYAL SINGH COLLEGE, KARNAL
2019-20
Lesson Plan

Name of the teacher: **Dr. Devinder Singh**
Class and Section: **B.Sc. - 6th Semester (A & B)**
Subject: **Solid State and Nano Physics**

Week	Date	Topics
1	01.01.2020 to 04.01.2020	Crystalline and glassy forms, liquid crystals, crystal structure, periodicity, lattice and basis.
2	06.01.2020 to 11.01.2020	Crystal translational vectors and axes. Unit cell and Primitive cell, Winger Seitz primitive cell, Symmetry operations for a two and three dimensional crystal.
3	13.01.2020 to 18.01.2020	Bravais lattices in two and three dimensions. Crystal planes and Miller indices, Interplaner spacing.
4	20.01.2020 to 25.01.2020	Crystal structures of Zinc Sulphide, Sodium Chloride and Diamond.
5	27.01.2020 to 01.02.2020	X-ray diffraction, Bragg's law and experimental X-ray diffraction methods.
6	03.02.2020 to 08.02.2020	K-space and reciprocal lattice and its physical significance.
7	10.02.2020 to 15.02.2020	Reciprocal lattice vectors, need of reciprocal lattice.
8	17.02.2020 to 22.02.2020	Reciprocal lattice to a s.c. lattice, b.c.c. lattice and f.c.c lattice.
9	24.02.2020 to 29.02.2020	Revision, Assignments, Tests.

10	02.03.2020 to 07.03.2020	Historical introduction, Survey of superconductivity, Super conducting systems, High T_c Super conductors.
11	16.03.2020 to 21.03.2020	Isotopic Efect, Critical Magnetic Ficld, Meissner Effect, London Theory and Pippards' equation.
12	23.03.2020 to 28.03.2020	Classification of Superconductors (Type I and Type II), BCS Theory of Superconductivity, Flux quantization.
13	30.03.2020 to 04.04.2020	Josephson Effect (AC and DC), Practical applications of superconductivity and their limitations, Power application of superconductors.
14	06.04.2020 to 11.04.2020	Definition, Length scale, Importance of Nano-scale and technology History of Nanotechnology,
15	13.04.2020 to 18.04.2020	Benefits and challenges in molecular manufacturing. Molecular assembler concept, Understanding advanced capabilities.
16	20.04.2020 to 25.04.2020	Vision and objective of Nano-technology, Nanotechnology in different fields, Automobile.
17	27.04.2020 to 30.04.2020	Nanotechnology in Electronics, Nano-biotechnology, Materials, Medicine.

R.Arora

DYAL SINGH COLLEGE, KARNAL

Lesson Plan

session 2019-20

Name of the Assistant Professor   Ms. Ambika Rani

Class and Section: B.Sc NM A& B (4th sem)

Subject: Physics (Statistical Physics)

Week	Days	Topics
1	Jan. 1-4,2020	Microscopic and Macroscopic systems, events- mutually exclusive, dependent and independent. Probability, statistical probability, A- priori Probability and relation between them, probability theorems
2	Jan. 6-11,2020	some probability considerations, combinations possessing maximum probability, combination possessing minimum probability, Tossing of 2,3 and any number of Coins, Permutations and combinations
3	Jan. 13-18, 2020	distributions of N = 2,3,4) distinguishable and indistinguishable particles in two boxes of equal size, Micro and Macro states, Thermodynamical probability, Constraints and Accessible states, Statistical fluctuations
4	Jan. 20-25,2020	general distribution of distinguishable particles in compartments of different sizes, Condition of equilibrium between two systems in thermal contact-- β parameter, Entropy and Probability (Boltzman's relation)
5	Jan. 27 -Feb 1,2020	Postulates of statistical physics, Phase space, Division of Phase space into cells, three kinds of statistics, basic approach in three statistics. M. B. statistics applied to an ideal gas in equilibrium
6	Feb 3-8,2020	speed distribution law & velocity distribution law. Expression for average speed, r.m.s. speed, average velocity, r. m. s. velocity, most probable energy & mean energy for Maxwellian distribution
7	Feb. 10-15, 2020	Need for Quantum Statistics: Bose-Einstein energy distribution law, Application of B.E. statistics to Planck's radiation law B.E. gas,
8	Feb.17-22,2020	F.D. gas and Degeneracy, Fermi energy and Fermi temperature, Fermi Dirac energy distribution law, Fermi Dirac gas and degeneracy,

9	Feb. 24-29,2020	Zero point energy, Zero point pressure and average speed (at 0 K) of electron gas, Specific heat anomaly of metals and its solution
10	March 2-7, 2020	M.B. distribution as a limiting case of B.E. and F.D. distributions, Comparison of three statistics
11	March 16-21,2020	Dulong and Petit law. Derivation of Dulong and Petit law from classical physics
12	March, 23-28,2020	Specific heat at low temperature, Einstein theory of specific heat
13	March 30 - April 4,2020	Criticism of Einstein theory,Debye model of specific heat of solids, success and shortcomings of Debye theory, comparison of Einstein and Debye theories.
14	April 6-11, 2020	Fermi energy and Fermi temperature, Fermi Dirac energy distribution law for electron gas in metals
15	April, 13-18, 2020	Degeneracy and B.E. Condensation, Fermi- Dirac energy distribution law
16	April 20-25,2020	revision of syllabus
17	April27-30,2020	revision of syllabus

R.Arora

DYAL SINGH COLLEGE, KARNAL

Lesson Plan

session 2019-20

Name of the Assistant Professor	Ms. Nidhi Jast
Class and Section:	B.Sc NM A& B
Subject:	Physics (Wave & Optics)

Week	Days	Topics
1	July 16-20,2019	Interference by Division of Wave front: Young's double slit experiment, Coherence, Conditions of interference
2	July22-27,2019	Fresnel's biprism and its applications to determine the wavelength of sodium light and thickness of a mica sheet
3	July 29- Aug 3, 2019	Lloyd's mirror, Difference between Bi-prism and Llyod mirror fringes,
4	Aug. 5- 10,2019	phase change on reflection, problems discussion, numericals
5	Aug. 12-17,2019	Interference by Division of Amplitude: Plane parallel thin film, production of colors in thin films
6	Aug. 19-24,2019	classification of fringes in films, Interference due to transmitted light and reflected light, wedge shaped film
7	Aug. 26-31,2019	Newton's rings, it's applications
8	Sep. 2-7, 2019	Interferometer: Michelson's interferometer and its applications
9	Sep.9-14,2019	Fresnel's diffraction: Fresnel's assumptions and half period zones
10	Sep.16-21,2019	rectilinear propagation of light, zone plate
11	Sep.24-28,2019	diffraction at a straight edge, rectangular slit and circular aperture, narrow slit and wire
12	Sep. 30- Oct.5, 2019	Fraunhoffer diffraction: single-slit diffraction, double-slit diffraction, N-slit diffraction, plane transmission granting spectrum
13	Oct. 7-12, 2019	dispersive power of grating, limit of resolution, Rayleigh's criterion, resolving power of telescope and a grating
14	Oct. 14-19, 2019	prism and grating spectra
15	Oct. 21-23, 2019	revision
16	Jan. 1-4,2020	Polarization: Polarisation by reflection, refraction and scattering, Malus Law, Phenomenon of double refraction
17	Jan. 6-11,2020	Huygen's wave theory of double refraction (Normal and oblique incidence), Analysis of polarized Light

18	Jan. 13-18, 2020	Nicol prism, Quarter wave plate and half wave plate, production and detection of (i) Plane polarized light (ii) Circularly polarized light and (iii) Elliptically polarized light
19	Jan. 20-25,2020	Optical activity, Fresnel's theory of optical rotation, Specific rotation, Polarimeters (half shade and Biquartz)
20	Jan. 27 -Feb 1,2020	Fourier theorem and Fourier series, evaluation of Fourier coefficient, importance and limitations of Fourier theorem
21	Feb 3-8,2020	even and odd functions, Fourier series of functions f(x) between (i) 0 to 2pi, (ii) –pi to pi, (iii) 0 to pi
22	Feb. 10-15, 2020	(iv) –L to L, complex form of Fourier series, Application of Fourier theorem for analysis of complex waves
23	Feb.17-22,2020	half and full wave rectifier outputs
24	Feb. 24-29,2020	Parseval identity for Fourier Series, Fourier integrals
25	March 2-7, 2020	Fourier transforms and its properties
26	March 16-21,2020	Application of Fourier transform (i) for evaluation of integrals, (ii) for solution of ordinary differential equations
27	March, 23-28,2020	FT of f(x)= e- x2/2 , problems discussion and numerical
28	March 30 - April 4,2020	Matrix methods in paraxial optics, effects of translation and refraction
29	April 6-11, 2020	derivation of thin lens and thick lens formulae, unit plane, nodal planes, system of thin lenses.
30	April, 13-18, 2020	Chromatic, spherical, coma, astigmatism and distortion aberrations and their remedies
31	April 20-25,2020	Optical fiber, Critical angle of propagation, Mode of Propagation, Acceptance angle, Fractional refractive index change
32	April27-30,2020	Numerical aperture, Types of optics fiber, Normalized frequency, Pulse dispersion, Attenuation, Applications, Fiber optic Communication, Advantages

DYAL SINGH COLLEGE, KARNAL

Lesson Plan   **session 2019-20**

Name of the Assistant Professor   Dr. Rubi
Class and Section: B.Sc NM A& B 2nd sem and 6th sem
date of joining: 3-Feb-20

Week	Days	Topics	Topics
		2nd sem	**6th sem**
1	Feb 3-8,2020	filters (series inductor, shunt capacitance, L-section or choke, π and R.C. filter circuits)	Essential features of spect ra of Alkaline-earth elements, Vector model for two valance electron atom: application of spectra. Coupling Schemes;LS or Russell – Saunders Coupling Scheme and JJ coupling scheme, Interaction energy in L-S coupling (sp, pd configuration), Lande interval rule.
2	Feb. 10-15, 2020	Transistors : Junction transistors, Working of NPN and PNP transistors	Hyperfine structure of spectral lines and its origin; isotope effect, nuclear spin.
3	Feb 17-22,2020	Three configurations of transistor (C-B, C-E, C-C modes),Common base, common emitter and common collector characteristics of transistor	Zeeman Effect (normal and Anomalous),Experimental set-up for studying Zeeman effect, Explanation of normal Zeeman effect(classical and quantum mechanical)
4	Feb. 24-29, 2020	Constants of a transistor and their relation,Advantages and disadvantages of C-E configuration	Explanation of anomalous Zeeman effect(Lande g-factor),
5	March 2-7, 2020	D.C. load line .Transistor biasing; various methods of transistor biasing and stabilization.	Zeeman pattern of D1 and D2 lines of Na atom, Paschen-Back effect of a single valence electron system
6	March 16-21,2020	Amplifiers, Classification of amplifiers, common base and common emitter amplifiers, coupling of amplifiers	Weak field Stark effect of Hydrogen atom

7	March 23-28, 2020	various methods of coupling, Resistance- Capacitance (RC), coupled amplifier (two stage, concept of band width, no derivation)	Introduction of early observations, emission and absorption spectra, atomic spectra, wave number, spectrum of Hydrogen atom in Balmer series, Bohr atomic model(Bohr's postulates) , spectra of Hydrogen atom
8	March 30-April 4, 2020	Feedback in amplifiers, advantages of negative feedback, emitter follower, distortion in amplifiers	explanation of spectral series in Hydrogen atom, un-quantized states and continuous spectra, spectral series in absorption spectra, effect of nuclear motion on line spectra (correction of finite nuclear mass)
9	April 6-11, 2020	Oscillators, Principle of oscillation, classification of oscillators	variation in Rydberg constant due to finite mass, short comings of Bohr's theory, Wilson sommerfeld quantization rule, de-Broglie interpretation of Bohr quantization law, Bohr's corresponding principle
10	April 13-18, 2020	Condition for self sustained oscillation: Barkhausen criterion for oscillation	Sommerfeld's extension of Bohr's model, Sommerfeld relativistic correction, Short comings of Bohr-Sommerfeld theory
11	April 20-25, 2020	Tuned collector common emitter oscillator, Hartley oscillator, C.R.O. (Principle and Working).	model; space quantization, electron spin, coupling of orbital and spin angular momentum, spectroscopic terms and their notation, quantum numbers associated with vector atom model, transition probability and selection rules.
12	April 27-30, 2020	Revision of Syllabus	revision of syllabus

R.Arora