DEPARTMENT OF SCIENCE SESSION 2023-24 (1st August –18th November 2023) LESSON PLAN

Name of Faculty Member: Dr Amritpal Kaur Class: B.Sc 2nd year (3rd Semester)

Week/Month	Theory	Practical
August 2023 Week 1	Basic ideas of Statistical Physics. Introduction of Quantum Mechanics.	
Week 2	Behaviour of matter and energy at atomic and subatomic level. Origins of quantum mechanics.	Laws of probability distribution.
Week 3	Eigen values and Eigen functions and operator formalism. Fundamental postulates of quantum mechanics.	
Week 4	Planck's Formula of Black Body radiation and its applications.Idea of Wave-particle duality of matter and Heisenberg uncertainty principle.	Ionisation potential of mercury.
September 2023 Week 1	Relation between microscopic, macroscopic and thermodynamic probability and learn the effect of constraints.	
Week 2	Equilibrium dynamic system and distribution of n particles in different compartments and cells.	Viva-Voice and File work.
Week 3	Basic concept of phase space. Photoelectric effect, X-ray diffraction, Compton effect, Pair production.	Inaccessible height measurement using sextant.
Week 4	Basic approach and compare three statistics: MB statistics, BE statistics and FD statistics.	
October 2023 Week 1	Black body radiation, photon gas, BE distribution law. Time dependent and time independent Schrodinger equation and its solution.	Study and calculate angle of prism.
Week 2	Planck's distribution law, Fermi energy, average energy of electrons. Applications such as particle in a box, Step Potential and Harmonic Oscillator.	Viva-voice and File work.
Week 3	Interference, Coherence, Fresnel biprism, Thin films. Bohr and Somerfield model of Hydrogen atom.	Planck's constant using photoelectric effect.

Week 4	Non-reflecting films, Newton rings,	
	Michelson Morley experiment.	Diffraction pattern using
	Square well potential and	Newton rings apparatus.
	Rectangular barrier.	
November 2023	Diffraction, Types of diffraction, Zone	
	plates. Tunnelling, Gamow theory of alpha	
Week 1	decay	
Week 2	Polarization, Types of polarization, Nicol	Viva-voice and File work.
	prism, Holography.	
Week 3		
	Theory Examinations Commence	

Name of Faculty Member: Dr Amritpal Kaur

Class: B.Sc 4th Semester (9th January - 22nd April 2024)

Week/Month	Theory	Practical
January 2024 Week 2	Entropy, reversible and irreversible processes and law of increase of entropy.	
Week 3	Electron angular Momentum, Larmor's frequency, electron spin angular momentum spin angular momentum.	Minimum deviation using prism.
Week 4	Spin-orbit coupling, Stern-Gerlach experiment, Exclusive Principle. Radiative transitions, spectrum of Hydrogen atom	
February 2024 Week 1	Significance of first and second law of thermodynamics and efficiency of Carnot heat engine.	Refractive index of liquid prism.
Week 2	Significance of Maxwell's thermo- dynamical relations and applications. Degeneracy of H-atom energy levels, fine structure.	
Week 3	Idea of Joule Thomson effect for liquification of helium. Symmetric and Antisymmetric wave functions and Many electron atoms.	Minimum deviation of doubly refracting prism.
Week 4	Entropy for different reversible and irreversible processes such as isothermal, adiabatic, isobaric and isochoric.	Viva-voice and File work.
March 2024 Week 1	Laser fundamentals, types of lasers and their working. Different types of Spectra such as pure rotational, and vibrational spectra.	Wavelength of sodium light using diffraction grating.
Week 2	Interaction of light with matter and know the kinetics of qualitative account of broadening.	Resolving power of telescope.
Week 3	Doppler, collision and natural broadening. Rotational-vibrational and Electronic spectra of molecules.	Viva-voice and File work.
Week 4	Mechanism of lasing action, components of laser and optical cavity. Hyperfine structure, one electron systems, Zeeman effect.	Project work

April 2024	Basics of optical fibre, their construction and applications. Paschen-Back effect	
Week 1	and Stark effect.	
Week 2	Optical fibre-based communication systems. Raman Spectra, Molecules, X- Rays. Mosley law, continuous and characteristic X-rays.	Submission of project work
Week 3		
	Practical Examinations Commence	

DEPARTMENT OF SCIENCE SESSION 2023-24 (1st August – 18th November 2023) LESSON PLAN

Name of Faculty Member: Dr Amritpal Kaur Class: B.Sc 3rd year (5th Semester)

Week/Month	Theory	Assignment
August 2023 Week 1	Basics of crystalline solids, Types of crystal structures, structure factor.	
Week 2	Radioactivity and differentiate between its various modes.	Forward and reverse characteristics of pn diode.
Week 3	Nuclear reactions and associated theoretical concepts.	Reverse characteristics of Zener diode.
Week 4	Difference between insulators, conductors and semiconductors.	
September 2023 Week 1	Interplanar spacing, packing fraction, reciprocal lattice, Bragg's law.	File work
Week 2	Cubic crystals, hcp, diamond, NaCl structures.	Zener diode as a voltage regulator.
Week 3	Brillouin zones, Reciprocal lattices of SCC, BCC and FCC.	Variation of current with temperature in semiconductors.
Week 4	Free electron theory, conductivity, thermal conductivity, Somerfield model.	
October 2023 Week 1	Fermi energy, mean energy, density of states.	File work.
Week 2	Band theory of solids, periodic potentials.	Energy band gap of semiconductor.
Week 3	Bloch theorem, Koning penny model.	Thermistor
Week 4	Effective mass, Direct and indirect bandgap.	
November 2023 Week 1	Semiconductors, Types of semiconductors.	File work.
Week 2	Hall effect, conductivity and resistivity of semiconductors.	
Week 3	Theory Examinations Commence	

Name of Faculty Member: Dr Amritpal Kaur

Class: B.Sc 6th Semester (9th January- 22th April 2024)

Week/Month	Theory	Assignment
January 2024	Basics of lattice and specific heat of solids.	
Week 1		
Week 2	Basics of Elementary particles and details regarding their lifetimes, parity, hypercharge and many more important properties.	Npn transistor characteristics.
Week 3	Role of symmetry and conservation laws and describe Quark model.	CE configuration.
Week 4	Working of various particle accelerators. Accelerator facilities available in India.	
February 2024	Duolog-Petit, Einstein model and Debye	File work.
Week 1	model of fattice violations.	
Week 2	Magnetic phenomena in solids.	FET characteristics
Week 3	Langevin theory of diamagnetism, Pauli paramagnetism.	GM counter.
Week 4	Weiss theory of ferromagnetism, Ferroelectrics, piezo electrics.	
March 2024	Superconductivity phenomenon, London	File work.
Week 1	equations, Des theory.	
Week 2	DC and AC Josephson effect, cooper pair, polarizability.	
Week 3	Liquid crystals and their applications	Project work.
Week 4	Imerging field of nanotechnology, Nanoparticles, fabrication techniques.	
April 2024	Carbon nanostructures, graphene, nanotubes.	Submission of Project
Week 1		
Week 2	Applications of nanotechnology in various fields.	
Week 3	Practical Examinations Commence	

DEPARTMENT OF SCIENCE

SESSION 2023-24 (1st August-18th November2023)

LESSON PLAN

NAME OF FACULTY MEMBER: Dr Manpreet

Class : BSc 5th Semester

Subject: Chemistry

Week/Month	Theory	
August 2023	Physical- Elementary Quantum	
Week 3	Mechanics-I	
	Physical- Elementary Quantum	
Week 4	Mechanics-I contd	
September 2023	Physical- Elementary Quantum	
Week 1	Mechanics-I	
	Physical- Elementary Quantum	
Week 2	Mechanics-I contd	
Week 3	Physical- Photochemistry-I	
	Physical- Photochemistry-I	
Week 4	contd	
October 2023	Physical- Photochemistry-II	
Week 1		
	Dhysical Dhotachamistry II	
Week 2	Physical- Photochemistry-II	
Week 2		
Week 3	Organic- NMR spectroscopy	
Week 4	Organic- NMR spectroscopy-	
	Numericals practice & revision	
November 2023	Organic- Carbohydrates-	
Week 1	classification, nomenclature, preparation	
Week 2	Organic- Carbohydrates- ribose &	
	deoxyribose	
Week 3	Organic- Carbohydrates- disaccharides	
	& polysaccharides	

Week/Month	Theory
January 2024	Physical- Solid State- I
Week 3-4	
February 2024	Physical- Solid State- II
Week 1	
Week 2	Physical- Spectroscopy -
	Introduction
Week 3	Physical- Spectroscopy-
	Rotational Spectrum
Week 4	Physical- Spectroscopy-
	Vibrational Spectrum
March 2024	Physical- Spectroscopy-
Week 1	Electronic Spectrum
Week 2	Inorganic-Electronic spectra of
	transition metal complexes
Week 3	InorganicElectronic spectra of
	transition metal complexes-
	contd
Week 4	Inorganic-Magnetic properties
	of transition metal complexes
April 2024	Inorganic-Magnetic properties
Week 1	of transition metal complexes-
	cotd
Week 2	Inorganic- Numericals practice
	& revision
Week 3	Preparation for exams

Class : BSc 6th Semester(9th Jan- 22nd April 2024)

DEPARTMENTOFSCIENCE SESSION 2023-24 (1st August– 18th November 2023) LESSON PLAN

Name of Faculty Member: Dr Sandeep Sharma Class: B.Sc 3rd year (5th Semester)

Week/Month	Theory	Assignment
August 2023	Current and voltage sources and their	
Week 3	applications.	
Week/	Theyenin's theorem Norton's theorem	
Week+	The vening 3 theorem, footion 3 theorem.	
September 2023	Study of semiconductors and temperature	
Wook1	coefficient of resistance.	
WCCKI		
Week2	Working of CRO.	Current and voltage sources.
Week3	Structure and working of Bipolar	
	Junction Transistor.	
Week4	Common Emitter. Common Base.	Conductors, insulators and
	Common Collector with their	semiconductors.
	characteristic studies.	
October 2023	Applications of transistors as amplifiers.	
Week1		
Week2	PN junction and Zener diode and their	NPN and PNP transistors.
	interpretation with the help of energy	
	level diagrams.	
Week3	Rectifiers, Clipping and clamping	
	elements, filters, voltage dividing	
	circuits, h-parameters.	
Week4	General Properties of nuclei both	Rectifiers
W COR I	Qualitatively and quantitatively	Recenters.
November 2022	Nature of publics foress using mason	
November 2023	theory	
Wook1	theory.	
WCCKI		
Wook?	Applications of Liquid Drop Model and	Fundamental Forces and shell
VV CCK2	Shell model	model.
Week3		
	Theory Examinations Commence	

Name of Faculty Member: Dr Sandeep Sharma

Class: B.Sc 6th Semester (9th January-22thApril 2024)

Week/Month	Theory	Assignment
January 2024	Structure, working and characteristics of JFET and MOSFET.	
Week3-4		
February 2024	Various types of oscillators and feedback	Bipolar and unipolar
Week1	in ampimers.	
Week2	Binary and decimal numbers.	
Week3	Analog and digital communication systems.	Logic gates.
Week4	Modulation-demodulation of different types of signals.	
March 2024	The different types of nuclear radiations and their interactions	Modulation and demodulation
Week1		
Week2	Gas-filled detectors, Semiconductor detectors and Scintillation detectors.	
Week3	Principle, construction and working of different detectors	Nuclear detectors.
Week4	Simplification of logic circuits using Boolean algebra and various logic circuits.	
April 2024	Various factors responsible for energy loss mechanism during nuclear interaction	Boolean algebra.
Week1		
Week2	Applications of operational amplifiers.	
Week3		
	Practical Examinations Commence	

DEPARTMENT OF SCIENCE

SESSION 2023-24 (1st August-18th November2023)

LESSON PLAN

NAME OF FACULTY MEMBER: Dr Sujata Vohra

Class : BSc 3rd Semester

Subject: Chemistry

Week/Month	Theory	Practical
August 2023	Inorganic – Chemistry of First	Introduction to Lab & safety
Week 1	Transition Series	measures to be taken while
		performing experiments
	Physical- Liquid State	Volumetric analysis—
Week 2		Introduction
Week 3	Inorganic- Chemistry of Second	Performance of expt
	Transition Series and Third	
	Transition Series	
Week 4	Organic- Alcohols and Phenols	Estimation of hardness of water
		by EDTA
September 2023	Physical- Chemical equilibrium	Result discussion & submission
Week 1		of file
	Inorganic- Chemistry of Coord	Gravimetric Analysis- estimation
Week 2	Compounds-I	of Ni as NiDMG
Week 3	Inorganic- Chemistry of Coord	Introduction to
	Compounds-I contd	Thermochemistry
Week 4	Inorganic- Chemistry of Coord	To find water equivalent
	Compounds-II	
October 2023	Organic-Aldehydes & Ketones	To determine enthalpy of
Week 1-2	Part I &II	neutralization of a weak
		acid/weak base
Week 3-4	Physical- Thermodynamics- II	To determine enthalpy of
		neutralization of a strong
		acid/strong base
November 2023	Organic- Carboxylic Acids and	To determine solubility of
Week 1	Dicarboxylic Acids	benzoic acid at diff
		temperatures
Week 2	Physical- Thermodynamics- III	File completion & revision
Week 3	Theory Examination commence	

NAME OF FACULTY MEMBER: Dr Sujata Vohra

Class : BSc 4th Semester(9th Jan- 22nd April 2024)

Week/Month	Theory	Practical
January 2024	Chemistry of Lanthanides	Detection of Elements-
Week 2	Chemistry of Actinides	Explanation & Demonstration
Week 3	Organic – Ethers and Epoxides	To perform experiments for
	Organic- Fats, Oils & Detergents	detection of N
Week 4	Physical- Phase Equilibrium	To perform experiments for
		detection of S
February 2024	Inorganic-Oxidation and	To perform experiments for
Week 1	Reduction	detection of N & S both
Week 2	Inorganic- Acids and Bases	Explanation for Detection of
		different functional groups
	Organic- Nitro compounds	Detection of Carboxylic acids
Week 3		
Week 4	Organic- Amines- Classification,	Detection of phenols
	Nomenclature, Preparation &	
	Chemical properties	
March 2024	Organic- Heterocyclic	Detection of esters
Week 1	Compounds- Pyrrole, furan,	
	thiophene	
Week 2	Physical- Liquid- Liquid Mixtures	Detection of carbohydrates
	Organic- Study of Indole,	Detection of amines
Week 3	Quinoline, Isoquinoline	
Week 4	Inorganic- Non- Aqueous	Detection of amides
	Solvents	
April 2024	Physical- The Distribution Law	Extraction of caffeine from tea
Week 1		leaves – Project
Week 2	Physical-Electrochemistry-I & II	File completion & revision
Week 3	Revision & assignments	Practical exam

NAME OF FACULTY MEMBER: Dr Sujata Vohra

Class : BSc 5 th Semester(1 st August- 18 th November 20	023	;)
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Week/Month	Theory	Practical
August 2023	Inorganic – Metal – Ligand	Prep of copper tetraammine
Week 1	Bonding in Transition Metal	complex
	Complexes	
	Inorganic- Thermodynamic &	Prep of sodium
Week 2	Kinetic Aspects of Metal	trioxalatoferrate(III)
	Complexes	
Week 3-4	Organic- Introduction to	Prep of cis- bisoxalatodiaqua
	Spectroscopy / UV spectroscopy	chromate(III) ion
		Prep of trans- bisoxalatodiaqua
		chromate(III) ion
September 2023	Organic- Numericals on UV-	To determine strength of given
Week 1-2	spectroscopy	strong acid conductometrically
		and strong base
		To determine strength of given
		strong acid conductometrically
		and weak base
Week 3-4	Inorganic- Bioinorganic Chem	To determine strength of given
		weak acid conductometrically
		and weak base
		To determine strength of given
		weak acid conductometrically
		and strong base
Ostabor 2022	Inorgania Organomatallia	Determination of molecular
Week 1 2	Chamistry	Determination of molecular
Week 1-2	Chemistry	weight of a non-volatile solute
Ostahar	Organia Infrancel an active sector	by Rast method
Uctober	Organic – Infrared spectroscopy	File completion & revision
vveek 3-4		
November 2023	Organic- Numericals based on	
	IR	
Wook 2	Exame Droparation	
VVEEK S	Exams Preparation	

NAME OF FACULTY MEMBER: Dr Sujata Vohra

Class : BSc 6th Semester(9th Jan- 22nd April 2024)

Week/Month	Theory	Practical
January 2024	Inorganic- Silicones &	Column chromatography-
Week 3-4	phosphazenes	Separation of fluorescein and
		methylene blue
February 2024	Inorganic- Hard and Soft Acids	Preparation of iodoform from
Week 1	and Bases	ethanol and acetone
Week 2	Organic-Classification,	Preparation of p-
	structure, stereochem,	nitroacetanilide
	preparation & reactions of	
	amino acids	
Week 3	Organic-Peptides and Proteins	Preparation of methyl orange
Week 4	Organic-Nucleic Acids	Preparation of benzoic acid
		from toluene
March 2024	Organic Synthesis via enolates	Preparation of m-nitroaniline
Week 1		from m- dinitrobenzene
Week 2	Organic Synthesis via enolates	Preparation p-iodoaniline from
	contd	aniline
Week 3	Organic-Organometallic	Preparation of 2,4,6-
	compounds	tribromophenol
Week 4	Organic- Synthetic Polymers	Stereochemical study of R&S
		configuration of optical isomers
April 2024	Organic- Assignment on	Stereochemical study of E &Z
Week 1	Synthetic Polymers	configuration of geometrical
		isomers
Week 2	Revision & doubt classes	File & Project checking
Week 3	Preparation for exams	Practical exam

DEPARTMENT OF SCIENCE

SESSION 2023-24

LESSON PLAN - Mathematics

Name of faculty member: Dr Kumud Srivastava

Week/ Month	Differential Equations I
August 2023	

Class: B.SC. II (Semester III)

Week 1-2	Exact differential equations	
Week 3-44	differential equations with integrating factors	
September 2023		
Week 1	First-order a IInd higher degree equations solvable for x,y,p	
Week 2	Clairaut's form, Singular solution as an envelope of general solutions	
Week 3	Geometric meaning of differential equations, Orthogonal trajectories	
Week 4	Linear differential equations with constant coefficient	
October 2023		
Week 1	Linear differential equations with variable coefficients	
Week 2	Cauchy and Legendre Equations	
Week 3	Linear differential equations of second-order	
Week 4	Transformation of the equation by changing the dependent variable/	
	independent variables	
November 2023		
Week 1	Methods of variation of parameters and reduction orders	
Week 2		
Week 3	Simultaneous differential equations	

Class: B.SC.II (Semester III)

Week/ Month	Statics	
August 2023		
Week 1-2	Basic notions. Composition and resolution of concurrent forces	
Week 3-4	Theorem on concurrent forces	
September 2023		
Week 1	Parallelogram law of forces, components of a force in given directions, Resolved	
	parts of forces	
Week 2	Resultant of any number of coplanar concurrent forces	
Week 3	Equilibrium conditions for coplanar concurrent forces, equilibrium of a body	
	resting on a smooth inclined plane.	
Week 4	Equilibrium of three forces acting at a point – Triangle law of forces, $\lambda\text{-}\mu$ theorem	
October 2023		
Week 1	Moments and Couples- Moments of a force about a point and a line	
Week 2	Centre of parallel forces, Theorems on a moment of a couple	
Week 3	Equivalent couples, Varignon's theorem, generalised theorem of moments	
Week 4	Coplanar forces to a force and a couple	
November 2023		
Week 1	Equilibrium conditions for any number	
Week 2		
Week 3	Non-concurrent forces	

Class: B.SC. II (Semester IV)

Month/Week	Differential Equations II
January 2024	
Week 2-3	Series solution of differential equations – power series method
Week 4	Bassel and Legendre equations
February 2024	
Week 1	Bassel functions of the first and second kind, Legendre functions
Week 2	Generating functions, Recurrence relation and orthogonality of Bassel and
	Legendre functions
Week 3	Partial differential equations: Origin of first order, partial differential equations
Week 4	Linear equations of first-order, Integral surfaces passing through a given curve
March 2024	
Week 1	Inverse Laplace transforms- Linearity property, Shifting properties, Change of scale
	properties, Inverse Laplace transforms of derivatives and integrals, Convolution
	theorem
Week 2	Application of Laplace transforms- Solution of differential equations with constant
	coefficients
Week 3	Solution of differential equations with variable coefficients, Solution of
	simultaneous differential equations.
Week 4	Laplace transformation- Linearity of the Laplace transformation.
April 2024	
Week 1	Existence theorem of Laplace, Transformations
Week 2	Shifting theorems
Week 3	Laplace transforms of derivatives and integrals

Class: B.SC. II (Semester IV)

Month/Week	Dynamics
January 2024	
Week 2-3	Motion of particles with constant acceleration, acceleration of falling bodies
Week 4	Motion under gravity, Motion of body projected vertically upwards
February 2024	·
Week 1	Newton's laws of motion,
Week 2	Motion of two particles connected by a string, motion along a smooth inclined plane
Week 3	Constrained motion along a smooth inclined plane,
Week 4	Variable acceleration: Simple harmonic motion, elastic string
March 2024	•
Week 1	The curvilinear motion of a particle in a plane: Definition of velocity and acceleration,
	projectiles, motion in a circle
Week 2	Work, power, conservative fields and the potential energy, work done against
	gravity, Potential energy of a gravitational field.
Week 3	Relative motion, Relative displacement, velocity and acceleration, motion relative to
Week 4	a rotating frame of reference
April 2024	
Week 1	Linear momentum, angular momentum, Conservation of angular momentum,
Week 2	Principle of impulse and momentum, motion with respect to the centre of mass of a
	system of particles, collisions of elastic bodies, loss of energy during impact

Class: B.SC. III (Semester V)

Week/ Month	Real Analysis I		
August 2023			
Week 1-2	Riemann integral		
Week 3-4	Upper & Lower Riemann integral		
September 2023			
Week 1	Integrability of continuous and monotonic functions,		
Week 2	Properties of integrable functions		
Week 3	The fundamental theorem of integral		
Week 4	Mean value theorem of integral calculus, Beta and gamma functions		
October 2023	October 2023		
Week 1	Improper integral and their convergence,		
Week 2	Comparison tests, Absolute and conditional convergence,		
Week 3	Abel's and Dirichlet's tests, Frullani's integral		
Week 4	Integral as a function of a parameter, continuity, derivability and		
	integrability of an integral of a function of a parameter		
November 2023			
Week 1	Continuity,		
Week 2	Derivability and integrability		
Week 3	The integral of a function of a parameter		

Class: B.SC. III (Semester V)

Week/ Month	Probability Theory
August 2023	
Week 1-2	Review the notion of probability
Week 3-4	Axioms and their applications
September 2023	
Week 1	Conditional probability and independence, Bayes' theorem
Week 2	Random variable
Week 3	Concept, probability density function,
Week 4	Cumulative distribution function, discrete and continuous random
	variables, expectations, mean, variance, moment generating functions,
	skewness and kurtosis
October 2023	
Week 1	Discrete random variables, Bernoulli random variables, binomial random
	variables, Negative
Week 2	Continuous random variables, Uniform random variables, Exponential
	random variables,
Week 3	Beta random variables, gamma random variables, Chi-square random
	variables, Normal random variables
Week 4	Bivariate random variables, joint distribution, Joint and conditional
	distributions
November 2023	
Week 1	Conditional expectations
Week 2	Independent random variables,
Week 3	Correlation coefficient, Bivariate Normal distribution

Class: B.SC. III (Semester VI)

Week/ Month	Real Analysis II
January 2024	
Week 2-3	Double and triple integrals, double integral at a rectangle, repeated
	integrals in R ² ,
Week 4	The double integral over bounded Non-rectangular regions,
February 2024	
Week 1	Area of bounded regions in the plane, double integrals as volumes
Week 2	Change of variables in double integrals, Change to polar coordinates, Area o
	polar coordinates
Week 3	Triple integral in rectangular coordinates, Triple integrals over general
	regions in R ² , Repeated integrals in R ³ , Volume of a region in R ³
Week 4	Vector integration: Line, surface and volume integration, Gauss
	divergence theorem, Stoke's theorem, Green's theorem
March 2024	
Week 1	Sequences and series of functions
Week 2	Pointwise and uniform convergence, Cauchy criterion for uniform
	convergence, Weierstrass M-test, Abel's and Dirichlet's tests for uniform
	convergence
Week 3	Uniform convergence and continuity, uniform convergence and Riemann
	integration, Uniform convergence and differentiation
Week 4	Weierstrass approximation theorem, Abel's and Taylor's theorems of
	power series
April 2024	
Week 1	Fourier series, Fourier expansion of piecewise monotonic functions,
Week 2	Fourier series for odd and even functions
Week 3	Half range series, Fourier series in the intervals $[0,2\pi]$, $[-1,1]$ and $[a,b]$

Class: B.SC. III (Semester VI)

Week/ Month	Numerical Analysis	
January 2024		
Week 2-3	Solution of expressions, Bisection, Secant, Regula Falsi, Newton's Method,	
	Roots of polynomials	
Week 4	Interpolation, Lagrange and Hermite interpolation, Divided differences,	
	Difference schemes,	
February 2024		
Week 1	Interpolation formulas using Differences	
Week 2	Numerical differentiation	
Week 3	Numerical differentiation	
Week 4	Gauss Quadrature formulas, Chebychev's formulas	
March 2024		
Week 1	Linear equations, Direct methods of solving linear equations,	
Week 2	Gauss elimination, LU decomposition, Cholesky decomposition, Iterative	
	methods, Jacobi, Gauss-Seidel, Relaxation method	
Week 3	The algebraic Eigenvalue problem, Jacobi's method, Given's method	
Week 4	Householder's method, Power method, QR method Lancozo's method	
April 2024		
Week 1	Ordinary differential equations, Euler's method	
Week 2	Single-step methods, Runge-Kutta's method,	
Week 3	Multi-step methods	

DEPARTMENT OF SCIENCE

SESSION 2023-24

LESSON PLAN - Mathematics

Name of faculty member: Mr Shiv Chawla

Class: B.SC. II (Semester III)

Week/ Month	Theory (Advance Calculus I)
August 2023	
Week 1-2	Limits and continuity of functions
Week 3-4	Partial differentiation
September 2023	
Week 1	Change of variables & differentiability of functions of two & three
	variables
Week 2	Young's Theorem
Week 3	Statement of inverse and implicit function with its applications
Week 4	Vector differentiation
October 2023	
Week 1	Gradient, Divergence and Curl
Week 2	Euler's Theorem
Week 3	Taylor's Theorem of functions
Week 4	Jacobian's Theorem and envelopes
November 2023	
Week 1	Maxima and minima of functions
Week 2	Saddle point and Lagrange's multiplier method
Week 3	Revision

Name of faculty member: Mr Shiv Chawla

Class: B.SC. II (Semester IV)

Subject: Mathematics

Week/ Month	Theory (Advance Calculus II)	
January 2024		
Week 2	Sequence	
Week 3-4	Convergence and divergence of sequence	
February 2024		
Week 1	Algebra of limits	
Week 2	Cauchy's Theorem on limits	
Week 3	Sequential continuity and uniform continuity	
Week 4	Oscillatory sequences	
March 2024		
Week 1	Series of non-negative terms	
Week 2	P-Test, Comparison Test and Cauchy's Root Test	
Week 3	Ratio Test, Gauss Test, De-Morgan Test	
Week 4	Logarithmic Test	
April 2024		
Week 1	Leibnitz's Theorem	
Week 2	Absolute and conditional convergence	

Name of faculty member: Mr Shiv Chawla

Class: B.SC. III (Semester V)

Week/ Month	Theory (Modern Algebra)
August 2023	
Week 1-2	Groups
Week 3-4	Subgroups
September 2023	
Week 1	Lagrange's Theorem
Week 2	Normal subgroups
Week 3	Quotients Groups
Week 4	Homo-morphism and Iso-morphism Theorem
October 2023	
Week 1	Rings
Week 2	Integral domain, Sub rings
Week 3	Quotient rings
Week 4	Homo-morphism and Iso-morphism Theorem of rings
November 2023	
Week 1	Polynomial rings
Week 2	Prime and maximal ideals
Week 3	Revision

Name of faculty member: Mr Shiv Chawla

Class: B.SC. III (Semester VI)

Week/ Month	Theory (Linear Algebra)	
January 2024		
Week 2-3	Algebra of vector space	
Week 4	Sub-space and linear span	
February 2024		
Week 1	Linear dependence of vectors	
Week 2	Basis and dimensions	
Week 3	Direct sum and compliments	
Week 4	Linear transformation	
March 2024		
Week 1	Linear transformation and matrices	
Week 2	Change of basis	
Week 3	Characteristic roots and Characteristic vectors	
Week 4	Cayley-Hamilton Theorem	
April 2024		
Week 1	Minimal polynomial	
Week 2	Geometric multiplicity of characteristic values	