

Lesson Plan

Name of the Teacher: Dr. Aarti Saini
Class: B.Sc. II
Session: July-Dec 2026
Internal Marks: 15

Subject: Differential Equations
Semester: III
External Marks: 35

Course Objectives

- * To introduce the students with the concept of ordinary differential equations and partial differential equations and their properties
- *To introduce the concept of homogeneous and non- homogeneous second order linear differential equations.

Course Outcome

At the end of the course, student will have:

- * Gain knowledge of the basic concepts of ordinary differential equations and apply knowledge to find exact solutions of first order di
- *Gain knowledge of total differential equations , partial differential equations and apply it to the problems of its own discipline.
- * to acquire cognitive and technical skills for accomplishing assigned tasks.

Month	Tentative Dates	Topic	Assignments
August		Basic concepts and genesis of ordinary differential equations, order and degree of a differential equations, solutions of differential equations of first order and first degree, Exact differential equations	
	3-7 Aug		
	10-14AUG	Integrating factor, First order higher degree equations solvable for x, y and p, Lagrange's equations, Clairaut's form and singular solutions	Test
	17-21	Orthogonal trajectories of one- parameter families of curves in a plane, ns with constant coefficients,	Assignment
September	24-28, 31	Solutions of linear ordinary differential equatio	
	1-4SEP	linear non- homogeneous differential equations,	
	7-11 SEP	Linear differential equation of second order with variable coefficients, Method of reduction of order	Test
	14-18	method of undetermined coefficients, method of variation of parameters,	
	21-25	Cauchy- Euler equation, Solution of simultaneous differential equations,	Test
	28-30	total differential equations, Genesis of Partial differential equations (PDE),	Assignment
October	1-2, 5-9 OCT	Concept of linear and non- linear PDEs, Complete Solution, general solution and singular solution of a PDE,	
	12-16 OCT	Linear PDE of first order, Lagrange's method for PDEs.	Test
	19-23	Integral surfaces passing through a given curve, Surfaces orthogonal to a given System of surfaces	
	26-30	Compatible systems of first order equations	Test
November	10-13 Nov	Charpit method, Special types of first order PDEs	Test
	16-20 NOV	Jacobi's method,	
	23-27,30	Second Order Partial Differential Equations with Constant Coefficients	Test
December	1-4 December	Revision	Test

- Practicals will be done according to respective theory plans.


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MAHARANI PADMAVATI GOVT.COLLEGE FOR WOMEN, SHAHZADPUR (AMBALA)

Lesson Plan

Academic Session : 2026-27
Class : BSc II(PS), Sem III
Paper : Thermodynamics & Statistical Physics(B23-PHY-301)
Teacher's Name : Sonia Devi

External marks:50

- Course Outcomes-
1. It helps to understand about significance of Maxwell thermodynamical equation. Students will learn about the laws of thermodynamics and its limitations.
It will make understand students about how phases changes in thermodynamical system on variations of thermodynamical variables or heat like in Clausius Clapyeron equation.
 2. Statistical physics will show how particles of a themodynamic system are arranged according to classical and quantum approach.
Statistical physics will talk about the probability of a particle in various cells as per their nature and three different type of speed that these particles will possess.

Month	Dates	Topic to be covered	Assignments/ Tests/activities
August	1st week	THERMODYNAMICS-I Thermodynamic-systems, variables and equation of state, thermal equilibrium, Zeroth law of thermodynamics; Concept of heat, work and its sign (work done- by the system on the system) & its path dependence, First law of thermodynamics- its significance and limitations, internal energy as a state function, different types of process-isochoric process, isobaric process, adiabatic process, isothermal process, cyclic process, Reversible and irreversible process, First law and cyclic process	
	2 nd week	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	
	3 rd week	Joule Thomson effect, Joule-Thomson (Porous plug) experiment, conclusions and explanation, analytical treatment of Joule Thomson effect	
	4 th week	Entropy, calculations of entropy of reversible and irreversible process, T-S diagram, entropy of a perfect gas	
September	1 st week	Nernst heat law (third law of thermodynamics); Liquefaction of gases, (oxygen, air, hydrogen and	

		helium) solidification of helium below 4K, Cooling by adiabatic demagnetization	
	2 nd week	Revision of Unit I THERMODYNAMICS-II Derivation of Clausius-Clapeyron and Clausius latent heat equations and their significance, specific heat of saturated vapours	
	3 rd week	phase diagram and triple point of a substance, development of Maxwell thermodynamical relations	Quiz / GROUP DISCUSSION
	4 th week	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	
October	1 st week	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) Vander wall gas (iii) solids and liquids	Assignment
	2 nd week	derivation of Stefan's law, adiabatic compression and expansion of gas & deduction of theory of Joule Thomson effect.	
	3 rd week	Revision of Unit II Statistical Physics-I Distribution of N (for N= 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates, thermodynamical probability, constraints and accessible states	Mid Term Exam
	4 th week	statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, β -parameter, entropy and probability; Concept of phase space, division of phase space into cells, postulates of statistical mechanics	
November	1 st week	Diwali Break	
	2 nd week	Classical and quantum statistics, basic approach to these statistics, Maxwell-Boltzmann statistics applied to an ideal gas in equilibrium-energy distribution law Maxwell's distribution of speed & velocity (derivation required), most probable speed, average and r.m.s.	

		speed, mean energy for Maxwellian distribution.	
	3 rd week	Revision of Unit III Statistical Physics-II Dulong and Petit Law, derivation of Dulong and Petit law from classical physics; Need of Quantum statistics- classical versus quantum statistics, Bose-Einstein energy distribution Law, Application of B. E. Statistics to Planck's radiation law, degeneracy and B. E. condensation	
	4 th week	Fermi-Dirac energy distribution Law, F. D. gas and degeneracy, Fermi energy and Fermi temperature; F. D. energy distribution Law for electron gas in metals, zero point energy, average speed (at 0 K) of electron gas	
December	1 st week	Revision	

Teacher's Sign *Souvik Debn*
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**MAHARANI PADMAVATI GOVT.COLLEGE FOR WOMEN, SHAHZADPUR
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Lesson Plan

Academic Session: 1st August to 4th December (2026-27)

Class Name : BSc. II (3rd Semester)

Course Name : Chemistry-III (Course Code:B23-CHE-301& Course Type: CC/MCC)

Teacher's Name: Dr. Rajni Mohil

Max. Marks:70+30* Internal Assessment Marks:20+10*

End Term Exam Marks: 50+20*

Month	Dates	Topic to be covered	Assignments/ Tests/ Activities
Aug	1 st week	s and p-Block Elements Salient features of hydrides, oxides, halides, hydroxides of s-block elements (methods of preparation excluded).	
	2 nd week	Structure, preparation, and properties of Diborane and Borazine.	
	3 rd week	Catenation, carbides, fluorocarbons, silicates (structural aspects)	
	4 th week	structure of oxides of Nitrogen and phosphorus, structure of white and red phosphorus.	
Sept.	1 st week	Structure of oxyacids of Nitrogen, phosphorous, sulphur and chlorine	Assignment -I
	2 nd week	comparison of acidic strength of oxyacids, low chemical reactivity of noble gases	
	3 rd week	chemistry of xenon, structure and bonding in fluorides, oxides and oxyfluorides of xenon.	
	4 th week	Revision Electrochemistry-I Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration.	
	5 th week	Application of Kohlrausch's Law in calculation of conductance of weak electrolytes at infinite dilution (Numericals)	
Oct.	1 st week	Concepts of pH and pKa, Buffer solution, Buffer action, Henderson – Hazel equation, Buffer mechanism of buffer action.	Assignment -II
	2 nd week	Electrochemistry-II Reversible & irreversible cells, Calculation of thermodynamic quantities of cell reaction (ΔG , ΔH & K). Types of reversible electrodes – metal- metal ion, gas electrode, metal – insoluble salt- anion and redox electrodes.	
	3 rd week	Alkynes Nomenclature and its structure, Methods of formation: using	

		Calcium carbide, dehydrohalogenation, Kolbe's electrolysis.	
	4 th week	Chemical reactions: Mechanism of electrophilic and nucleophilic addition reactions, formation of metal acetylides, addition of bromine and alkaline KMnO ₄ , ozonolysis. Acidity of alkynes.	
	5 th week	Stereochemistry of Organic Compounds Concept of isomerism: Structural and Stereoisomerism. Symmetry elements, enantiomers, optical activity, properties of enantiomers, chiral and achiral molecules (up-to 2 asymmetric centres), diastereomers, threo- and erythronomenclature, meso-compounds, Relative and absolute configuration, sequence rules, R and S system of nomenclature, Cis- Trans isomerism, E & Z system of nomenclature, Conformational analysis of ethane and n-butane, conformations of cyclohexane, axial and equatorial bonds, Newman and Sawhorse projection formulae.	
Nov	1 st week	Diwali Vacations (1.11.2026-09.11.2026)	
	2 nd week	Benzene and its derivatives: Nomenclature, Aromatic nucleus and side chain, Huckels' rule of aromaticity, Aromatic electrophilic substitution, mechanism of nitration, halogenation, sulphonation, and Friedel- Crafts reaction, Energy profile diagrams, Activating, deactivating substituents and orientation. Revision	Test
	3 rd week	Alkyl halides: Nomenclature, methods of formation: from alkenes and alcohol, nucleophilic substitution reactions of alkyl halides, SN ₂ and SN ₁ reactions with energy profile diagrams	
	4 th week	Aryl halides: Methods of formation: halogenation, Sandmeyer reaction, The addition-elimination, and the elimination addition mechanisms of nucleophilic aromatic substitution reactions, Relative reactivities of alkyl halides vs allyl, vinyl, and aryl halides. Revision	
Dec	1 st week	Revision	

Course Learning Outcomes (CLO): After completing this course, the student will be able to:

1. Understand about the structure of S and P-block elements, their properties and discuss their use in daily life as well as industrial applications.
2. Understand about various laws and theories related to electrochemistry-I and know about their thermodynamic properties.
3. Understand about variation of conductance studies with concentration and explain with many phenomenon.
4. Learn the fundamental properties, structures and reactivity of organic compounds such alkene, alkyne arenes, alkyl and aryl halide etc.

Teacher's Sign

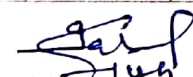
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Lesson Plan

Name of the Teacher: Iqbal Singh
 Paper Code -B23-CHE-304
 Session: Aug.1st 2026 - 4th Dec-2026

Class: B. Sc. 2nd Year (3rd Semester)
 Paper Name-Minor Chemistry-III
 M. Marks: 50

Month	Week	Topic	Activities
Aug.	1 st Week	S and p-Block Elements Salient features of hydrides, oxides, halides,	
	2 nd Week	Hydroxides of s-block elements (methods of preparation excluded). Structure.	
	3 rd Week	Preparation and properties of Diborane and Borazine. Structure of oxyacids of Nitrogen, phosphorous, sulphur and chlorine	Class Test-1
	4 th Week	Comparison of acidic strength of oxyacids. low chemical reactivity of noble gases.	Activity-1
Sept.	1 st Week	Electrochemistry-I Electrolytic conduction, factors affecting electrolytic conduction,	Assignment -1
	2 nd Week	Specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration.	
	3 rd Week	Application of Kohlrausch's Law in calculation of conductance of weak electrolytes at infinite dilution,	Activity-2
	4 th Week	Concepts of pH, Buffer solution (Numericals)	Class Test-2
Oct.	1 st Week	Thermodynamics-I Definition of thermodynamic terms: system, surrounding etc. Types of systems, intensive and extensive properties.	Assignment-2
	2 nd Week	State and path functions and their differentials. Thermodynamic process. Thermodynamic equilibrium,	
	3 rd Week	Concept of heat and work. First law of thermodynamics: statement, concepts of internal energy and enthalpy.	
	4 th Week	Heat capacity, heat capacities at constant volume and pressure and their relationship.	Class Test-3
Nov.	1 st Week	Diwali Vacations	
	2 nd Week	Mechanism of Organic Reactions Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles.	
	3 rd Week	Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions.	
	4 th Week	Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability)	
Dec	1 st Week		Sample Paper Practice


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Text Books:

1. "Modern approach to Inorganic Chemistry", S. Kiran Kavya
2. "Pradeep's Inorganic Chemistry", Dr. K. K. Bhasin
3. "Modern approach to Physical Chemistry", S. Kiran Kavya

Reference Books:

1. Lee, J.D.: (2010). **Concise Inorganic Chemistry**, Wiley India.
2. Kapoor, K.L. (2015). **A Textbook of Physical Chemistry**, Vol 1, 6 th Edition, Mc Graw Hill Education.
3. Morrison, R. N.; Boyd, R. N. **Organic Chemistry**, Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

Course Objectives:

- To understand chemistry of s and p block elements.
- To understand various laws and theories related to electrochemistry-I.
- To understand thermodynamic properties of reactions/systems

Course Outcomes:

After the completion of the course, Students will be able to

1. To learn about the structure of s and p-block elements, their properties and discuss their use in daily life as well as industrial applications.
2. To understand about various laws and theories related to electrochemistry-I and know about their thermodynamic properties.
3. To understand the concepts of thermodynamics.
4. To understand and apply the fundamental concepts and thermodynamic properties of reactions/systems involved in physical/chemical transformations including types of reactions and reactive intermediates.

MAHARANI PADMAVATI GOVT.COLLEGE FOR WOMEN, SHAHZADPUR

Lesson Plan

Academic Session : 2026-27 External marks- 70
Class : Bachelor of Physical Science (III Sem)
Paper : Operating System (B23-CSE-301)
Teacher's Name : Dr. Pankaj Kumar

Course Outcome

At the end of the course, students will be able to:

1. understand the basic concepts of operating systems and its services along with process management.
2. understand concept of process scheduling and acquire knowledge of process synchronization.
3. learn about memory management and virtual memory concepts.
4. learn to work with directory structure and security aspects.

Month	Dates	Topic to be covered	Assignments/ Tests/activities
Aug	1 st week	Introductory Concepts: Operating System	Notes/ web resources
	2 nd week	Functions, Characteristics, Historical Evolution of Operating Systems, Historical Evolution of Operating Systems, Operating System Structure.	Notes/ web resources
	3 rd week	Types of Operating System: Real time, Multiprogramming, Multiprocessing, Batch processing.	Notes/ web resources
	4 th week	Operating System Services, Operating System Interface, Service System Calls, System Programs.	Notes/ web resources
Sept.	1 st week	Process Management: Process Concepts, Operations on Processes, Process States and Process Control Block. Inter-Process Communication.	Group Discussion
	2 nd week	CPU Scheduling: Scheduling Criteria, Levels of Scheduling, Scheduling Algorithms, Multiple Processor Scheduling, Algorithm Evaluation.	Notes/ web resources/ Practical
	3 rd week	REVISION AND TEST	
	4 th week	Synchronization: Critical Section Problem, Semaphores, Classical Problem of Synchronization, Monitors.	Notes/ web resources/ Practical
Oct.	1 st week	Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery.	Notes/ web resources/ Practical

	2 nd week	Memory Management Strategies: Memory Management of Single- User and Multiuser Operating System, Partitioning, Swapping, Contiguous Memory Allocation,	Notes/ web resources/ Practical
	3 rd week	Paging and Segmentation; Virtual Memory Management: Demand Paging, Page Replacement Algorithms, Thrashing.	Notes/ web resources/ Practical
	4 th week	Implementing File System: File System Structure, File System Implantation, file operations	Notes/ web resources/ Practical
Nov	1 st week	Vocations (Diwali)	
	2 nd week	Type of Files, Directory Implementation, Allocation Methods, and Free Space Management.	Notes/ web resources/ Practical
	3 rd week	REVISION AND TEST	
	4 th week	REVISION AND TEST	
Dec	1 st week	REVISION AND TEST	


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Lesson Plan

Name of College: Government College for Women, Shahzadpur (Ambala)

Academic Session: Aug-Dec (2026-27) (Odd)

Paper: Social Problem in India

Teacher's Name: Ms. Suman Dev

Internal Marks:25

Class: B.sc 3rd Semester (MDC)

Course code-B23-SOC-303

External Marks: 50

Course Outcomes:

1. Learn about basic concepts of social problems.
2. Acquainted with different familial issues of the Indian society.
3. Learn about developmental issues of the society.
4. Learn about contemporary issues related with social problems.

Month	Week	Topic	Assignment/Test /others
AUG	2 nd	Understanding Social Problems: Deviance; Social Disorganization;	
AUG	3 rd	Anomie; Alienation;	
AUG	4 th	Suicide, Crime	PowerPoint presentation
AUG	5 th	Familial Issues: Domestic Violence;	
SEPT	1 st	Dowry, Inter-Caste Marriage;	
SEPT	2 nd	Problem of the Aged; Divorce.	1st Assignment
SEPT	3 rd	Developmental Issues: Hygiene and Sanitation;	
SEPT	4 th	Test & Revision	Midterm Test
SEPT	5 th	Life style Disease; Housing;	
OCT	2 nd	Uneven Development; Corruption,	
OCT	3 rd	Unemployment Contemporary Issues: Cyber Crime	PowerPoint presentation
OCT	4 th	HIV AIDS;	
OCT	5 th	Drug Addiction	2nd Assignment
NOV	1 st To 9 th	DIWALI VACATIONS	
NOV	2 nd	Mental Illness	
NOV	3 rd	Pandemics	Group Discussion
NOV	4 th	Test & Revision	
DEC(up to 4 th)	1 st	Test & Revision	

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Lesson Plan

Academic Session : 2026-27
Class : BSc II(PS), Sem III
Paper : Basic Instrumentation Skills(B23-SEC-329)
Teacher's Name : Sonia Devi

External marks: 35

Course Outcomes-
1. Understand the Signal and pulse Generators and impedance Bridges.
2. Learn about the basics of digital instruments.
3. Understand the working principle of pulse and signal generator, wave analysis and different concepts related to basic instruments.

	Dates	Topic to be covered	Assignments/ Tests/activities
August	1st week	Basic of Measurements: Instruments accuracy, precision, sensitivity, resolution range, etc. Errors in measurements and loading effects. Multimeter: Principles of measurement of dc voltage and dc current, ac voltage, ac current and resistance.	
	2 nd week	Specifications of a multimeter and their significance. Electronic Voltmeter: Advantage over conventional multimeter for voltage measurement with respect to input impedance and sensitivity	
	3 rd week	voltage measurement with respect to input impedance and sensitivity. Principle of voltage measurement (block diagram only). Specifications of an electronic Voltmeter and their significance. AC millivoltmeter: Types of AC millivoltmeters.	
	4 th week	Block diagram of ac millivoltmeter, specifications and their significance. Revision of Unit I	
September	1 st week	Oscilloscope: Block diagram of basic CRO. CRT, electrostatic focusing and acceleration (Explanation only no mathematical treatment), brief discussion on screen phosphor, visual persistence. Time base operation, synchronization. Front panel controls. Specifications of CRO and their significance.	
	2 nd week	Use of CRO: for the measurement of voltage (dc and ac) and frequency and time period. Special features of dual trace, introduction to digital oscilloscope, probes. Digital storage Oscilloscope: principle of working	Assignment

	3 rd week	Revision of Unit II	Quiz based on Unit I & II
	4 th week	Signal and pulse Generators: Block diagram, explanation and specifications of low frequency signal generator and pulse generator.	
October	1 st week	Brief idea for testing, specifications. Distortion factor meter, wave analysis.	
	2 nd week	Impedance Bridges: Block diagram of bridge. working principles of basic (balancing type) RLC bridge. Specifications of RLC bridge.	
	3 rd week	Block diagram and working principles of a Q- Meter. Digital LCR bridges.	Test
	4 th week	Revision of Unit III Digital Instruments: Comparison of analog & digital instruments. Characteristics of a digital meter. Working principle of digital voltmeter.	
November	1 st week	Diwali Break	
	2 nd week	Digital Multimeter: Block diagram and working of a digital multimeter.	
	3 rd week	Working principle of time interval, frequency and period measurement using universal counter/ frequency counter	Group Discussion
	4 th week	Time- base stability, accuracy and resolution.	
December	1 st week	Revision	

Teacher's Sign

*Souvik Sen
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