Department of Geology, Govt. College, Narnaul

Teacher: Sh. Jaipal Singh, Assistant Professor (Geology)

Lesson Plan for Paper: Physics and Chemistry of the Earth

Class: M.Sc. Geology Semester:1st Session: 2024-25

Month	Topics	References
August, 2024	Theories of origin of Earth: Catastrophic and evolutionary theories. Brief review of knowledge about the solar system. Abundance of the elements in the solar system and earth. The Earth in relation to other planets and major surface features of the Earth. The Earth Moon system. One Assignment and Class Test-I	2,3
Sept., 2024	The Earth's interior: the nature of the crust mantle boundary, low velocity zone in the upper mantle, chemical composition and mineralogy of the Earth's crust, mantle and core, evidence from experimental petrology & study of meteorites, geochemical evolution of the Earth, thermal evolution and state of Earth, continental and oceanic heat flow and convection in mantle. Assignment-II and Oral Presentation	1,3
Oct., 2024	Earthquakes, global seismicity, Earth's internal structure derived from seismology, continental drift, earth's magnetic field, origin of geomagnetic fields, paleomagnetism, polar wandering, sea-floor spreading, plate tectonics, triple junctions, hot spots & plumes. Powerpoint Presentation and Class Test	2,6,10
Nov., 2024	Radioactive decay schemes and their application to geochronology and petrogenesis. Stable isotopes and their application to earth system processes; geochemical differentiation of the earth; geochemical cycles. Geochronology: radiometric dating and its significance, mountain belts and new global tectonics, tectonic evolution of the Himalaya and the Indian shield. Class Test of Whole syllabus	4,5

Recommended Books/e resources/LMS:

1. The Solid Earth, Fowler, C.M.R., Cambridge University Press, New York,
2. Understanding Earth, Gauss, I.G., Smith, P.S. and Wilson, R.G.L., MIT Press.
3. The Dynamic earth A textbook in Geosciences, Wyllie, P.J., Wiley.
4. Physics and Geology, Jacobs, J.J., Russel, R.D. and Wilson, J.T., McGraw Hill.
5. Fundamental of Geodynamics, Schiedegger, A.E., Springer.
6. Aspects of tectonics: focus on south central Asia, Valdiya, K.S., Tata Mc Graw Hill.
7. The Inaccessible Earth, Brown, G.C. and Mussett, A.E., Chapman and Hall.
8. Understanding the Earth, Brown, J., Hawkesworth, C.,and Wilson, C., Paperback, Book Depository, U.S.A.
9. Earth, Siever, R., Frank Press.
10. Plate Tectonics & Crustal Evolution, Condie, K.C., Butterworth Heinemann Ltd.

Jaipal

Department of Geology, Govt. College, Narnaul
Teacher: Sh. Jaipal Singh, Assistant Professor (Geology)
Lesson Plan for Paper: Mineralogy and Crystallography
Class: M.Sc. Geology Semester:1st Session: 2024-25

Month	Topics	References
August, 2024	Definitions and scope of crystallography in Geoscience, elements of symmetry, notations Weiss and miller, space lattice: Concept of point group and space group, Morphological classification of crystals into systems and symmetry classes (Holohedral classes). Lattice defects (point, line and planar). One Assignment and Class Test-I	2,5
Sept., 2024	Minerals definition and classification, Chemical nature of minerals, Important physical properties of minerals. Structure of silicate minerals: neso--, soro--, cyclo--, iono--, phyllo and tecto silicates and their bearing on properties of minerals. Descriptive mineralogy of common rock forming minerals. Assignment-II and Oral Presentation	1,2
Oct., 2024	Optical Mineralogy: Nature of light and principles of optical mineralogy. Observations under plane polarized light and cross polarized light: Extinction angle and its determinations. Interference phenomenon and figures, Uniaxial and biaxial minerals: optical indicatrix. Optic sign. Introduction to the petrological microscope and its use for the identification of minerals. Powerpoint Presentation and Class Test	4,9,10
Nov., 2024	Crystal chemistry and bonding concept. Basic concepts of mineral stability with emphasis on solid solution, and exsolution. Transformation of minerals polymorphism, polytypism, and polysomatism, Twinning in crystals. Class Test of whole Syllabus.	2,7

Recommended Books/e resources/LMS:

1. An Introduction to the rock forming minerals, Deer, W.A., Howie, R.A. and Zussman, J., Prentice Hall.
2. Manual of Mineralogy, Klein, C. and Hurlbut, Jr.C. S., John Wiley.
3. Introduction to Mineral Sciences, Putnis, A., Cambridge University press.
4. Optical Mineralogy, Phillips, W.R. and Griffen, D.T., CBS publishers.
5. Introduction to crystallography. Phillips, F.C., Longman Group Publication.
6. Dana's textbook of Mineralogy, Ford, W.E., Wiley Eastern.
7. Rutley's Elements of Mineralogy, Read, H.H., CBS publishers.
8. Mineralogy, Berry, Mason and Dictrich, CBS publishers.
9. Optical Mineralogy, Kerr, P.F., McGraw Hill.
10. Practical Manual of crystal optics, Babu, S.K. and Sinha, D.K., CBS Publishers.

Jaipal

Department of Geology, Govt. College, Narnaul

Teacher: Sh. Jaipal Singh, Assistant Professor (Geology)

Lesson Plan for Paper: Geology (Petrology & Palaeontology)

Class: B.Sc. Geology Semester:3rd Session: 2024-25

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Month	Topics	References
August, 2024	Rock association in time and space. Concept of rocks series. Magma: Definition, composition, origin and process of crystallization. Crystallization of unicomponent magma, Bawen reaction series. Definition and scope. Applications of palaeontology in palaeoecology, evolution , stratigraphy and palaeogeographic reconstruction. Standard geological times scale : Era , Periods, Age and their major geological events. Assignment-I	1,2
Sept., 2024	Crystallization of bi-componet magma. Magmatic Differentiation and assimilation. Formation of rocks: Igneous, sedimentary and metamorphic. Differentiate between Igneous, sedimentary & metamorphic rocks. Trilobite : Introduction, morphological characters of a Trilobite shell. Geological History of Trilibite. Important fossils of Trilobite with their morphological characters, age and distribution. Echinodermata: Introduction,morphological characters and geological history of echinoids. Class Test-I	1,2,3
Oct., 2024	Igneous Petrology: Formation of Igneous rocks and their types. Composition, Forms of Igneous rocks : concordant and discordant bodies. Classification of Igneous rocks : chemical , mineralogical and tabular. Morphological characters and geological history of Gastropods. Important fossils, their morphological characters and age - Physa,Natica, Trochus, Turritella, Certhium, Murex, Voluta, Cypraea. Oral Presentation	1,2
Nov., 2024	Igneous Structures: Definition, origin and important types of structures of Igneous rocks. Texture: definition, origin and important types of textures of Igneous rocks. Descriptive megascopic study of important igneous rocks. Lamellibranchia : Morphological characters and geological history of Pelecypods. Dentition in lamellibranchia. Study of plant fossils of Lower Gondwana. Fossils of Pelecypods. Class Test-II	3,2

Recommended Books/e resources/LMS:

1. ATyrrel G.W., Principles of Petrology
2. Palaeontology by Jain, P.C.,
3. ePG Pathshala web portal.

Jaipal

DEPARTMENT OF GEOLOGY

Lesson Plan for odd semesters in the session 2024-25

4.

Teacher- Sh. Jaipal Singh, Assistan Professor

M.Sc.3rd Semester Paper- 304

Mineral Exploration & Mining

Month	Topics	References
July –August 2024	Basic terminology and definitions. Planning for Prospecting and Exploration Project. Principal steps in the exploration and exploitation of mineral deposits, Geological Exploration concepts. Techniques in mineral exploration: Drilling, Core logging, Modeling of ore body-geological plans and sections.	1,3,6
September, 2024	Basics of GPR Survey, Remote Sensing & GIS as tool in Mineral Exploration, Geological Sampling Methods, categorization of ore reserves, ore reserve estimation; National Mineral Policy and Legislations;	3,4,6
October, 2024	Introduction to Mining: Principles of Mining Industry, Mining Operations: Blasting and types of Explosive, Mine support and Mine safety measures, Environmental issues related to mining.	1,2
November, 2024	Methods of Mining: controlling factors for selection of mining method, Classification of Mining methods, Surface Mining: Mechanical and Aqueous Extraction; Subsurface Mining methods, Mine Mapping- Mapping in Open Cuts & Underground Openings, underground mine mapping, Mine Economic appraisals,: financial management, Resources management, Elements of Mineral Dressing & mineral beneficiation, Role of geologists in mine operations,	3,5,6

Books Recommended:

1. Mining Engineers hand books. Roberts Peele
2. Mining Geology. Mckinstry,H.E.. Asia publishing house
3. Courses in mining Geology. Arogyaswami,R.P.N., Oxford IBH.
4. Elements of mining. Clark,G.B. John Wiley.
5. Waveland Evans, A.M., "Ore Geology and Industrial Minerals".
6. e-PG Pathshaala website.

Jaipal

DEPARTMENT OF GEOLOGY

Lesson Plan for odd semesters in the session 2024-25

5.

Teacher- Sh. Jaipal Singh, Assistan Professor

M.Sc.3rd Semester Paper- 303

ORE GEOLOGY AND INDIAN MINERAL RESOURCES

Month	Topics	References
July –August 2024	Concept of ore and gangue, Elementary aspects of mineral economics. Physico-chemical conditions of ore formation, lithological and structural controls on mineralization, The nature and morphology of the principal types of ore deposit, Classification of ore deposits; Importance of mineral deposits in national economy. Sustainable uses of mineral resources. Monthly Test and Assignments.	1, 3, 4
September, 2024	Endogenic processes of ore formation: magmatic ore deposites, volcanic exhalative process, Exogenic processes of ore formation: Mechanical accumulation, sedimentary precipitates, residual concentration, oxidation and supergene enrichment. Revision and Mid Term Test and Assignments/Presentation.	1
October, 2024	Geology and distribution of important economic deposits of India: Bauxite, iron, manganese, copper, lead, zinc, gold, chromites, diamond, coal, petroleum and nuclear fuel deposits. Metallogeny and its relation to Tectonics and crustal evolution, Global distribution of minerals in time and space. Marine mineral resources. Monthly Test and Assignments/Presentations	3,4
November, 2024	Elements of Geochemical prospecting. Geo botanical observations during mineral prospecting. Geophysical methods- ground and airborne surveys, gravity, magnetic, electrical and seismic methods of mineral exploration, basic terminology related to mining, history and future scopes, basic understanding of mining process and industry. Doubt Clearing classes, Revision, Sessional Test, Presentations and internal practical.	4,5

Books Recommended:

1. Economic mineral deposits: Bateman,A.M
2. Ore deposits of India: Gokhle, K.V.G.K. and Rao, T.C.
3. Geology of India, Pakistan and Burma, Krishnan, M.S.
4. Geology of India: Wadia, D.N.
5. Ore Microscopy and ore petrology: Craig, J.R. and Vaughan, D.J.

Jaipal

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Lesson Plan (Dr Sonu Jaglan)

M.Sc. (F) Geology

3rd Semester

SUBJECT CODE: GEOL-301 COURSE TITLE: SEDIMENTOLOGY AND FUEL GEOLOGY

July	Sedimentology: definition and scope. Fundamentals of fluids laminar and turbulent flow
August	Reynolds Number and Froude number. Sedimentary structures (Physical, Chemical, and Biological). Classification of clastic and non-clastic sedimentary rocks. Definition, measurement and interpretation of grain size. Concepts of Sedimentary Environments. Eolian and lacustrine environments .
September	Glacial environment; Deltaic and beach barrier island environments; Estuarine, lagoon and tidal environments. Facies definition, Facies association, Walther's law of Facies and Application Heavy mineral and its significance. Provenance and digenesis of sediments. Sedimentary texture. Maturity of sediments.
October	Stratum contours and isopach maps. Definition of coal and sapropel, process of coalification. Rank and grades of coal; physical properties of coal, chemical characterization proximate and ultimate analyses; Lithotypes, microlithotypes and macerals: their physical, chemical and optical properties.
November	Sedimentary basins and their classification. Sedimentary basins of India. Petroliferous basins of India, conventional and unconventional sources of oil and gas in India; Radioactivity and nuclear energy, geological characteristics and genesis of major types of U, Th deposits and their distribution in India.

Note - 1. Class assignments in August and September.
- 2. Sessional Exam in Last week of October

Reference Book:

1. Blatt, H., Middleton, G.V. and Murray, R.C. (1980) Origin of Sedimentary Rocks. Prentice-Hall Inc.

2. Collins, J.D. and Thompson, D.B. (1982) Sedimentary Structures. George Allen and Unwin, London.

3. Lindholm, R.C. (1987) A Practical Approach to Sedimentology, Allen and Unwin, London

4. Introduction to Sedimentology (1994). Supriya Sengupta

5. Sedimentary Rocks. By F. J. Pettijohn. Second Edition 1957.

Jaglan
22-07-2024.

Lesson Plan

Name of the Course-Fundamental Geology

M.Sc. (P) Semester 1st
Course Code M24- GGY-102
Department of Geology (Govt College Narnaul)

Teacher Name:-Dr Sonu Jaglan

Months	Topics
August	Historical development of geological thoughts. Scope of Geology and its various branches. Geological time scale. Life through geological past, major mass extinctions in the geological past. Fossils, fossilization processes (taphonomy), modes of preservation, index fossils and significance of Paleontology. Stratigraphic principles, introduction to lithostratigraphy, biostratigraphy, Chronostratigarphy and magneto stratigraphy. Broad outline of physiographic and tectonic framework of India.
September	Chemical nature of minerals. Isomorphism, solid solution and Polymorphism. Physical properties of minerals, classification of minerals. Common rock forming and ore minerals. Formation of various types of rocks and their transformations. Emplacement of Igneous rocks, classification of igneous rocks. Sedimentary environment, mineralogy and classification. Metamorphic agents and their effects, mineralogy and classification of metamorphic rocks
October	Classification of ore deposits, processes of formation of ore deposits, Metallogeny and its relation to crustal evolution and tectonism; Basic terms of economic Geology. Distribution and geological set up of important metallic and non-metallic mineral deposits of India including coal, petroleum and atomic minerals. Concepts of Mineral Prospecting, Exploration & Mining. Depleting natural resources and sustainable development, conservation of mineral resources. Groundwater as earth resource and its management. Geoinfomatics as tool for geologist.
November	Basic principles of environment and ecosystem in relation to Geology. Anthropogenic activities and their impact on the environment. Mitigation of pollution and environmental hazards. Elementary idea about Engineering Geology and its significance, geological materials used in construction. Landslides: classification, causes and preventative measures. Fundamentals of field Geology, Importance of Geology for society and National economy.

Recommended Books/e-resources/LMS:

1. *Palaeontology*, Jain, P.C. and Anantharaman, M.S., Vishal Publishing Co.
2. *Economic mineral deposits*, Bateman, A.M., Jensen, M.L., John Wiley and Sons.
3. *Ore Deposits of India*, Gokhale and Rao, Thomson Press, Delhi.
4. *Handbook of minerals, Crystals, Rocks and Ores*, Parmod, A.O., New India Publishing Agency.
5. *Economic Geology – Economic Mineral Deposits of India*, Prasad, U., CBS Publishers.
6. *Environmental Geosciences*, Keller, E.A., Prentice Hall, New Jersey.
7. *Fundamental of Historical Geology and Stratigraphy*, Kumar Ravinder., New Age International
8. Publishers.

Note:- 1 class assignment in last week of August, Sep. and October

2. Sessional Exam in Ist week of November

Lesson Plan

Name of the Course- Geology Lab-II
(Practical based on M24- GGY-103 & M24- GGY-104)

M.Sc. (P) Semester 1st
Course Code M24-GGY-106
Department of Geology (Govt College Narnaul)

Teacher Name:-Dr Sonu Jaglan

Months	Topics
August	Identification of physical properties of different minerals and to categorized them in groups. To draw the internal structure of the Earth, and to demarcate the boundaries of crust, mantle and core.
September	Observations and measurement of optical properties of Minerals. To draw the seismic maps of India by free hand and its interpretations in context of the geotectonic.
October	To draw the tectonic evolution map of Himalaya and explain its different tectonic divisions. Understanding of crystal systems by using geological models
November	Identification of optical properties of various minerals in plane polarized and crossed Nichols.

Learning Resources

1. *Understanding Earth*, Gauss, I.G., Smith, P.S. and Wilson, R.G.L., MIT Press.
2. *The Dynamic earth - A textbook in Geosciences*, Wyllie, P.J., Wiley.
3. *Physics and Geology*, Jacobs, J.J., Russel, R.D. and Wilson, J.T., McGraw Hill.
4. *Fundamental of Geodynamics*, Schiedegger, A.E., Springer.

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5. *An Introduction to the rock forming minerals*, Deer, W.A., Howie, R.A. and Zussman, J.

Longman.,
Prentice Hall.

6. *Manual of Mineralogy*, Klein, C. and Hurlbut, Jr. C.S., John Wiley.
7. *Introduction to Mineral Sciences*, Putnis, A., Cambridge University press.
8. *Optical Mineralogy*, Phillips, W.R. and Griffen, D.T., CBS publishers.
9. *Laboratory handbook of petrographic techniques*, Hutchinson, C.S., John Wiley

Lesson Plan

B.Sc. IIIrd Year- Geology Vth- Semester

Paper-501- Structural Geology(Theory)

B502

Department of Geology (Govt College Narnaul)

Teacher Name:-Dr Sonu Jaglan

Months	Topics
August	Study of outcrop. Identification of bedding, effect of topography. Dip & Strike, outlier and Inlier. Unconformity : Types, significance and recognition in the field. Folds : Morphology, classification,mechanics and causes of folding. Factors controlling mineral availability
September	Faults : Parts ,geometric and genetic classification, effect of faulting on outcrop. Recognition of fault infield. Joints : geometrical and genetic classification, mechanism of jointing and significance of joints. Distribution of mineral deposits in space and time. Metallogenetic Epochs & Provinces
October	Distribution of mineral deposits in space and time. Metallogenetic Epochs & Provinces., Tenor, oremineral , gangue mineral, syngenetic and epigenetic deposits. Principles of Mineral Economics :Strategic, critical and essential minerals. Classification and origin of deposits. Processes of formation of ore deposits : Magmatic Concentration and Contact metasomatism .
November	Processes of formation of ore deposits : Hydrothermal - Cavity filling and replacement, Sedimentation, Evaporation and brines and Metamorphism. Processes of formation of ore deposits : Weathering products and residual deposits. Mechanical concentration- Placer deposit, Oxidation and Supergene sulphide enrichment deposits.

Note : 1. Class assignments in Last week of August, September and October
2. Sessional in first week of November

References:

1. Billings, M.P., Structural Geology.
2. Mukharjee, P.K., A text book of Geology
3. Batemann, A.M., Economic Mineral Deposits.
4. Mukharjee, P.K., A text book of Geology

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Department Of Geology

Lessen Plan for odd sem.

Session - 2024-25

B.Sc - Ist Semester (Major)

Name of Teacher - Dr. SAPNA YADAV

Paper - General Geology

Month (Unit)	Topics
July - August 2024 Unit - I	Geology and its perspective. Origin of the Universe and Solar System. Origin and attributes of the Earth. Earth's Internal Structure. Mechanical and Chemical layering.
September 2024 Unit - II	Basic idea of Seafloor Spreading and Continental Drift. Theory of Plate tectonics. Landforms associated with Plate Boundaries. Earthquake and Volcanism. Uniformitarianism and Catastrophism
October 2024 Unit - III	Introduction to Geomorphology, Basic concepts of Geomorphology, weathering and associated landforms, Erosion and its types, Geological work of River.
November 2024 Unit - IV	Geological work of wind, Study of important erosional and depositional features of wind, Geological work of Glacier, Study of important erosional and depositional features of Glacier.

Books Recommended

1. Geomorphology - Savindra Singh
2. General Geology - K.K. Bangar
3. General Geology - Parbin Singh

Yadav 22/7/2024

Deptt. of Geology

Lesson Plan

Session - 2024-25

M.Sc (Pre.) Ist Sem.

Paper - Fundamentals of Geology - I

Name of Teacher - Dr. SAPANA YADAV

Unit	Topics
August 2024 Unit-Ist	Earth science : its subdivisions and relation to other sciences. Historical dev. of geological thoughts. Geo-morphological process : exogenic process, weathering, erosion, transportation & dep. by wind, river, glacier, waves & tides. G.P Discussion, Test
Sep-2024 Unit-IInd	Chemical nature of minerals. Isomorphism, Solid Sln Polymorphism. Physical prop. of minerals, classification of minerals. Rock & ore forming minerals. Rock cycle. Text., Str., mineralogy & classification of Igneous rocks Sed. & Metamorphic rocks and their texture, mineralogy, Str. & classification. Metamorphic Facies. Test.
Oct-2024 Unit-3rd	Pri. & Sec. str. in rocks, stress & strain, behaviour of rocks under stress, folds, faults, Joints and unconformity def., classif., & Criteria for recognition in field on maps. Shear zones, thrust faults, lineaments. Elementary Idea about Eng. Geo. & its significance, geological mat. used in construction. Test
Nov. 2024 Unit-4th	Principles of surveying and leveling, methods of surveying by chain, Plane table, Compass, dumpy level, theodolite & total station. Use of Pocket Compass, Prismatic Compass, clinometer, Brunton. Indexing & reading of toposheets. Abney Level, Pedometer & Altimeter.

Recommended Books

Understanding the Earth

Billing, M.P

Dana Manual

M.G Blackwell

Bose M.K Harold

- Wilson M. Springer
- Turner F.J.

Yadav
3/08/2024

Public Administration 13

Lesson Plan-Public Administration (2024-25)-Teacher's Name Dr. Amit Kumar

Sr. No.	Class	July-August	September	October	November
1.	**(NEP) Maj.** BA-1, SEM-I Paper-Elements of Public Administration 24L4.5-PAD-101	Public Administration: Evolution, Meaning, Nature, Scope, Significance and its relations with Political Science, relations with Economics and Law,Public and Private Administration; (Revision)	New Public Administration, New Public Management. Forms of Organizations: Formal and Informal, Department, Board, (assignments)	Corporation and Commission. Chief Executive: Meaning, Types and Role. (Revision)	Line and StaffAgencies. Public Relations: Meaning, Means and Significance. (class test) (Revision)

Recommended Books: Reference:

- Hoshiar Singh and Pardeep Sachdeva (2011) Public Administration: Theory and Practice, PearsonPublication, Noida.
- Avasthi, A and Maheshwari, S R (2013) Public Administration. Lakshmi NarainAgarwal: Agra
- Basu, Rumki (2008) PublicAdministration: Concepts and Theories. Sterling Publishers: New Delhi
- Bhagwan, Vishnoo; Bhushan, Vidhya and Mohla, Vandana (2010) PublicAdministration. S.Chand: Jalandhar
- Bhambri, C. P. (2010) Public Administration Theory and Practice(21stEdition). EducationalPublishers: Meerut
- Bhattacharaya, Mohit (2008) New Horizons of PublicAdministration. Jawahar Publishers andDistributors: New Delhi
- Henry, Nicholas(2013). Public Administration and Public Affairs (13thEdition). Taylor andFrancis: New York
- Medury, Uma (2010) Public Administration in the Globalization Era – The New PublicManagement Perspective. Orient Blackswan: New Delhi
- Sharma, M P and Sadana, B L (2000) Public Administration in Theory and Practice. KitabMahal:New Delhi
- Suresh Kumar: (2024) Lok Parkashan, JBD, Pvt. Lmt. Ibrahim Mandi Karnal Haryana

	Class	July-August	September	October	November
2.	**BA-2, SEM-III Paper-Indian Administration**	Evolution: Administration in Ancient India; Administration in Medieval India; Administration in Modern India Features: Salient features of India Administration; its role in the context of democratic system and socio-economic Development. (Revision)	President-Powers, function & position; Prime Minister Powers, functions and position; Council of Ministers Structure and functions; Cabinet Secretariat-Structure and functions. Centre-State Administrative Relationship(Revision)	; Centre- State Financial Relationship. Union Ministry of Home, its organization & functions. Union Ministry of Finance, its organization & functions. Union Ministry of Rural development, its organization & functions . (Revision)	The High Court of a State, structure, Powers & Functions. Appointments of Supreme Court & High Court Judges. Administrative Tribunals. LokPal & Lokayukta (class test) (Revision)

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1-5

Lesson Plan

Name of Assistant/ Associate Professor: SURENDER SINGH
Class and Section: B.A. 3rd Semester
Subject lesson plan: Defence Studies

July 2024

Introduction of Industrial Revolution
Meaning and definition of Industrial Revolution
Impact on Military Power

August 2024

American Civil War (1862-65): Introduction , Causes
Main Events (in brief)
Effects on warfare
Russo-Japanese War (1904-1905): Introduction Causes of war
Main Events (in brief)
Political Consequences
World War 1st and its Origin: Introduction, Causes

September 2024

Trench warfare and Armour with special reference to the battle of Somme
Naval Warfare; Element of Sea Power,
Naval Strategy and Tactics during world War-I
Air Warfare origin and concept of Air Power and its development
Role of Air Craft during World War-I

October 2024

Second World War: Introduction
Causes and Origin of World War-II
Armoured Warfare: Concepts of J.F.C. Fuller, Guderian and Liddell Hurt
Sea Power: Contribution of A.T. Mahan on Naval Warfare.
Nuclear Warfare: Introduction

November 2024

Beginning of Nuclear Era
Main destructive effects of nuclear energy, Flash, heat, thermal radiation, blast and nuclear radiation
Theories of Nuclear Warfare: Deterrence and Massive Retaliation.

December 2024

Short Answer type Questions
Discuss to Student problems related to entire syllabus

H.O.D
Department of Defence Studies

Principal
Govt. College Narnaul

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Lesson Plan

Name of Assistant/ Associate Professor: SURENDER SINGH

Class and Section: B.A. 5th SEM

Subject lesson plan: Defence Studies

July 2024

Meaning of National Defence and Security
Meaning of National defence
Meaning of National Security
Effective elements of national security

August 2024

Essentials of National Defence
Geographical Factors: Location, Frontiers.
Geographical Factors: Terrain, Climate
Economic Factors: Resources, Industrial and Scientific Development.
Economic Factors : Transport and Communication
India's Defence Problem from 1947 to date
Defence problems of partition

September 2024

Major War (1947,1962,1965,1971,1999)
Other issues (Goa issue, naxalism, Siachin dispute, terrorism etc.)
India's Defence Policy
Determinants of defence policy
Defence policy of India
Nuclear Policy of India
Growth and development of nuclear in India
India's major nuclear explosion

October 2024

Geostrategic Location of India
Meaning of Geo-strategy
India's geo-strategic location
War Finance system
Taxation, Borrowing, Inflation
Cost of War
Real Cost of War

November 2024

Economic Mobilization
Real resources.
Financial resources
Comparative Study of Defence Budget of India, Pakistan and China
Defence Budget of India
Defence Budget of Pakistan
Defence Budget of China

H.O.D.
Deptt. Of Defence Studies

Principal
Govt. College Narnaul

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DEPARTMENT OF BOTANY (LESSON PLAN)

TEACHER NAME- Dr. MANOJ KUMAR

MONTH | CLASS- M.Sc. 3rd Sem | Paper-301

JULY-AUGUST

Cytology: Molecular organisation of chromatin, centromere and telomere; Euchromatin and heterochromatin. Karyotype analysis; Chromosome banding technique; Flow cytometry and Confocal microscopy in karyotype analysis; Specialized types of chromosomes: Polytene, Lampbrush, B- chromosomes and sex chromosomes; Molecular basis of chromosome pairing.

Assignment – Molecular Basis of Chromosome Pairing for Test Class Test - 27 August

SEPTEMBER

Structural and numerical alterations in chromosomes: origin, breeding behaviour of deficiency, duplication, inversion and translocation in chromosome; Robertsonian and B-A translocations.

Meiotic behaviour and use of trisomics, monosomics and nullisomics in chromosome ;Polyploids- origin and production of auto and allopolyploids; Meiosis in autotetraploid; Genome analysis in Tobacco and Wheat. Class Test → Production of Polyploids

OCTOBER

Chromosome Manipulation: Alien gene transfer; transfer of whole genome in tritcum, Arachis, and Brassica; Transfer of individual chromosome and chromosome segments; Methods of detecting alien chromatin; Production , characterisation and utility of alien and substitutional lines.

Genetic fine structure: Cis-trans test; Dosage compensation and mechanism of sex determination in plants.

Class Test – Cis-Trans Test.

NOVEMBER

Genetics of plant pathogens: Genetic variability and molecular mechanism of variability among bacteria, virus and fungi; Molecular basis of host parasite interaction; Physiological specialization and production of new races, inheritance of resistance and virulence. Mutations: Mutagens and their molecular mechanisms of occurrence; Site directed mutagenesis; DNA methylation; Role of mutation in crop improvement. Class Test – Role of Mutation in Crop improvement.

REFRENCES: SIMMONS AND SNUSTAD, JOHAN WILLEY AND SONS, RUSSEL PJ 1998, BROOKER R 2008

DEPARTMENT OF BOTANY(Lesson Plan)

. NAME- Dr. MANOJ KUMAR

,ONTH CLASS- M.Sc. 1ST SEM PAPER- 103

JLY-AUGUST Class Test → membrane Transportation	Biomembranes: Molecular composition and arrangement, functional consequences, membrane transportation; diffusion, active transport and pumps, uniports, symports and antiports,Donnan equilibrium; ion movements and cell function:, Maintenance of cellular pH; Receptor mediated endocytosis. The E junctions, plasmodesmata Ca++ dependent and Ca++ independent Homophilic cell-cell adhesion xtra Cellular Matrix Cell cell interactions: adhesion junctions, tight junctions, gap.
SEPTEMBER Class Test → organisation of microtubules	Cytoskeleton and cell movement: Structure and organization of actin filaments, Actin, myosin and cellular movements, Structure and dynamic organizations of microtubules, Intermediate filaments, Cilia and flagella, Cell matrix adhesion, Integrins, Collagen, Non-collagen components, Protein sorting and transport, Protein uptake into the ER, Membrane proteins and Golgi sorting, Mechanism of vesicular transport, Lysosomes, Molecular mechanism of secretory pathway.
OCTOBER Class Test :— Genome organisation	Cell cycle: The eukaryotic cell cycle, Regulators of cell cycle progression, The events of M phase, Meiosis and fertilization, Genome organization, Chromosomal organization of genes and noncoding DNA, Mobile DNA, Pathways of intracellular signal transduction, Signaling networks.
NOVEMBER Class Test :— Tumour Suppressor Genes.	Cell death and cell renewal: Apoptosis, Stem cells and the maintenance of adult tissues, Embryonic stem cells and therapeutic cloning, Biology of Cancer, Oncogenes, Tumor suppressor genes, Molecular approaches to cancer treatment, Biology of Ageing.

REFRENCES:- J.DARNELL,H.LODISH CELL &MOLECULAR BIOLOGY, B.ALBERTS & D.BRAY, C.B.POWAR, P.K. GUPTA

GOVERNMENT COLLEGE, NARNAUL

LESSON PLAN 2024-25

BOTANY DEPARTMENT

NAME OF PROFESSOR: POONAM KUMARI

CLASS- M.Sc 1st SEMESTER (BOTANY)
BOT 104- CELL BIOLOGY & BIOTECHNIQUE

MONTH	
JULY -AUG	Plasma membrane& structure, function: various models of plasma membrane structure, Donnan equilibrium, active, passive and facilitated transport, uniport, symport and antiport, structure organization and function of cell wall. TEST- Cell matrix adhesion mechanism Cell cell /matrix junction:-structure and function of tight junction, adherens junction, gap junction, plasmodesmata; cell-matrix adhesion mechanism, integrins, collagen and non-collagen components.
SEPTEMBER	Cellular organelle structure, function of ER & golgi apparatus, lysosome, peroxisome, plastids, vacuoles, chloroplast, mitochondria, nucleus and nucleolus. Vesicle formation & protein transport: coat protein(COP1,COPII,Clathrin),vesicular transport, mechanism of protein sorting and transport between organelles, import/ export of cargo protein in nucleus/ receptor mediated endocytosis. TEST- Vesicle formation & Protein transport Assignment → ~~Export~~ Cellular organelle Str. & Function.
OCTOBER	Cytoskeleton and cell movement:-structure& organization of actin, myosin, microtubules, intermediate filament, cilia and flagella. Cell cycle and signal transduction: prokaryotic and eukaryotic cell cycle, regulation of cell cycle checkpoints, events in M phase, meiosis and fertilization, karyokinesis, cytokinesis and cell plate formation. TEST- Regulation of cell cycle checkpoints
NOVEMBER	Microscopy and centrifugation :- principle, application of light, phase contrast, fluroscence and electron microscope. principle, application of centrifuges. Assignment - Principle of UV, visible, NMR, ESR Spectroscopy Test - microscopy. Chromatography, spectrophotomrtey and electrophoresis: . principle, application of paper, ion exchange, affinity, thin layer, gas chromatography, HPLC. Principle of UV, visible, NMR,ESR spectroscopy. . principle, application of AGE, PAGE . concept of isolectric focusing.

Refrences:-1) Gupta.R.k&PANDEY v.d(2007)advances in applied phycology

2)Sharma.OP& Bhatnagar,AK(2005)PLANT PATHOLOGY

17-4

DEPARTMENT OF ZOOLOGY

Lesson Plan for odd semesters in the session 2024-25

Teacher- Dr. Satyapal Sulodia, Assistant Professor (Zoology)

M.Sc.3rd Semester Paper- 301 Molecular Endocrinology and Neural Physiology

Month	Topics
July –August 2024	Overview: Glands, cellular secretions (autocrine, exocrine, endocrine), Secretory mechanism, ways of secretion (Autocrine, merocrine, holocrine) and regulation of glandular secretion. Hormones: Types, nature, synthesis, release and action action. Receptor, molecular mechanism and signal transduction. Class Test.
September, 2024	Role of hypothalamus in hormonal control. Anterior pituitary hormones, posterior pituitary hormones; thyroid gland and thyroid hormones, pancreas (insulin and glucagon). Endocrine control of food and fluid intake/obesity calcium regulation, adrenal gland. Reproductive organs and their hormonal control in male and females; estrogen and androgen; Reproductive cycle, parturition and pathologies. class test and Assignment.
October, 2024	Introduction to evolution and development of Nervous system. Structural and functional aspects of nervous system (CNS,PNS&ANS). Anatomy of brain and its cellular composition (types of neurons, glia and their functions). Neuroganglia interaction., class test
November, 2024	Structure of neuron, membrane proteins, channels (voltage gated and ligated), Na+, K+ pump, Na+, K+ ATPase. Bioelectricity, membrane excitability, nerve conduction. Neurohormones and neurotransmitters. Neuroendocrine regulations of physiological functions. Structure of synapse and synaptic transmission. Senses (vision, olfaction and touch). class test, Presentation.

BOOKS RECOMMENDED

1. General Endocrinology by Turner, C.D. and Bagnars, W.B. Saunders Company; 1976.

2. Comparative Endocrinology of Invertebrates by Highnam, K.C. and Hill, L. Enwaral Arnold Ltd., London; 1981.

3. Endocrinology by Golds -Worthy, G.J. Robinson, J. and Mordue, W. John Wiley and Sons, New York; 1981.

4. An Introduction to Invertebrates Endocrinology by Tombes, A.S. Academic Press, New York; 1970.

5. Comparative Vertebrate Endocrinology by Bentley, P.J. Cambridge Univ. Press; 1998.

27/5/2024

DEPARTMENT OF ZOOLOGY

Lesson Plan for odd semesters in the session 2024-25

Teacher- Dr. Satyapal Sulodia, Assistant Professor (Zoology)

M.Sc.1st Semester Paper- 106 Tools & Techniques

Month	Topic
August 2024	Microscopy: Principles and applications of light, phase contrast, fluorescence microscopes, scanning and transmission electron microscopes. Centrifuge technique: Principle, types of centrifuge, density gradient centrifuge in isolation of cell, cell organelles and biomolecules., Assignment.
September, 2024	Chromatography: Principles and applications of gel filtration, ion-exchange, affinity, thin layer, gas chromatography and high pressure liquid chromatography (HPLC) and FPLC. Application of chromatographic technique in biology. Electrophoresis and centrifugation: Principles and applications of agarose and polyacrylamide gel electrophoresis; ultracentrifugation (velocity and buoyant density). class test.
October, 2024	Spectroscopy: Fluorescence, UV, visible, Infarad, Atomic absorption spectroscopy, NMR and ESR spectroscopy; Mass spectrometery (LC-MS, GC-MS), X-ray diffraction. Tracer Biology: Principles and applications of tracer techniques in biology; radioactive isotopes and half-life of isotopes; autoradiography. Application of different spectroscopic technique in biology. class test.
November, 2024	Nature and types of radiation, preparation of labelling biological sample, detection and measurement of radiation, GM counter, Scientillation counter. Flow cytometery. Safety measurement in handling radioisotopes, ELISA, RIA and non-radiolabelling, Presentation.

Suggested reading:

1. Devi, P. 2000. Principles and Methods of Plant Molecular Biology, Biochemistry and Genetics. Agrobios, Jodhpur, India.

2. Cooper, T.G. 1977. Tools in Biochemistry. John Wiley, New York, USA.

3. Dryer, R. L. and Lata, G. F. 1989. Experimental Biochemistry. Oxford University Press, New York.

4. Hames, B.D.(Ed.).1998. Gel Electrophoresis of Proteins: A Practical Approach, 8th edition. PAS, Oxford University Press, Oxford, UK.

(22/7/024)

LESSON PLAN 2024-2025

Name of professor:- Dr. POONAM YADAV

Department :- Zoology

Month	Class B.Sc VIth Sem. Paper → I Fish & fisheries Paper II (Ecology & evolution)	Class M.Sc IIIrd sem.
July-Aug	Introduction Ecology, Basic concept of Ecology. Factor affecting environment :- Abiotic factor, temperature, humidity, Edophic factor, biotic factor. Ecosystem. Test.	environmental policies at global and national level. Remote sensing and geographic information system. Basic Concepts procedure and applications. Test.
Sept	Biogeochemical cycles:- concept gaseous cycles and sedimentary cycles. Population - growth and regulation. Test.	environment impact assessment solid waste management. primary waste products- solid waste, toxic biological and hospital land fills: incineration source reduction and recycle environmental toxicology. Food additives, air, water and soil, noise and plastic pollution, effect of pollutant on ecosystem with case study of Bioremediation. Toxicological risk assessment and management principles and significance of systematic toxicology
Oct	origin of life. Concept and evidences of organic evolution theories of organic evolution Phylogeny of horse & man Test.	
Nov	Introduction to world fisheries Freshwater fishes of India fish craft and gears. seed production, nutrition, field culture. culture technology. Test.	

Assignment → Presentation.

→ Concept of Ecology by Edward Eyelow.

→ Ecology by Paul Colin vaze. John wiley & Sons Inc.

→ M.L Bansal

→ Gajan mittal

Signature

22/7/024

(Dr. S.P. Sukadia)
H.O.D Zoology

GOVT. COLLEGE NARNAUL

DEPARTMENT OF ZOOLOGY
LESSON PLAN (2024)

NAME: Priyanka Sharma
CLASS: M.Sc. previous Year
PAPER: Cytogenetics

August	Biology of Chromosomes: Molecular anatomy of eukaryotic chromosomes; Metaphase chromosomes: Centromere, Kinetochore, Nucleolus organizers and rRNA genes, Telomere: structure and Functions, Heterochromatin and euchromatin, Giant Chromosomes: Polytene Chromosomes, Lampbrush Chromosomes , Class test
September	Sex Chromosomes: Sex determination and the Y Chromosome, Dosage compensation in C. elegans, Drosophila and Humans, Nature and mechanism of genomic imprinting, X- inactivation and imprinting, Sex specific imprinting , Assignment,
October	Genes in Pedigrees: Mendelian pedigree pattern, Inheritance of mitochondrial diseases, Complications to the basic pedigree patterns, Non-Mendelian traits. Somatic Cell Genetics: Cell fusion and somatic cell hybrids – agents and mechanism of fusion, Heterokaryon – Cell lines and selection systems and chromosome segregation, class test.
November	Gene Mutations : Spontaneous mutations – Base pair substitution and frame shift mutations Induced mutations – Radiation, chemical and environmental, In –vitro site specific mutagenesis. Detection of mutagens – The Ames test and sister chromatid exchanges, Genetics of Cell Cycle: Genetic regulation of cell division in yeast and eukaryotes, Molecular basis of cellular check points. class test . Presentation.

Ref books:

1. Benjamin E. (1996), Immunology – A short course 3rd Edition, John Wiley, New York.
2. Kuby J. (1997), Immunology, 3rd Edition, W.H. Freeman & Co., New York.
3. Roitt, I.M. (1997), Essential Immunology, 9th Edition, Oxford Black Well Science, London.
4. Tizard I.R. (1995), Immunology -- An introduction, 4th Edition
5. Gupta P.K. (2003), Biotechnology and Genomics, Rastogi Publications, Meerut.
6. Anant Narayan, Text Book of Immunology.

22/7/024

(Dr. S.P. Sahdia)

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GOVT. COLLEGE KARNAUL
DEPARTMENT OF ZOOLOGY
Lesson plan for odd sem. (Session 2024-25)

Teacher's Name: Dr.Jyoti
Class: B.Sc. 3rd Sem (Medical)

July-August	Chordates -Classification, Characters, Origin &Evolutionary tree General characters, Classification, Affinities of Urochordates, Type study - Herdmania General characters, Classification, Affinities of Cephalochordates, Type study – Amphioxus (Branchiostoma). , Test .
September	General characters, Classification, Economic importance & Affinities of Cyclostomes, Type study – Petromyzon Detailed Account on Nutrition, Muscles & Bones. , Test -
October	General characters, Classification, Economic importance of Pisces, Type study – Labeo rohita Scales & Fins, Parental care in fishes & fish migration. Nomenclature, Classification & Mechanisms of Enzyme action Transport through Bio-membranes (Active & Passive), , Assignment.
November	Introduction, Classification, Structure, Function & General properties of Proteins, Carbohydrates & Lipids Buffers. , Test

Suggested Reading:

1) Modern text book of zoology of vertebrates-R.L. Kotpal
2) J.B.D. Publications
3) Pradeep's Text book of Zoology-P.S. Dhami & J.K. Dhami

22/7/024

(Dr. S.P. Sulodiya)
H.O.D Zoology

शिक्षक का नाम
डा० संजय शर्मा

राजकीय महाविद्यालय नाहनौल

पाठ योजना
M.A संस्कृत

10

अगस्त माह

M.A (F)

P-1

मनुस्मृति - 1-50

याज्ञवल्क्यस्मृति.

दाय विभाग प्रकरण

अर्थशास्त्र -

प्रथम दश प्रकरण

M.A (P) P-3

तर्कभाषा (प्रत्यक्ष प्रमाण)

सांख्यकारिका (1-40)

P-4

मेघदूत - पूर्वमेघ

उत्तरमेघ

B.A-3

प्रथम एवंचतुर्थअंक

संस्कृतसाहित्य

का इतिहास

प्रथम-पांच

कवि परिचय

लघुसिद्धान्तकौमुदी

स्त्रीप्रत्ययप्रकरण

M.A (F)

P-3

नाट्यशास्त्र

दशरूपक

प्रथम, तृतीय प्रकाश;

सितम्बर माह

मनुस्मृति - 51-110

अर्थशास्त्र

शेष दश प्रकरण: चौदहवां प्रकरणपर्यन्त

रामायण, महाभारत एवं पुराण परिचय;

सितम्बर माह

तर्कभाषा -

अनुमानतः प्रामाण्यवादपर्यन्तं

सांख्यकारिका

41-72

सितम्बर माह

B.A-3 -

अभिज्ञानशाकुन्तलम्

प्रश्नोत्तर

वार्षिक व्यायाम;

कक्षा परीक्षा

मासान्ते प्रत्येक कक्षायां कक्षागत परीक्षा संभावितं।

Department of Sociology 2024-2025
Lesson Plan

Name of the Teacher: Dr. Dinesh Yadav
Subject: Sociology Major

Class: B.A 1st Year (1st Semester)
Session: July – November (2024)

	Introduction to Sociology
July	**Introduction to Sociology**: Meaning, Nature and Scope
August	Development of Sociology, Relationship of Sociology with History, Psychology and Economics. **Basic concepts**: Society, Community, Institution, Association.
September	Groups: Primary and Secondary; Reference Group, Social Structure, Status and Role. **Culture and Society**: Culture and its types, Socialisation – Stages and Agencies;
October	Social Control: Forms and Agencies, Religion - Meaning, forms, functions and dysfunctions; Concept of Religiosity.
November	**Social Change:** Meaning and Types of Change, Factors of Social Change: Forms of Social Change: Evolution, Progress, Growth, Development, Revolution; Barriers to Social Change
Reference Books	**Recommended Books/e-resources/LMS:** Bottomore, T.B. (1972), *Sociology: A Guide to Problems and literature*. Bombay: George Allen and Unwin (India). Harlambos, M. (1998), *Sociology: Themes and Perspectives*. New Delhi: Oxford University Press. Jayaram, N. (1988). *Introductory Sociology*. Madras: Macmillan India. Johnson, Harry M. (1995), *Sociology: A Systematic Introduction*. New Delhi: Allied Publishers. Kingsley, Davis. (1981). *Human Society*. New Delhi: Surjeet Publications. Gisbert. P. (2016), *Fundamentals of Sociology*. New Delhi, Orient Black Swan, Nagla, Bhupender Kumar &Sheobahal Singh (2019), *Introducing Sociology*. Jaipur, Rawat Publication

(13)

Lesson Plan
Dr J S Mor (Commerce) (2024-25)

Sr No	Class	Aug-Sep	Oct	Nov	Reference Books
1.	M.com 1st HRM	Human Resource Management- Introduction, Nature, Scope, Objectives and importance of Human Resource; Managerial and Operative Functions of Human Resource Manager, Recent Trends in Human Resource Management (HRM).	Training: Concept, Need and importance of training; Methods of Training- On the job Training and Off the job Training, Essentials of a good Training programme, Principles of Training. Development Doubt solving class	Workers Participation in management (W.P.M): Concept, Need, Objectives and Forms of W.P.M ; Pre-requisites of effective participation; Profit sharing and Co-partnership Class Test Assignments	1. Robins A. David, Human Resource Management, Prentice Hall of India, New Delhi. Yoler, Dale, Personnel Management and Industrial Relations, Prentice Hall of India, New Delhi.
2.	M.com 3rd Sem GDLE	Nature of Groups at Work: Definition, Types of groups, Dynamics of group formation, Models, Group Decision making Techniques: Delphi Technique	Workgroup Vs. Teams: Transforming Groups into Teams, Stages of Team Building and its Behavioral Dynamics; Interpersonal Competence & Team Effectiveness: Measuring Interpersonal Competence FIRO-B Doubt Solving class	Developing Collaboration in Teams: Functional and Dysfunctional Cooperation and Competition; Interventions to build Collaboration in Organizations Class Test, Assignment	1. Robbins, S. P. (2004). Organizational Behavior. Pearson Education. 2. Luthans, F. (2002). Organizational Behavior. McGraw-Hill International Edition.
3.	M.com 3rd T&D	Training – concept, rationale and requisites of Effective Training; Training Process - an overview; Role, Responsibilities and Challenges of Training Manager; Organization and Management of Training Function	Organisation of Training and Development programs, Training design, kinds of training and development programs- competence based and role based . Doubt Solving Lect.	Training methods and techniques : business games, in basket exercises, laboratory training; incidents and case study; seminars, syndicates and group discussion Class Test, Assignment	1. Sahu, R.K., Training for Development, Excel Books, New Delhi 2. McGrath, Training for Life and Leadership in Industry, Prentice Hall of India, New Delhi

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Lesson Plan

Dr Anish Yadav (Commerce) (2024-25)

Sr No	Class	Aug-Sep	Oct	Nov	Reference Books
1.	M.com 3rd Sem Accounting Theory	Accounting Theory: Concept, Need and Classifications; Accounting and Economic Development; Approaches to Accounting Theory; Methodology to develop Accounting Theory, Accounting Concepts and Postulates, GAAP, Accounting Standards: Concept and Benefits; Stages	IFRS: History, Objectives,; Convergence of Indian Accounting Standards with IFRS: Status and Challenges; Harmonization in Accounting and Reporting; Accounting Standards issued by ICAI (including Ind AS as per IFRS): Brief Overview.	Concepts, Objectives and History, Corporate Annual Report, Segment Reporting, Interim Financial Reporting and Integrated Reporting. Contemporary Issues in Accounting and Reporting: Human Resource Accounting, Class Test, Assignment	1. Jawahar Lal, Accounting Theory and Practice, Himalaya Publishing House, Mumbai 2. L. S. Porwal, Accounting Theory: An Introduction, Tata McCraw Hills
2.	M.com 1st Management Accounting	Management Accounting- An Introduction: Nature & Scope, Techniques, Utility; Limitations; Essentials for Success. Management Accountant: Position, Role and Responsibility; Financial Statements: Accounting Ratios- Classification; Profitability ratios; Turnover Ratios; Solvency Ratios"	Analysis of Capital Structure; Ratios as Predictors of Insolvency, Significance, limitations and interpretation of Ratio Analysis Cash Flow Statement- Objectives; Sources and Application; Preparation of Class Test	Statement as per Indian Accounting Standard Responsibility Accounting – Principles; Definition; Types of Responsibility Centers; Prerequisites and Utility, Transfer Pricing : Concept and Methods Assignment	M.Y.Khan, P.K.Jain – Management Accounting – Tata Mcgraw Hill. 3.R.Kishore – Advance Management Accounting – Taxamn allied Services Pvt. Ltd.
3	M.com 3rd Sem Corporate tax Planning	Basic Concepts related to corporate Taxation- Determination of Residential Status of a Company, Income exempted for corporate assessee, Set off and Carry Forward of losses for a company, Deductions available to corporate assessee. Doubt Solving Lecture	Computation of taxable income of companies, Computation of amount of corporate tax liability, Minimum Alternate Tax, Tax on distributed profits of domestic companies : Doubt Solving Lecture	Corporate Tax Planning: Concepts, nature and significance of corporate tax planning; Tax avoidance versus tax evasion; Techniques of corporate tax planning Class Test Assignment	1. Ahuja, G., & Gupta, R., Corporate tax planning and management. Delhi: Bharat Law House. 2. Mahrotra and Goyal, Corporate Tax Planning, Shaitya Bhawan Publications Agra.
4.	M.com 3rd Current Affairs in Commerce	Suggested Readings:(Newspapers for the duration of concerned semester) The Economic Times, Business Standard, Financial Express, Hindustan, The Times of India			

Department of Commerce, Govt. College, Narnaul
Lesson Plan (2024-25)

Name of the Assistant Professor:- venika Sharma
Class: -BCom 5th sem
Subject :- Cost Accounting(Code: 5.02)

S.No.	Month	Topics
1	July 2024	Cost Accounting : Meaning, Features, Scope, Techniques, Methods, Objectives, Importance and Limitations.
2	August 2024	Material Control: Meaning and objectives of material control, material purchase procedure, fixation of inventory levels- reorder level, Minimum level, Maximum level, Danger level. EOQ analysis. Methods of Valuing Material Issues. Wastage of material – main types.
3	September 2024	Labour Cost Control : Importance, methods of time keeping and Time Booking; Treatment and control of Labour Turnover, Idle Time, Overtime. Systems of Wage Payment-Time Wage System, Piece Wage System. Incentive Wage plans – Individual plans and group plans.
4	October 2024	Overheads : Meaning and Types. Collection, Classification: Allocation, Apportionment and Absorption of Overheads – Main methods. Reconciliation of cost and financial accounts : Meaning, Objectives and procedure
5	November 2024	Unit and output costing : meaning and objectives; cost sheet – meaning, Performa, types preparation of cost sheet; determination of tender price; production account – types.

Reference Books:

1. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons, Educational Publishers, New Delhi.
2. Jain & Narang – Cost Accounting – Principles and Practice Kalyani Publishers, Ludhiana.
3. Maheshwari and Mittal – Cost Accounting – Sh. Mahavir Book Depot, Delhi.
4. Cost accounting by sahitya bhawan publication.

Govt. P.G. College, Narnaul

Department of Physics

Lesson Plan

Name of the Teacher: Dr Kanta
Section: B
Session: Odd semester, July-Nov-2024

Class: B. Sc. 1st Year (1st Semester)
Major Subjects: Mechanics (PHY-101)

Month	Mechanics
July	**Unit-I:** Fundamentals of Dynamics: Rigid body, Moment of Inertia, Radius of Gyration, Theorems of perpendicular and parallel axis (with proof), Moment of Inertia of rod, ring, Disc
Aug.	Angular Disc, Solid cylinder, Solid sphere, Hollow sphere, Rectangular plate, Square plate, Solid cone, Triangular plate, Torque, Rotational Kinetic Energy, Angular momentum, Law of conservation of angular momentum. Rolling motion, condition for pure rolling, acceleration of body rolling down an inclined plane, Fly wheel, Moment of Inertia of an irregular body. **Unit-II:** 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
Sept.	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, 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), 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.
Oct.	**Unit-III:** Special Theory of Relativity: Michelson"s Morley experiment and its outcomes. Postulates of special theory of relativity, Lorentz Transformations, Simultaneity and order of events, Lorentz contraction, Time dilation, Relativistic transformation of velocity, relativistic addition of velocities, variation of mass-energy equivalence, relativistic Doppler effect, relativistic kinematics, transformation of energy and momentum, transformation of force, Problems of relativistic dynamics **Unit-IV:** Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere.
Nov.	Motion of a particle under central force field, 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, 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 (l) and small bob of m m0 joined together with spring of spring constant (k).
Books	1. Mechanics "Berkeley Physics Course Vol.I", Charles Kittel, TataMcGraw-Hill 2. Mechanics, D.S. Mathur, S. Chand and Company Limited, 2000 3. Elements of Properties of Matter, D.S. Mathur, S. Chand & Com. Pt. Ltd., New Delhi 4. An introduction to mechanics, D. Kleppner, R.J. Kolenkow,1973, McGraw-Hill. 5. Properties of Matter, R. Murgeshan, S. Chand & Com. Pt. Ltd., New Delhi 6. Classical Mechanics, J.C. Upadhyaya, Himalaya Publishing House.

Govt. P.G. College, Narnaul

Department of Physics

Lesson Plan

Name of the Teacher: Dr. SHASHI YADAV **Class:** B. Sc. 1st Year (1st Semester)
Section: C **Major Subjects:** Mechanics (PHY-101)
Session: Odd semester, July-Nov-2024

onth	Mechanics
ly	**Unit-I:** Fundamentals of Dynamics: Rigid body, Moment of Inertia, Radius of Gyration, Theorems of perpendicular and parallel axis (with proof), Moment of Inertia of rod, ring, Disc
ıg.	Angular Disc, Solid cylinder, Solid sphere, Hollow sphere, Rectangular plate, Square plate, Solid cone, Triangular plate, Torque, Rotational Kinetic Energy, Angular momentum, Law of conservation of angular momentum. Rolling motion, condition for pure rolling, acceleration of body rolling down an inclined plane, Fly wheel, Moment of Inertia of an irregular body. **Unit-II:** 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
ept.	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, 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), 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.
)ct.	**Unit-III:** Special Theory of Relativity: Michelson"s Morley experiment and its outcomes. Postulates of special theory of relativity, Lorentz Transformations, Simultaneity and order of events, Lorentz contraction, Time dilation, Relativistic transformation of velocity, relativistic addition of velocities, variation of mass-energy equivalence, relativistic Doppler effect, relativistic kinematics, transformation of energy and momentum, transformation of force, Problems of relativistic dynamics Unit-IV: Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere.
Nov.	Motion of a particle under central force field, 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, 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 (l) and small bob of mass m0 joined together with spring of spring constant (k).
Books	1. Mechanics "Berkeley Physics Course Vol.I", Charles Kittel, TataMcGraw-Hill 2. Mechanics, D.S. Mathur, S. Chand and Company Limited, 2000 3. Elements of Properties of Matter, D.S. Mathur, S. Chand & Com. Pt. Ltd., New Delhi 4. An introduction to mechanics, D. Kleppner, R.J. Kolenkow,1973, McGraw-Hill. 5. Properties of Matter, R. Murgeshan, S. Chand & Com. Pt. Ltd., New Delhi 6. Classical Mechanics, J.C. Upadhyaya, Himalaya Publishing House.

Govt. P.G. College, Narnaul

Department of Physics

Lesson Plan

Name of the Teacher: Dr Pooja
Section: C
Session: Odd semester, July-Nov- 2024

Class: B. Sc. 2nd Year (3rd Semester)
Subject: 1.Computer programming and thermodynamics
2. Optics-I

Month	Computer Programming and Thermodynamics Optics-I
July	**Thermodynamics-I**: Second law of thermodynamics, Carnot theorem, Absolute scale of temperature, Absolute Zero, Entropy, show that dQ/T=dS, T-S diagram Nernst heat law,
August	Joule's free expansion, Joule Thomson (Porous plug) Experiment. Joule - Thomson effect. Liquefaction of gases. Air pollution due to internal combustion Engine. **Thermodynamics-II**: Derivation of Clausius - Claperyron latent heat equation. Phase diagram and triple point of a substance. Development of Maxwell- thermodynamically relations. Application of Maxwell relations in the derivation of relations between entropy, specific heats and thermodynamic variables. Thermodynamic functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them.
September	**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, I.F. DO and GO TO statements, Dimension arrays statement function and function subprogram.
October	**Optics-I:** Fourier Analysis and Fourier Transforms: Speed of transverse waves on a uniform string, Speed of longitudinal waves in a fluid, superposition of waves (physical idea), Fourier Analysis of complex waves and its application for the Solution of triangular and rectangular waves. Half and full wave rectifier out puts. Fourier transforms and its properties. Application of Fourier transform to following Functions: $f(x) = e^{-x^2/2}$ and $f(x)= 1\ [x] < a$ and $0\ [x] > a$ **Geometrical Optics** : Matrix methods in paraxial optics, effects of translation and refraction, Derivation of thin lens and thick lens formulae
November	unit plane, nodal planes, system of thin lenses, Chromatic, spherical coma, astigmatism and distortion aberrations and their remedies. **Interference:** Interference by Division of Wave front: Fresnel's Biprism and its applications to determination of wave length of sodium light and thickness of a mica sheet Lyod's mirror, phase change on reflection.
Text Books	1. Computer Programming and Thermodynamics (R.Chand) 2. Computer Programming and Thermodynamics (Vijya Publ.)
Reference Books	1. Rajaraman, Fortran Programming 2. S. Lokanathan and R.S., Gambir, Statistical and Thermal Physics

Govt. P.G. College, Narnaul

Department of Physics

Lesson Plan

Name of the Teacher: Dr. Vijender Singh **Class:** B. Sc. 2nd Year (3rd Semester)
Section: B **Subject:** 1.Computer programming and thermodynamics
Session: Odd semester, July-Nov- 2024 2. Optics-I

Month	Computer Programming and Thermodynamics Optics-I
July	**Thermodynamics-I**: Second law of thermodynamics, Carnot theorem, Absolute scale of temperature, Absolute Zero, Entropy, show that dQ/T=dS, T-S diagram Nernst heat law,
August	Joule's free expansion, Joule Thomson (Porous plug) Experiment. Joule - Thomson effect. Liquefaction of gases. Air pollution due to internal combustion Engine. **Thermodynamics-II**: Derivation of Clausius - Claperyron latent heat equation. Phase diagram and triple point of a substance. Development of Maxwell- thermodynamically relations. Application of Maxwell relations in the derivation of relations between entropy, specific heats and thermodynamic variables. Thermodynamic functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them.
September	**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, I.F. DO and GO TO statements, Dimension arrays statement function and function subprogram.
October	**Optics-I:** Fourier Analysis and Fourier Transforms: Speed of transverse waves on a uniform string, Speed of longitudinal waves in a fluid, superposition of waves (physical idea), Fourier Analysis of complex waves and its application for the Solution of triangular and rectangular waves. Half and full wave rectifier out puts. Fourier transforms and its properties. Application of Fourier transform to following Functions: $f(x) = e^{-x^2/2}$ and $f(x) = 1$ [x] <a and 0 [x] >a **Geometrical Optics** : Matrix methods in paraxial optics, effects of translation and refraction, Derivation of thin lens and thick lens formulae
November	unit plane, nodal planes, system of thin lenses, Chromatic, spherical coma, astigmatism and distortion aberrations and their remedies. **Interference:** Interference by Division of Wave front: Fresnel's Biprism and its applications to determination of wave length of sodium light and thickness of a mica sheet Lyod's mirror, phase change on reflection.
Text Books	1. Computer Programming and Thermodynamics (R.Chand) 2. Computer Programming and Thermodynamics (Vijya Publ.)
Reference Books	1. Rajaraman, Fortran Programming 2. S. Lokanathan and R.S., Gambir, Statistical and Thermal Physics

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Govt. P.G. College, Narnaul

Department of Physics

Lesson Plan

8

Name of the Teacher: Dr. Virender Singh
Section: C
Session: Odd semester, July-Nov- 2024

Class: B. Sc. 3rd Year (5th Semester)
Subject: 1. Quantum Physics
2. Solid State Physics

Month	Solid State Physics
July	Introduction of the subject, Basic terminology of crystallography, Crystalline and glassy forms, liquid crystal, Lattice, basis, unit cell, primitive cell
August	crystal structure, periodicity, crystal translational vector and axis crystal symmetry, rotational, reflection, inversion symmetry operation point groups, Winger Seitz primitive Cell, Bravis lattice in two and three dimensional lattice, various crystal planes and Miller indices, numerical on Miller indices, Interplaner spacing, numerical problems on Interplaner spacing, Crystal structure of Zinc, Crystal structure of NaCl, Crystal structure of Diamond and its parameters. Origin of X-rays, Characteristics of X-rays, Bragg Diffraction law Experimental X-rays diffraction methods: Laue, Rotating crystal and powder diffraction experimental methods,
September	Reciprocal lattice and reciprocal lattice vectors, Reciprocal lattice to sc, bcc and fcc lattice, numerical problems, Specific heat, Specific heat of solids, Einstein and Debye theory. Class test **Quantum Physics:** Failure of (Classical) E.M. Theory. quantum theory of radiation (old quantum theory), Photon, photoelectric effect and Einstein's photoelectric equation Compton effect (theory and result). In adequacy of old quantum theory, de-Broglie hypothesis. Davisson and Germer experiment. G.P. Thomson experiment. Phase velocity group velocity, Heisenberg's uncertainty principle
October	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 time dependent Schrodinger wave equation, eigen values, eigen functions, wave functions and its significance. Normalization of wave function, concept of observable and operator. Solution of Schrodinger equation for harmonic oscillator ground states and excited states.
November	Application of Schrodinger equation in the solution of the following one-dimensional problems: Free particle in one dimensional box (solution of Schrodinger wave equation, eigen function, eigen values, quantization of energy and momentum, nodes and antinodes, zero point energy) i One-dimensional potential barrie E>V0 (Reflection and Transmission coefficient. ii) One-dimensional potential barrier, E>V0 (Reflection Coefficient, penetration of leakage coefficient, penetration depth).
Text Books	1. Quantum Physics (R.Chand) 2. Quantum Physics (Vijya Publication) 3. Solid State Physics (R.Chand) 4. Solid State Physics (Vijya Publication)
Reference Books	1. Quantum Mechanics by H. C. Verma 2. Quantum Mechanics by D.J. Griffiths 3. Solid state physics by S.O.Pillai 4. Solid state physics by C Kiettle

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Department Of Mathematics

Lesson Plan

Name of the Teacher: Mrs. Laxmi

Class: B.sc First year (1st Semester)

Subject: Calculus

Session: 2024 2025 (Odd Sem)

	Calculus
22 July, August	Definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.
September	Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves. Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature. Circle of curvature. Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points. Cusps, nodes & conjugate points. Type of cusps.
October	Tracing of curves in Cartesian, parametric and polar co-ordinates. Reduction formulae. Rectification, intrinsic equations of curve
November	Quardrature (area)Sectorial area. Area bounded by closed curves. Volumes and surfaces of solids of revolution. Theorems of Pappu's and Guilden.
Text Book	1. Differential and Integral Calculus : Shanti Narayan
Reference Books	1. Murray R. Spiegel : Theory and Problems of Advanced Calculus. Schaun's Outline series. Schaum Publishing Co., New York. 2. N. Piskunov : Differential and integral Calculus. Peace Publishers, Moscow. 3. Gorakh Prasad : Differential Calculus. Pothishasla Pvt. Ltd., Allahabad. 4. Gorakh Prasad : Integral Calculus. Pothishala Pvt. Ltd., Allahabad.

Mrs Laxmi

HOD (Department of Mathematics)

Lesson Plan

Name of theTeacher: Dr. Bhawana Garg **Class:M.Sc (3rd Semester)**

Session: Odd Sem: July 24 – Nov 24 **Subject: Discrete Mathematics**

Month	Discrete Mathematics
July	Statements: Symbolic Representation and Tautologies, Quantifiers, Predicates and validity, Prepositional Logic. Semi groups and Monoids Definitions and examples of semi groups and monoids. Homomorphism of semi groups and monoids. Congruence relation and Quotient Semi groups.Sub semi groups and sub monoids.
August	Direct products. Basic homomorphism theorem. Pigeon hole principle, principle of inclusion and exclusion, derangements. Lattices - Lattices as partially ordered sets, their properties, Lattices as Algebraic systems. Sub lattices, Direct products and Homomorphism, Some special lattices e.g. Complete, Complemented and Distributive Lattices. Join-irreducible elements, Atoms and Minterms.
September	Boolean Algebras- Boolean Algebras as Lattices. Various Boolean Identities. The Switching Algebra example. Sub algebras, Direct Products and Homomorphism, Boolean forms and their equivalence, Minterm Boolean forms, Sum of Products, Canonical forms, Minimization of Boolean functions, Applications of Boolean Algebra to Switching Theory (using AND, OR and NOT gates). The Karnaugh method.
October	Finite state Machines and their transition table diagrams, Equivalence of Finite State Machines, Reduced Machines, Homomorphism. Finite automata, Acceptors, Non-deterministic Finite Automata and equivalence of its power to that of deterministic Finite automata,MooreandMealyMachines.
November	Grammars and Language: Phrase-Structure Grammars, Rewriting rules, Derivations, Sentential forms, Language generated by a Grammar, Regular, Context-free and Context sensitive grammars and Languages, Regular sets, Regular expressions and the Pumping Lemma, Kleene's theorem.

Books recommended

1. KennethH.Rosen,DiscreteMathematicsanditsApplications,TataMcGraw-Hill,FourthEdition.
2. Seymour Lipschutz and Marc Lipson, Theory and Problems of Discrete Mathematics, SchaumOutline Series, McGraw-Hill Book Co., New York.
3. JohnA.Dossey,AlbertD.Otto,LawrenceE.SpenceandCharlesVandenEynden,DiscreteMathematics, Pearson, Fifth Edition.
4. J.P.TremblayandR.Manohar,Discretemathematicalstructureswithapplicationstocomputerscience, Tata-McGraw Hill Education Pvt.Ltd.

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Department Of Mathematics

Lesson Plan

Name of the Teacher: Mrs. Reena
(3rd Semester)

Class: M.sc Second year

Session: 2024-2025

Subject: Advanced Topology
(Odd Sem)

	Advanced Topology
August	**Regular, Normal, T3 and T4 separation axioms, their characterization and basic properties, Urysohn's lemma and Tietze extension theorem, Regularity and normality of a compact Hausdorff space, Complete regularity, Complete normality, T3 1 2 and T5 spaces, their characterization and basic properties.**
September	**Product topological spaces, Projection mappings, Tychonoff product topology in terms of standard subbases and its characterization, Separation axioms and product spaces, Connectedness, Locally connectedness and compactness of product spaces, Product space as first axiom space, Tychonoff product theorem. Embedding and Metrization : Embedding lemma and Tychonoff embedding theorem, Metrizable spaces, Urysohn metrization theorem**
October	**Nets : Nets in topological spaces, Convergence of nets, Hausdorffness and nets, Subnet and cluster points, Compactness and nets. Filters : Definition and examples, Collection of all filters on a set as a poset, Methods of generating filters and finer filters, Ultra filter and its characterizations, Ultra filter principle, Image of filter under a function, Limit point and limit of a filter, Continuity in terms of convergence of filters, Hausdorffness and filters, Canonical way of converting nets to filters and vice versa, Stone-Cech compactification.**
November	**Covering of a space, Local finiteness, Paracompact spaces, Michaell theorem on characterization of paracompactness, Paracompactness as regular as well as normal space, A. H. Stone theorem, Nagata- Smirnov Metrization theorem.**
Text Book	1. W.J. Pervin, Foundations of General Topology, Academic Press Inc. New York, 1964.

Mrs Reena
Mathematics)

HOD (Department Of

GOVT PG COLLEGE, NARNAUL

DEPARTMENT OF CHEMISTRY LESSON PLAN

Name of Teacher: - Dr. Suman Sharma **Class: B.Sc 3rd semester**

Section: - B, C **Subject: Chemistry**

Session:-2024-25

Month	Chemistry
July-Aug,24	Definition of transition elements, position in the periodic table, General characteristics & properites of Ist transition elements,. Structures & properties of some compounds of transition elements – TiO2, VOCl2 , FeCl3 , CuCl2 and Ni (CO)4. General characteristics and properties of the IInd and IIIrd trans ition elements Comparison of properties of 3d elements with 4d & 5d elements with reference only to ionic radii, oxidation state, magnetic and Spectral properties and stereochemistry. Werner's coordination theory, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds, valence bond theory of transition metal complexes. Physical properties of a solvent, types of solvents and their general characteristics, reactions in non-aqueous solvents with reference to liquid NH3 and liquid SO2.
Sep,24	Definition of thermodynamic terms: system, surrounding etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work. Zeroth Law of thermodynamics. First law of thermodynamics: statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law – Joule – Thomson coefficient for ideal gass and real gas: and inversion temperature Calculation of w.q. dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process, Temperature dependence of enthalpy, Kirchoffs equation. Bond energies and applications o f bond energies.. Equilibrium constant and free energy, concept of chemical potential, Thermodynamic derivation of law of chemical equilibrium. Temperature dependence of equilibrium constant; Van't Hoff reaction isochore, Van't Hoff reaction isotherm. Le-Chatelier's principle and its applica tions Clapeyron equation and Clausius – Clapeyron equation its applications

GOVT COLLEGE, NARNAUL
DEPARTMENT OF CHEMISTRY

LESSON PLAN

Name of Teacher: - Sarita
Section:- A (Physical Science)
Session:-2024-25

Class: B.Sc 1st semester
Subject: Chemistry

Month	Chemistry
July 2024	**Atomic Structure** Dual behavior of Matter and Radiation, de Broglie•s relation. Heisenberg's Uncertainty Principle. Concept of atomic orbitals. Significance of quantum numbers. Radial and Angular wave functions. Normal and orthogonal wave functions. Significance of Ψ and Ψ^2.
Aug,2024	**Atomic Structure** shapes of s, p, d, and f orbital. Rules for filling electrons in various orbitals, effective nuclear charge, Slater's rules. **Periodic Table and Atomic Properties** Classification of periodic table. Definition of Atomic and Ionic radii, Ionisation energy, electron affinity and electronegativity, trend in periodic table (in s and p-block elements). Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale. Sanderson's electron density ratio, **Structure and Bonding** Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications, hyperconjugation, inductive effect, Electromeric effect and their comparison.
Sept,2024	**Mechanism of Organic Reactions** Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions. Reaction intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). **Liquid State** Structure of liquids, Properties of liquids: Surface tension; Refractive index, viscosity, vapor pressure and optical rotation.
Oct,2024	**Gaseous State** Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and Most probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded), Deviation of Real gases from ideal behavior. Derivation of VanderWaal's Equation of State, its application in the calculation of Boyle's temperature (compression factor) **Critical Phenomenon** Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants derivation excluded.

GOVT COLLEGE, NARNAUL
DEPARTMENT OF CHEMISTRY

LESSON PLAN

Name of Teacher: - Himalika
Section:- A (Physical Science)
Session:-2024-25

Class: B.Sc1st semester
Subject: Chemistry

Month	Chemistry
July 2024	**Atomic Structure** Dual behavior of Matter and Radiation, de Broglie•s relation, Heisenberg's Uncertainty Principle, Concept of atomic orbitals, Significance of quantum numbers. Radial and Angular wave functions, Normal and orthogonal wave functions. Significance of Ψ and Ψ^2,
Aug,2024	**Atomic Structure** shapes of s, p, d, and f orbital, Rules for filling electrons in various orbitals, effective nuclear charge, Slater's rules. **Periodic Table and Atomic Properties** Classification of periodic table, Definition of Atomic and Ionic radii, Ionisation energy, electron affinity and electronegativity, trend in periodic table (in s and p-block elements). Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio, **Structure and Bonding** Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications, hyperconjugation, inductive effect, Electromeric effect and their comparison.
Sept,2024	**Mechanism of Organic Reactions** Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions. Reaction intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). **Liquid State** Structure of liquids, Properties of liquids: Surface tension; Refractive index, viscosity, vapor pressure and optical rotation.
Oct,2024	**Gaseous State** Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and Most probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded), Deviation of Real gases from ideal behavior, Derivation of VanderWaal's Equation of State, its application in the calculation of Boyle's temperature (compression factor) **Critical Phenomenon** Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants derivation excluded.

GOVT COLLEGE, NARNAUL

DEPARTMENT OF CHEMISTRY

LESSON PLAN

Name of Teacher: - DHAVNEET SAINI **Class:-M.Sc 1st semester**

Subject:- Organic Chemistry-I **Session: 2024-25**

Month	Chemistry
Aug,24	**Reaction Mechanism**: Structure and Reactivity: Types of mechanisms, types of reactions, thermodynamic and kinetic requirements, effect of structure on reactivity - resonance and field effects, steric effect, quantitative treatment -The Hammett equation and linear free energy relationship, substituent and reaction constants and Taft equation. Kinetic and thermodynamic control, Hammond's postulate, Curtin-Hammett principle. Potential energy diagrams, transition states and intermediates, methods of determining reaction mechanisms. Generation, structure, stability and reactivity of carbocations, carbanions, carbenes and nitrenes.
Sept,24	**Mechanism of Nucleophilic Aliphatic Substitution**: The limiting cases SN1 and SN2 , detailed mechanistic description and borderline mechanisms, nucleophilicity and solvent effects, ambident nucleophiles, hard and soft nucleophiles and electrophiles, leaving group effects, steric and other substituent effects on substitution and ionization rates, stereochemistry of nucleophilic substitution. SNi , SN1' , SN2' and SNi' mechanisms. **Mechanism of Elimination Reactions**: The El, ElcB and E2 mechanisms, Orientation Effects in Elimination Reactions, Saytzeff and Hoffman rules, Stereochemistry of E2 Elimination Reaction and Eclipsing Effects in E2 Eliminations, Dehydration of Alcohols, Pyrolytic eliminations.
Oct,24	**Stereochemistry-I**: Symmetry elements, D-L, R-S, E-Z and threoerythro nomenclature, interconversion of Fischer, Newman, Sawhorse and flying wedge formulae. Conformational analysis, enantiomerism and diastereomerism of simple, cyclic (chair and boat conformations) and acyclic systems. Axial and planar chirality, optical isomerism in allenes, biphenyls (atropisomerism), spiranes, hemi-spiranes. Elementary ideas about stereochemistry of tertiary amines, quaternary salts, sulphur and phosphorous compounds.
Nov,24	**Stereochemistry –II**: Topicity of ligands and faces, their nomenclature and prostereoisomerism, stereogenecity, chirogenicity, pseudoasymmetry and prochiral centre. Stereospecific and stereoselective reactions. Elementary idea of principal categories of asymmetric synthesis, Cram's rule and its modification, Prelog rule and horeaus rule. Stereochemistry of sugars- C1 and 1C conformations of hexoses, c2'- endo and c3'-endo conformation of pentoses, homomorphous sugars, abnormal mutarotation and Δ-2 instability factor. Stereochemistry of decalins, Chemical correlation of configuration-determination of relative configuration of 2-butanol, isoserine, alanine, malic acid, lactic acid and mandelic acid.

Govt. P.G. College, Narnaul

Department of Chemistry

Lesson Plan

Name of the Teacher: Mr. Braham Dutt
Section: A
Session: Odd semester, July, 2024 – Nov, 2024

Class: M. Sc. Final (3rd Semester)
Subject: Organic Spectroscopy

Month	Organic Spectroscopy CHE-301
July – August	Infrared Spectroscopy: Instrumentation and sample handling. Characteristic vibrational frequencies of alkanes, alkenes, alkynes, aromatic compounds, alcohols, ethers, phenols and amines. Detailed study of vibrational frequencies of carbonyl compounds (ketones, aldehydes, esters, amides, acids, anhydrides, lactones, lactams and conjugated carbonyl compounds). Effect of hydrogen bonding and solvent effect on vibrational frequencies, overtones, combination bands and Fermi resonance. FT IR, IR of gaseous, solids and polymeric materials.
September	Ultraviolet and Visible Spectroscopy:Various electronic transitions (185 -800 nm), Beer-Lambert law, effect of solvent on electronic transitions, ultraviolet bands for carbonyl compounds, unsaturated carbonyl compounds, dienes, conjugated polyenes. Fieser-Woodward rules for conjugated dienes and carbonyl compounds, ultraviolet spectra of aromatic and heterocyclic compounds. Steric effect in biphenyls. Mass Spectrometry: Introduction, ion product ion - EI, CI, FD and FAB, factors affecting fragmentation, ion analysis, ion abundance. Mass spectral fragmentation of organic compounds, common functional groups, molecular ion peak, metastable peak, Nitrogen rule, molecular weight determination molecular formula from isotopic ratio data, isotope profile of halogen compounds, factors affecting reaction pathways, fragmentation pattern - simple cleavage, retro-Diels Alder, Hydrogen transfer rearrangement like scrambling, ortho effect, McLafferty rearrangement, fragmentation patterns of hydrocarbons, alcohols, phenols , ethers, aldehydes, ketones, esters, carboxylic acids, amines, nitro, amides, nitriles.
October	Nuclear Magnetic Resonance Spectroscopy: General introduction and definition, chemical shift, spin spin interaction, shielding mechanism, mechanism of measurement, chemical shift values and correlation for protons bonded to carbon (aliphatic, olefinic, aldehydic and aromatic) and other nuclei (alcohols, phenols, enols , carboxylic acids , amines, amides & mercapto) Complex spin-spin interaction between two, three, four and five nuclei (first order spectra), spin system-Pople notation, virtual coupling, Stereochemistry, concept of topicity, effect of enantiomeric and diastereomeric protons, hindered rotation, Karplus curve -variation of coupling constant with dihedral angle. Fourier transform technique, Resonance of other nuclei -F, P. Further tools for simplification (chemical and instrumental) to elucidate structures by NMR - Deuteration, changing solvents, trifluoroacetylation, basification and acidification, shift reagents, spin decoupling.
November	Carbon-13 NMR Spectroscopy: General considerations, chemical shift (aliphatic, olefinic, alkyne, aromatic, heteroaromatic and carbonyl carbon), coupling constants. Nuclear Overhauser effect (NOE).
Text Books	1. Organic spectroscopy – Y. R. Sharma (S. Chand) 2. Organic spectroscopy – L. D. S. Yadav
Reference Books	1. Introduction to Organic spectroscopy – Donald L. Pavia 2. Spectrometric Identification of Organic Compounds - R. M. Silverstein

Govt. P.G. College, Narnaul

Department of Chemistry

Lesson Plan

Name of the Teacher: Mr. Braham Dutt
Section: A
Session: Odd semester,July, 2024 – Nov, 2024

Class: M. Sc. Final (3rd Semester)
Subject: Inorganic Spectroscopy

Month	Inorganic Spectroscopy CHE-302
July-August	Electronic paramagnetic resonance spectroscopy: Basic Principle and EPR spectrometers, Presentation of spectra, Hyperfine coupling, Hyperfine splitting in isotropic systems, Factors affecting magnitude of g, EPR of triplet states, zero field splitting, Kramer's rule, survey of EPR spectra of first row transition metal ion complexes, applications to inorganic free radicals, study of electron exchange reactions.
September	Nuclear magnetic resonance spectroscopy: Application of chemical shifts, signal intensities and spin spin coupling to structure determination of inorganic compounds carrying NMR active nuclei like ^{1}H, ^{11}B, ^{15}N, ^{19}F, ^{29}Bi, ^{31}P, ^{183}W, ^{195}Pt, etc. Effect of fast chemical reactions, coupling to quadrupolar nuclei, NMR of paramagnetic substances in solution, nuclear and electron relaxation time, the expectation value of <Sz>, contact shift, pseudo contact shift, factoring contact and pseudo contact shift for transition metal ions. Contact shift and spin density, π delocalization, simplified M.O. diagram for Co(II) and Ni(II), Application to planar tetrahedral equilibrium, Contrast agents.
October	Polarography: Electrochemical reactions, General principles, diffusion current, dropping mercury electrode, Ilkovic equation (without proof), Halfwave potentials, Polarographic waves (Anodic and Cathodic), Conditions for performing Polarographic determinations, Oxygen interference, maxima, function of supporting electrolyte.Presentation and interpretation of mass spectrum, effect of isotopes on appearance of mass spectrum, Applications of mass spectroscopy to inorganic compounds - finger print application, molelcular weight determination, evaluation of heat of sublimation of high melting solids. Nuclear Quadrupolar Resonance (NQR) Spectroscopy: Quadrupolar moment, energy lends of a quadrupolar nuclease and effect of asymmetry parameters and energy lends. Effect of an external magnetic field, selected examples for elucidation of structural aspects of inorganic compounds using NQR spectroscopy.
Novemeber	Mossbauer Spectroscopy: Basic Principles, Spectral display, Doppler shift and recoil energy, isomer shift and its interpretation, quadrupole interactions, effect of magnetic field on Mossbauer spectra, applications to metal complexes, metal carbonyls, Fe-S cluster and tin compounds, etc. Partial quadruple splitting and geometry of the complexes. Presentation and interpretation of mass spectrum, effect of isotopes on appearance of mass spectrum, Applications of mass spectroscopy to inorganic compounds - finger print application molelcular weight determination, evaluation of heat of sublimation of high melting solids.
Text Books	1. Spectroscopy of Inorganic Compounds – Jagdamba Singh (New Age Intn. Publishers)
Reference Books	1. Fundamentals of molecular spectroscopy- Banwell 2. Physical methods in Inorganic spectroscopy – R. S. Drago

Mr. Braham Dutt

Principal

Govt. P.G. College, Narnaul

Department of Chemistry

Lesson Plan

Name of the Teacher: Mr. Bhupender **Class: M. Sc. P (1st Semester)**

Section: A **Subject:** Inorganic Chemistry - I

Session: Odd semester, August, 2024 – Nov, 2024

Month	Inorganic Chemistry-I
August	Metal-Ligand Equilibria in Solution Stepwise and overall formation constants and their interaction, trends in stepwise constants, inert and labile complexes, factors affecting the stability of metal
September	I complexes with reference to the nature of metal ion and ligand, chelate effect and its thermodynamic origin, determination of binary formation constants by pH-metry and spectrophotometry. Substitution reactions in octahedral complexes, theories of trans effect with respect to Pt(II) complexes.
October	Crystal field theory and its limitations of crystal field theory, Crystal field effects on ionic radii, Lattice energies, Heat of hydration & Geometry of coordination complexes,
Novemeber	John-Teller distortion, Consequences of John-Teller distortion, Nephelauxetic effect and Nephelauxetic series, spin-orbital coupling, Molecular orbital theory of octahedral, tetrahedral and square planar complexes (with and without n-bonding).
Text Books	1. Inorganic Chemistry, J.E. Huhey, Harper & Row.
Reference Books	1. Advanced Inorganic Chemistry, F.A. Cotton and Wilkinson, John Wiley. 2. The Chemical bond; J.N.Murrell, SFA Kettle and J.M. Tedder; Wiley, New York.

Deptt of English

Govt. college, Narnaul

Lesson Plan

Dr. Satish Kumar, Associate Professor in Computer Science

Class – M.Sc. (Comp. Sc.)-IV Subject - DATA WAREHOUSING & MINING

Month	Contents to be covered
August	Introduction data warehouse, Need, definition, goals, Data Mart, Data warehouse architecture, ETL process, star, snowflake and galaxy schemas for multidimensional databases, Designing fact tables. Partitioning. ⟶ Assignment-I, Class Test-I
September	OLTP vs OLAP technology, multidimensional data models and different OLAP operations, OLAP Server: ROLAP, MOLAP and HOLAP. Data cubes, efficient computation of data cubes, distributed and virtual data warehouse. ⟶ Assignment-II , Group Discussion
October	Data preprocessing, Data mining primitives, Types of Data Mining, Data Mining querylanguage, Architectures of data mining. Data generation & Summarization based characterization, Mining class comparisons, Mining Association Rules in large databases: Association rule mining, single dimensional Boolean association rules from Transactional DBS, Multi level association rules from transaction DBS, multidimensional association rules. Correlation analysis, Constraint based association mining. ⟶ Class Test-II
November	Classification and Prediction: Classification by decision tree induction, Back propagation, Bayesian classification, classification based in association rules, Prediction, Cluster analysis, partitioning and hierarchical methods, Density based method, web mining, Temporal and spatial data mining. Introduction to Data Mining tools: Rapid Miner, R-Programming, OrangeWeka, Oracle BI, Advanced Miner. ⟶ Class Test-III, Assignment-II

Govt. college, Narnaul

Lesson Plan

Dr. Satish Kumar, Associate Professor in Computer Science

Class – PGDCA-I **SUBJECT - COMPUTER GRAPHICS AND MULTIMEDIA**

Month	Contents to be covered
August	**An Introduction Graphics System**: Computer Graphics and Its Types, Applications of computergraphics, Graphics Systems: VideoDisplay Devices, Raster Scan Systems, Random Scan Systems, Input Devices, Hard Copy Devices, Graphics Software.Output Primitives and Attributes of Output Primitives: Output Primitives Points and Lines, Line Drawing Algorithms, Circle Generating Algorithms, Inside-Outside tests, Boundary-Fill Algorithm, Flood Fill Algorithm, Cell Array, Character Generation, Anti-aliasing. ⟶ Assignment-I, Class Test-I
September	Two-dimensional Geometric Transformations: Basic Transformations, Matrix Representations and Homogeneous Coordinates, Composite Transformations, Reflection and Shearing Two-Dimension Viewing: The viewing Pipeline, Window to view port coordinates transformation, Point Clipping, Line Clipping, Polygon Clipping, Text Clipping, Three– Dimensional Concepts: Three Dimensional Display Methods, 3D Transformations, Parallel Projection and Perspective Projection. ⟶ Assignment-II , Group Discussion
October	Curves and Surfaces: Bezier Curves, Conditions for smoothly joining curve segments, Bezierbi-cubic surface patch, B-Spline Curves, Cubic BSpline curves using uniform knot vectors, testing for first and second order continuities Shading and Hidden Surface Removal: Shading, Illumination Model for diffused Reflection, Curved Surfaces, Gourard Shading, Phong Model, Hidden Surface Removal, Back Face Detection, Depth Buffer (Z-Buffer, A-Buffer) Method, Scan Line Method, BSP-Tree Method. ⟶ Class Test-II
November	Multimedia: Introduction to Multimedia: Classification of Multimedia, Multimedia Software, MIDI, Components of Multimedia – Audio: Analog to Digital conversion, Audio play backing and recording Video, Text: Hyper text, Hyper media and Hyper Graphics, Graphics and Animation: Classification of Animation, process of animation, Authoring Process and Tools. ⟶ Class Test-III, Assignment-II

Department of Computer Science, Govt. College, Narnaul
Lesson Plan (2024-25)

Name of the Assistant Professor:- Dr. Vijay Deep Gaur
Class: -M.Sc(CS) 1st sem
Subject :- ARTIFICIAL INTELLIGENCE (M.SC.-2301)

S.No.	Month	Topics
1	July 2024	Introduction and applications of artificial intelligence, Problem solving: Defining the Problem as state space search,
2	August 2024	Production system, Problem characteristics, Problem System characteristics, Search techniques: Generate and test, Hill climbing, Best first search, A* algorithm, Problem reduction, Expert system: Definition, Role of knowledge in expert system, Architecture of expert system. Class/Unit Test
3	September 2024	Expert system development life cycle: Problem selection, Prototype construction, Formalization,Implementation, Evaluation, Knowledge acquisition: Knowledge engineer, Cognitive behavior, Acquisition techniques, Knowledge representation: Level of representation, Knowledge representation schemes, Formal logic, Inference Engine, Semantic net, Frame, Scripts. Propositional and Predicate logics, Propositional equivalence, Rules of Inference. Class/Unit Test
4	October 2024	Perception: Sensing, Speech recognition, Vision, Action, Neural networks: Introduction, Comparison of artificial neural networks with biological neural networks, learning in neural networks, Perceptrons, Back propagation networks, application of neural networks. Fuzzy logic: Definition, Difference between Boolean and Fuzzy logic, fuzzy subset, fuzzy membership function, fuzzy expert system, Inference process for fuzzy expert system, fuzzy controller. Class /Unit Test
5	November 2024	Programming of Lisp: Background: history, installing, resources. Basics: symbols, evaluation,data types,lists, conditionals, functions, lambda forms, Emacs, REPL. Backquote, vectors, sequences, file system, loop, format, packages, streams, debugger, compiling, Prolog in Lisp, knowledge representation, constraints, unification, Macros and Object: Macros, closures, reader macros, Error system, performance tuning, Typesystem, CLOS, Structs, FFI, OS hook, External libraries. Class/Unit Test

Reference Books:

1. David W. Rolston: Principles of Artificial Intelligence and Expert System Development,McGraw Hill Book Company.
2. Elaine Rich, Kevin Knight: Artificial Intelligence, Tata McGraw Hill.
3. Carl Townsend: Introduction to Turbo Prolog, BPB

Department of Computer Science, Govt. College, Narnaul
Lesson Plan (2024-25)

Name of the Assistant Profes sor: Dr Archana Gupta
Class: -BCA 3rd sem
Subject :- Data Structure - I(202)

S.No.	Month	Topics
1	July 2024	Introduction: Elementary data organization, Data Structure definition. Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notataion. Strings: Introduction, Storing strings, String operations, Pattern matching algorithms. Class /Unit Test
2	August 2024	Arrays: Introduction, Linear arrays, Representation of linear array in memory, address calculations, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse arrays. Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Threaded lists, Garbage collection, Applications of linked lists Class /Unit Test
3	September 2024	Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks: Polish notation, Recursion. Queues: Introduction, Array and linked representation of queues, Operations on queues, Deques, Priority Queues, Applications of queues. Class /Unit Test
4	October 2024	Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, Traversal algorithms using stacks. Class /Unit Test
5	November 2024	Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs. Class /Unit Test

Reference Books:

1. Seymour Lipschutz, "Data Structure", Tata-McGraw-Hill
2. Horowitz, Sahni & Anderson-Freed, "Fundamentals of Data Structures in C", Orient Longman.
3. Trembley, J.P. And Sorenson P.G., "An Introduction to Data Structures With Applications", Mcgrraw- Hill International Student Edition, New York.

Lesson Plan

PGDCA Modern Operating system 1st Sem

Department of Computer Science

Name of Faculty: Dr. Palak

August 2024	
Week 1	• Introduction of Windows and UNIX operating system: Basic feature of Operating System.
Week 2	• Process and CPU Scheduling: Multithreaded Programming, Scheduling Criteria, Multiple- Processor Scheduling, Real-Time Scheduling, File Structure,
Week 3	• Memory Management, Swapping, Demand paging, Virtual Memory, Critical Section Problem, Mutual Exclusion Problem.
Week 4	• Introduction of Deadlock, methods of handling, Prevention and Avoidance, Deadlock Detection, Recovery from Deadlock. Class Test
September 2024	
Week 1	• Disk Scheduling. Commands: User Names and Groups. Logging in. Format of UNIX commands.
Week 2	• Changing your password; Characters with Special Meaning. Files and Directories; Current directory, Directory contents.
Week 3	• Absolute and Relative Pathnames. File contents; File access Permissions; Basic operation on Files; Changing Permission Modes.
Week 4	• Standard files, Standard output; Standard Input, Standard Error. Class Test
October 2024	
Week 1	• Filter and pipelines, Text Manipulation: Inspecting Files; File Statistics, Searching for Patterns; Comparing Files; Operations on File. Printing Files, Rearranging Files; Splitting Files; translating characters.
Week 2	• Calculator command, nice command, Processes: Finding out about Process; Stopping Background Process.
Week 3	• File System, Block and Fragments, I-nodes, Directory Structure, User to User Communication.
Week 4	• UNIX Editor vi. Class Test
November 2024	
Week 1	• Shell Programming: Programming in the Borne Shell, C-Shell and Korn-Shell; Wild cards; shell programming; Shell variables; interactive shell scripts; AWK utility.
Week 2	• System Administration: Definition; Booting system; Maintaining user accounts;
Week 3	• File systems and special files; Backups and restoration; Role and functions of a system manager.
Week 4	• Overview of Linux operating system, Difference between LINUX and UNIX. Class Test

Course Outcomes:

CO1: Understand Operating System concepts
CO2: Use System calls and memory management
CO3: Use Unix commands and editors
CO4: Carry out Unix File management and shell programming in Unix
CO5: Effectively use software development tools including libraries, preprocessors, compilers, linkers, and make files
CO6: Comprehend technical documentation, prepare simple readable user documentation and adhere to style guidelines.

References:

1. Silberschatz & Galvin: Operating System Concept, Wiley, Latest Edition.
2. Yashawant Kanetkar: Unix Shell Programming, BPB.
3. Sumitabha Das : UNIX Concepts and Application – Featuring SCO UNIX and LINUX 2nd TMH
4. William Stallings: Operating Systems, PHI, Latest Edition.
5. Maurice Bach : Design of the UNIX Operating System Prentice