

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher–Dr. Preeti Sharma

Class- M.Sc. Biotechnology, Sem II

Subject- Animal Cell and Tissue Culture

Paper- M24-BTY-202

January, 2025 4thWeek 21, 22, 25 Jan	Animal cell and tissues culture: Historical background, development, advantages and limitations of cell & tissue culture.
26 Jan,2025	Sunday, Republic Day
5thWeek 28, 29 Jan	Requirements of cell & tissue culture: aseptic area, incubation.

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Subject- Animal Cell and Tissue Culture

Paper- M24-BTY-202

February, 2025 1 st Week 1 Feb, 2025	Preparation and sterilization
2 Feb, 2025	Sunday, BasantPanchmi
2 nd Week 4, 5, 8 Feb	Storage, specialized equipment, consumable items. Aseptic techniques: elements of aseptic cnvironment, sterile handling
9 Feb, 2025	Sunday
3 rd Week 11, 15 Feb	Culture vessels and substrates: the substrate, choice of culture vessel, treated surfaces
12 Feb, 2025 16 Feb, 2025	Guru RavidasJayanti Sunday
4 th Week 18, 19, 22 Feb	Techniques of cell culture - batch, batch fed and continuous cultures, cytotoxicity and viability assays,
23 Feb, 2025	Sunday
5 th Week 25 Feb	Cell separation techniques
26 Feb, 2025	MahaShivratri

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Name of the Teacher–Dr. Preeti Sharma

Class- M.Sc. Biotechnology, Sem II

Subject- Animal Cell and Tissue Culture

Paper- M24-BTY-202

March,2025 1 st Week 1 March, 2025	Flow cytometry and fluorescence associated cell sorting.
2 March,2025	Sunday
2 nd Week 4, 5, 8 March	Design and types of media: balanced salt solutions, complete media, role of serum and supplements, serum free media: advantages and disadvantages of serum and serum free media,
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 18, 19, 22 March	Replacement of serum, development of serum free media. Primary culture: types of primary cell culture, isolation of the tissue, primary culture,
23 March,2025	Sunday, ShaheediDiwas/ Martyrdom Day of Bhagat Singh, Rajguru&Sukhdev
5 th Week 25, 26, 29 March	Sub-culturing of animal cells: Subculture and propagation, Criteria for subculture.
30 March,2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

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Subject- Animal Cell and Tissue Culture

Paper- M24-BTY-202

April,2025 1 st Week 1, 2, 5April	Subculture of monolayer cells. Growth cycle and split ratio. propagation and subculture in suspension.
6April,2024	Sunday, Ram Navmi
2 nd Week 8, 9, 12 April	Cloning and selection: dilution and suspension cloning, scaling up in suspension and monolayer
10 April, 2025 13April,2025 14April,2025	MahavirJayanti Sunday, Vaisakhi Dr. B.R.AmbedkarJayanti
3 rd Week 15, 16, 19 April	Revision
20April,2025	Sunday
4 th Week 21April -28April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday ParshuramJayanti AkshyaTritya

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Name of the Teacher – Dr. Preeti Sharma

Class – M.Sc. Biotechnology, Sem II

Subject – Animal Cell and Tissue Culture

Paper – M24-BTY-202

May, 2025 1 st Week 3 May	Large scale production of cells using bioreactors, micro-carriers and perfusion techniques.
4 May, 2025	Sunday
2 nd Week 6, 7, 10 May	Cell line characterization: need for characterization, authentication, cell morphology, chromosome content, DNA content, RNA and protein expression, enzyme activity, antigen markers.
11 May, 2025	Sunday
3 rd Week 13, 14, 17 May	Industrial products of animal cell cultures: enzymes, hormones, monoclonal antibody, cytokines, tissue plasminogen activators etc.
18 May, 2025	Sunday
4 th Week 20, 21, 24 May	Applications of animal cell culture: Stem cell technology, virology, cancer research, gene therapy, drug development and cytotoxicity. animal cloning, genetic counselling, cryopreservation and cell banking.
25 May, 2025	Sunday
5 th Week 27, 28, 31 May	Revision
29 May, 2025	Maharana Partap Jayanti
1 June, 2025 Onwards	University Examinations

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Dr. Preeti Sharma + Dr. Ritu Rani

Class- M.Sc. Biotechnology, Semester-IV

Subject- Environmental Biotechnology

Paper- BT-120

January, 2025 1 st Week 1,3 Jan	Environmental Biotechnology : An overview, concept, scope and market Biological control of air pollution.
5 Jan, 2025 6 Jan, 2025	Sunday Shri Guru Gobind Singh Ji Jayanti
2 nd Week 7, 8, 10 Jan	Bacterial examination of water for potability. Testing of water for physiochemical parameters including BOD & COD.
12 Jan, 2025	Sunday
3 rd Week 13, 14, 15, 17 Jan	Solid waste : Sources and management (composting, wormicomposting and methane production).
19 Jan, 2025	Sunday
January, 2025 4 th Week 20, 21, 22, 24 Jan	Waste water : origin, composition and treatment. Physical, chemical and biological treatment of waste water.
26 Jan, 2025	Sunday, Republic Day
5 th Week 27, 28, 29, 31 Jan	Aerobic process : activated sludge Aerobic processes: oxidation ponds, trickling filter towers, and rotating discs.

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Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Dr. Preeti Sharma + Dr. Ritu Rani

Class- M.Sc. Biotechnology, Semester-IV

Subject- Environmental Biotechnology

Paper- BT-120

February,2025 2 Feb, 2025	Sunday, BasantPanchmi
2 nd Week 3, 4, 5, 7 Feb	Anaerobic processes: anaerobic digesters, anaerobic filters and upflow sludge blanket reactors.
9 Feb, 2025	Sunday
3 rd Week 10, 11, 12, 14 Feb	Microbiology and biochemistry of aerobic and anaerobic waste water treatment processes.
12 Feb, 2025 16 Feb, 2025	Guru RavidasJayanti Sunday
4 th Week 17, 18, 19, 21 Feb	Treatment of industrial effluents: distillery effluent, paper and pulp mill effluent, tannary effluent, textile dye effluent, removal of heavy metals from waste waters.
23 Feb, 2025	Sunday
5 th Week 24, 25, 28 Feb	Bioremediation : Bioremediation of fuel oils and lubricants in soil and water.
26 Feb,2025	MahaShivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Dr. Preeti Sharma + Dr. Ritu Rani

Class- M.Sc. Biotechnology, Semester-IV

Subject- Environmental Biotechnology

Paper- BT-120

2 March,2025	Sunday
March,2025 2 nd Week 3, 4, 5, 7 March	Degradation of sulphur compounds present in coal and petroleum.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 17, 18, 19, 21 March	Microbial degradation of xenobiotics, genetic engineering of biodegradation pathways.
23 March,2025	Sunday, ShaheediDiwas/Martyrdom Day of Bhagat Singh, Rajguru& Sukhdev
5 th Week 24 March–29 March	Sessional Exams
30 March,2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Dr. Preeti Sharma + Dr. Ritu Rani

Class- M.Sc. Biotechnology, Semester-IV

Subject- Environmental Biotechnology

Paper- BT-120

April,2025 1 st Week 1, 2, 4April	Environmental Monitoring: Biosensors for environmental applications, BOD sensor, ammonia sensor, Nitrite sensor and sulphite ion sensor.
6April,2024	Sunday
2 nd Week 7, 8, 9, 11April	Indicator organisms: Safety indicators and Quality indicators Microbial Insecticides : Bacteria, fungi and viruses. Use of R-DNA technology to enhance the efficacy microbial insecticides.
10 April, 2025 13April,2025 14April,2025	MahavirJayanti Sunday Dr. B.R.AmbedkarJayanti
3 rd Week 15, 16, 18 April	Biofertilizers, Microbes in oil recovery and bioleaching. Biodeterioration of stored plant food materials, leather, wool, metals, textiles, stone & related building.
20April,2025	Sunday
4 th Week 21, 22, 23, 25April	Control of microbial biodeterioration.
27April,2025	Sunday
5 th Week 28April, 2025	REVISION
29 April, 2025 30 April, 2025	ParshuramJayanti AkshyaTritya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Dr. Ritu Rani

Class- M.Sc I Semester- II

Subject- Constitutional, Human and Moral Values, and IPR

Paper- M24-CHM-201

January, 2025 4thWeek 25 Jan,2025	Historical Perspective of Indian Constitution; Basic Values enshrined in the Preamble of the Indian Constitution.
26 Jan,2025	Sunday, Republic Day
5thWeek 28 Jan, 2025	Concept of Constitutional Morality; Patriotic Values and Ingredients Nation Building.

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Class- M.Sc I Semester- II

Subject- Constitutional, Human and Moral Values, and IPR

Paper- M24-CHM-201

February, 2025 1 st Week 1 Feb, 2025	Fundamental Rights and Duties; Directive Principles of the State Policy.
2 Feb, 2025	Sunday, BasantPanchmi
2 nd Week 4 Feb, 2025, Feb, 2025	Humanism, Human Virtues and Civic Sense;
9 Feb, 2025	Sunday
3 rd Week 11 Feb, 2025, 15 Feb, 2025	Social Responsibilities of Human Beings; Ethical ways to deal with human aspirations.
12 Feb, 2025 16 Feb, 2025	Guru RavidasJayanti Sunday
4 th Week 18 Feb, 2025 22 Feb, 2025	Harmony with society and nature; Idea of International Peace and Brotherhood (VasudhaivKutumbkam).
23 Feb, 2025	Sunday
5 th Week 24 Feb	Revision and Test
26 Feb, 2025	MahaShivratri

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Name of the Teacher– Dr. Ritu Rani

Class- M.Sc I Semester- II

Subject- Constitutional, Human and Moral Values, and IPR

Paper- M24-CHM-201

March,2025 1 st Week 1 March, 2025	Ethics of Relations: Personal, Social and Professional.
2 March,2025	Sunday
2 nd Week 4 March, 8 March,2025	Introduction to Gender Sensitization.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 18 March, 22 March, 2025	Affirmative approach towards Weaker Sections (SCs, STs, OBCs, EWS& DAs).
23 March,2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 25 March, 29 March,2025	Understanding Morality and Moral Values; Moral Education and Character Building.
30 March,2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

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Class- M.Sc I Semester- II

Subject- Constitutional, Human and Moral Values, and IPR

Paper- M24-CHM-201

April,2025 1 st Week 1 April , 5 April, 2025	Ethical Conduct in Higher Education Institutions; Professional Ethics.
6April,2024	Sunday, Ram Navmi
2 nd Week 8April 12April	Meaning, Origins and Nature of Intellectual Property Rights (IPRs);
10 April, 2025 13April,2025 14April,2025	MahavirJayanti Sunday, Vaisakhi Dr. B.R.AmbedkarJayanti
3 rd Week 15April 19April, 2025	Discussion and Revision
20April,2025	Sunday
4 th Week 21April -28April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday ParshuramJayanti AkshyaTritya

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Class- M.Sc I Semester- II

Subject- Constitutional, Human and Moral Values, and IPR

Paper- M24-CHM-201

May,2025 1 st Week 2 May, 2025	Different Kinds of IPRs – Copyright, Patent.
4May ,2025	Sunday
2 nd Week 6May, 9 May, 2025	Trademark, Trade Secret/Dress, Design, Traditional Knowledge.
11May,2025	Sunday
3 rd Week 13May, 16May, 2025	Infringement and Offences of IPRs – Remedies and Penalties.
18May ,2025	Sunday
4 th Week 20 May , 23 May, 2025	Basics of Plagiarism policy of UGC.
25May ,2025	Sunday
5 th Week 27 May, 30 May, 2025	Revision
29May ,2025	MaharanaPartapJayanti
1 June,2025 Onwards	UniversityExaminations

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Dr. Ritu Rani

Class- B.Voc. in Food Science and Quality Control Semester- II

Subject- Food Chemistry

Paper- B23-FTQ -202

February, 2025 3 rd Week 11, 12 Feb -14 Feb	Food chemistry: Definition, scope and importance; water in food, Water activity and shelf life of food; chemistry and stability of water and fat soluble vitamins; chemical properties of minerals and their bio availability, enrichment and fortification.
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 18, 19 Feb, 21 Feb	Carbohydrates: Classification, physical and chemical properties of sugars, functional properties and uses of pectic substances, gums and dietary fiber in food.
23 Feb, 2025	Sunday
5 th Week 25, 26 Feb, 28 Feb	Chemical properties of minerals and their bio availability, enrichment and fortification. Browning reaction in food: enzymatic and non enzymatic browning, their occurrence and applications in food; starches.
26 Feb, 2025	MahaShivratri

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Name of the Teacher– Dr. Ritu Rani

Class- B.Voc. in Food Science and Quality Control Semester- II

Subject- Food Chemistry

Paper- B23-FTQ -202

March,2025 1 st Week 1 March, 2025	
2 March,2025	Sunday
2 nd Week 4 March, 5, 7 March	Proteins: Structures and sources of proteins Chemical and physical properties of protein, changes during processing protein penetration mechanism (folding and unfolding) and application.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 18 March, 21 March	Functionality of starch in foods, gelatinization and retro gradation of starches, modified starches, resistant starches. Browning reaction: Enzymatic and non enzymatic browning, advantages and disadvantages.
23 March,2025	Sunday, ShaheediDiwas/ Martyrdom Day of Bhagat Singh, Rajguru&Sukhdev
5 th Week 25, 26 March, 28 March	Factors affecting their reaction and control.Lipid: Structure, physical and chemical property.
30 March,2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

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Subject- Food Chemistry

Paper- B23-FTQ -202

April,2025 1 st Week 1,2 April, 4April	Utilization of fats and oil, margarines, shortening, Hydrogenation and its importance.
6April,2024	Sunday, Ram Navmi
2 nd Week 8, 9April, 11April	Lipid per oxidation: mechanism, development of rancidity, antioxidants in foods; types and function etc.
10 April, 2025 13April,2025 14April,2025	MahavirJayanti Sunday, Vaisakhi Dr. B.R.AmbedkarJayanti
3 rd Week 15, 16April, 18April	Revision and Discussion
20April,2025	Sunday
4 th Week 22, 23 April - 25April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday ParshuramJayanti AkshyaTritya

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Subject- Food Chemistry

Paper- B23-FTQ -202

May,2025 1 st Week 2 May, 2025	Plant pigments: Structure and properties of chlorophyll, anthocyanins.
4May ,2025	Sunday
2 nd Week 6, 7 May, 9 May	Structure and properties of carotenoids, chemical changes during processing.
11May,2025	Sunday
3 rd Week 13, 14May, 16May	Flavour and aroma of foods.
18May ,2025	Sunday
4 th Week 20, 21 May , 23 May	Importance and method of retention of flavor and technology, flavor enhancer MSG, recent development in flavor technology.
25May ,2025	Sunday
5 th Week 27, 28 May, 30 May	Revision and Discussion
29May ,2025	MaharanaPartapJayanti
1 June,2025 Onwards	UniversityExaminations

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- B.Sc. Sem II (Minor)

Subject- Introduction of Biological chemistry

Paper- B23-BTY- 203

Febuary, 2025 3 rd Week 13 Feb	Basic constituents of matter - elements, atoms, isotopes, atomic weights, atomic numbers
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 20 Feb	Basics of mass spectrometry, molecules, Avogadro number, Molarity, Molality, Normality
23 Feb, 2025	Sunday
5 th Week 27 Feb	Gas constant, molecular weights, structural and molecular formulae, Ions and polyatomic ions.
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- B.Sc. Sem II (Minor)

Subject- Introduction of Biological chemistry

Paper- B23-BTY- 203

2 nd Week 6 March	Chemical reactions, reaction stoichiometry, rates of reaction, rate constants, order of reactions.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 20 March	Arrhenious equation, Maxwell Boltzmann distributions, rate-determining steps, catalysis, free-energy, entropy and enthalpy changes during reactions;
23 March, 2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 27 March	Kinetic versus thermodynamic controls of a reaction, reaction equilibrium (equilibrium constant).
30 March, 2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

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Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- B.Sc. Sem II (Minor)

Subject- Introduction of Biological chemistry

Paper- B23-BTY- 203

April, 2025 1 st Week 3 April	Light and matter interactions (optical spectroscopy, fluorescence, bioluminescence); Chemical bonds (ionic, covalent, Van der Waals forces);
6 April, 2024	Sunday, Ram Navmi
2nd Week 10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday, Vaisakhi Dr. B.R. Ambedkar Jayanti
3 rd Week 17 April	States of matter - vapor pressure, surface tension, boiling and melting points, solubility, capillary action, suspensions, colloids and solutions;
20 April, 2025	Sunday
4 th Week 21 April - 28 April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday Parshuram Jayanti Akshya Tritiya

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Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- B.Sc. Sem II (Minor)

Subject- Introduction of Biological chemistry

Paper- B23-BTY- 203

May , 2025 1 st Week 1 May	Acids, Bases and pH - Arrhenious theory, Ionic product of water, weak acids and bases, Conjugate acid-base pairs, buffers.
4 May , 2025	Sunday
2 nd Week 8 May	Types of organic reactions (Substitution, Addition, Elimination, Rearrangement).
11 May, 2025	Sunday
3 rd Week 15 May	Concept of isomerism: Types of isomerism, Optical isomerism, elements of symmetry, molecular chirality, enantiomers, chiral and achiral molecules.
18 May , 2025	Sunday
4 th Week 22 May	Geometric isomerism: Configuration of geometric isomers. Cis-Trans nomenclature
25 May , 2025	Sunday
5 th Week 29 May	Test and discussion
29 May , 2025	Maharana Partap Jayanti
1 June, 2025 Onwards	University Examinations

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Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla and Ms. Chetna

Class- M.Sc. I (Sem II)

Subject- Genetic Engineering

Paper- M24-BTY-201

January, 2025 4 th Week 20, 21, 24, 25 Jan	Introduction and scope of Genetic Engineering, Miles stones in Genetic engineering. Nucleic Acid Sequencing: DNA Sequencing: Rapid DNA sequencing techniques and strategic details of range of methodologies e.g. Dideoxyribonucleotide chain termination
26 Jan, 2025	Sunday, Republic Day
5 th Week 27, 28, 31 Jan	Purification of total cell DNA, plasmid DNA, phage DNA. Chemical degradation, Automated DNA sequencing, Thermal cycle sequencing. Pyrosequencing

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Name of the Teacher – Dr. Twinkle Sugla and Ms. Chetna

Class- M.Sc. I (Sem II)

Subject- Genetic Engineering

Paper- M24-BTY-201

February, 2025 1 st Week 1 Feb, 2025	Concept, Basic PCR reaction
2 Feb, 2025	Sunday, Basant Panchmi
2 nd Week 3, 4, 7, 8 Feb	Yield Analysis, Nucleic acid blotting and hybridization Factors affecting the PCR, Types of PCR- Real time PCR
9 Feb, 2025	Sunday
3 rd Week 10, 11, 14, 15 Feb	DNA modifying enzymes- Terminal deoxynucleotidyl transferase, Polynucleotide kinase, Alkaline phosphatase Types of PCR (RT- PCR, Allele specific PCR, Multiplex PCR)
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 17, 18, 21, 22 Feb	Nucleases, Methylases, Restriction Endonucleases- Host controlled restriction and modification Applications of PCR, Site Directed Mutagenesis-Oligonucleotide directed mutagenesis, PCR amplified oligonucleotide directed mutagenesis
23 Feb, 2025	Sunday
5 th Week 24, 25, 28 Feb	Restriction Endonucleases- Nomenclature, types, Recognition sequence! blunt and sticky ends, applications Random mutagenesis with degenerate oligonucleotide primers / nucleotide analogs
26 Feb, 2025	Maha Shivratri

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Name of the Teacher – Dr. Twinkle Sugla and Ms. Chetna

Class- M.Sc. I (Sem II)

Subject- Genetic Engineering

Paper- M24-BTY-201

March, 2025 1 st Week 1 March, 2025	Gene expression and Regulation studies- Primer extension, Sl mapping
2 March, 2025	Sunday
2 nd Week 3, 4, 7, 8 March	Ligases- E. coli and T4 DNA ligases, Linker, Adaptor, Homopolymer Tailing Gel retardation assay, Deletion analysis, Reporter genes, DNA foot printing, Modification interference assays, HRT, HART
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 17, 18, 21, 22 March	Gene Cloning Vectors-General features, Types of cloning vectors Problems with production of recombinant proteins in E coli, Optimizing expression of foreign genes in E. coli- Strong and regulatory promoters
23 March, 2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 24, 25, 28, 29 March	Gene Cloning Vectors- Plasmid, Codon usage, Fusion proteins. Increasing protein stability and secretion, Translation expression vectors. Protease deficient host strains.
30 March, 2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

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Name of the Teacher – Dr. Twinkle Sugla and Ms. Chetna

Class- M.Sc. I (Sem II)

Subject- Genetic Engineering

Paper- M24-BTY-201

April, 2025 1 st Week 1, 4, 5 April	Heterologous protein production in Eukaryotes: Saccharomyces cerevisiae and Pistia postoris expression systems, Baculovirus Insect cell expression systems, Mammalian cell expression system.
6 April, 2024	Sunday, Ram Navmi
2 nd Week 7, 8, 11, 12 April	Bacteriophage, phagemid Transformation of E. coli: Concept, Selection of transformed cells, Identification of recombinants (bacteria and phages)
10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday, Vaisakhi Dr. B.R. Ambedkar Jayanti
3 rd Week 15, 18, 19 April	Cloning of Specific Gene- Direct selection, identification from a gene library- genomic library, cDNA synthesis
20 April, 2025	Sunday
4 th Week 21 April - 28 April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday Parshuram Jayanti Akshya Tritya

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Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla and Ms. Chetna

Class- M.Sc. I (Sem II)

Subject- Genetic Engineering

Paper- M24-BTY-201

May , 2025 1 st Week 2 May, 3 May	Cloning-Properties of cDNA, mRNA enrichment, cDNA library.
4 May , 2025	Sunday
2 nd Week 5, 6, 9, 10 May	Gene Cloning Vectors-cosmid, artificial chromosomes YAC Methods for Clone Identification- Screening strategies-Colony and plaque hybridization, Abundancy probing
11 May, 2025	Sunday
3 rd Week 12, 13, 16, 17 May	Gene Cloning Vectors-cosmid, artificial chromosomes BAC, PAC Heterologous probing, Immunological screening, Differcntial screening, Subtractive hybridization
18 May , 2025	Sunday
4 th Week 19, 20, 23, 24 May	Protein-Protein Interactions-Phage display, Yeast two hybrid system, Yeast three hybrid system.
25 May , 2025	Sunday
5 th Week 26, 27, 30, 31 May	Revision and discussion
29 May , 2025	Maharana Partap Jayanti
1 June, 2025 Onwards	University Examinations

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Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- M.Sc. I year

Subject- Plant Cell & Tissue Culture

Paper- M24-BTY-103

January, 2025 4 th Week 20, 21, 23, 25 Jan	Introduction to plant cell tissue culture and historical perspective Laboratory organization setup (R & D level and industrial level); Aseptic manipulations and bio-safety aspects in PTC
26 Jan, 2025	Sunday, Republic Day
5 th Week 27, 28, 30 Jan	Culture media components, preparation and development / formulation of media for new plant system. Callus culture: characteristics, significance and limitations;

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Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- M.Sc. I year

Subject- Plant Cell & Tissue Culture

Paper- M24-BTY-103

February, 2025 1 st Week 1 Feb, 2025	Initiation and maintenance of cell cultures: Static techniques of single cell culture
2 Feb, 2025	Sunday, Basant Panchmi
2 nd Week 3, 4, 6, 8 Feb	Suspension culture and types, assessment of growth and viability of cultured cells. Organogenesis and factors influencing organogenesis.
9 Feb, 2025	Sunday
3 rd Week 10, 11, 13, 15 Feb	Somatic embryogenesis: Process of somatic embryos production, factors influencing and its importance in plant breeding and propagation. Production of synthetic seeds
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 17, 18, 20, 22 Feb	Large scale plant micropropagation – technical stages of micropropagation, Factors affecting in vitro culture of plants (physical, chemical, genotypic and others), Applications and limitations of micropropagation.
23 Feb, 2025	Sunday
5 th Week 24, 25, 27 Feb	Meristem and Shoot tip culture, methods of production of pathogen free plants and their limitations Methods of indexing of virus free plants.
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- M.Sc. I year

Subject- Plant Cell & Tissue Culture

Paper- M24-BTY-103

March, 2025 1 st Week 1 March, 2025	Somaclonal variations: Genetic and epigenetic
2 March, 2025	Sunday
2 nd Week 3, 4, 6, 8 March	Molecular basis of variation, limitations and their significance in plant breeding. In vitro production of haploid plants - Androgenesis (anther. And pollen culture) and Gynogenesis
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 17, 18, 20, 22 March	Factors affecting androgenesis, ontogeny of androgenesis
23 March, 2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 24, 25, 27, 29 March	Diploidization of haploid plants, Significance and uses of haploids in agriculture
30 March, 2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- M.Sc. I year

Subject- Plant Cell & Tissue Culture

Paper- M24-BTY-103

April, 2025 1 st Week 1, 3, 5 April	Wide hybridization and embryo rescue technique.
6 April, 2024	Sunday, Ram Navmi
2 nd Week 7, 8, 12 April	Protoplast culture and somatic hybridization – Isolation, culture and fusion of protoplast
10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday, Vaisakhi B.R. Ambedkar Jayanti
3 rd Week 15, 17, 19 April	Selection of fusion products and plant regeneration, assessment of somatic hybrid plants
20 April, 2025	Sunday
4 th Week 21 April - 28 April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday Parshuram Jayanti Akshya Tritiya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Dr. Twinkle Sugla

Class- M.Sc. I year

Subject- Plant Cell & Tissue Culture

Paper- M24-BTY-103

May , 2025 1 st Week 1, 3 May	Production of cybrids, applications of protoplast culture
4 May , 2025	Sunday
2 nd Week 5, 6, 8, 10 May	Somatic hybridization in the improvement of crop plants.
11 May, 2025	Sunday
3 rd Week 12, 13, 15, 17 May	In vitro germplasm conservation and cryopreservation
18 May , 2025	Sunday
4 th Week 19 May - 24 May	Revision
25 May , 2025	Sunday
5 th Week 26, 27, 29, 31 May	Discussion
29 May , 2025	Maharana Partap Jayanti
1 June, 2025 Onwards	University Examinations

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- B.Sc. Semester VI

Subject- Microbial Biotechnology

Paper- XIII

January, 2025 1 st Week 3 Jan	Microbial Biotechnology: Historical landmarks, General concept
5 Jan, 2025 6 Jan, 2025	Sunday Shri Guru Gobind Singh Ji Jayanti
2 nd Week 9 Jan – 10 Jan	Screening and Isolation of Micro organisms: Industrially important microbes, their screening and isolation, enrichment culture.
12 Jan, 2025	Sunday
3 rd Week 16 Jan – 17 Jan	Strain improvement- bacterial genetics, mutant selection, recombination, recombinant DNA technology. Strain preservation and maintenance.
19 Jan, 2025	Sunday
January, 2025 4 th Week 23 Jan-24 Jan	Nutrition and cultivation of microorganisms: Basic nutrition and metabolism, Natural and Synthetic media.
26 Jan, 2025	Sunday, Republic Day
5 th Week 30 Jan– 31 Jan	Sterilization techniques, Microbial growth kinetics. Fermentation types – Continuous, Batch fed culture, Solid state and Submerged. + TEST

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- B.Sc. Semester VI

Subject- Microbial Biotechnology

Paper- XIII

2 Feb, 2025	Sunday, Basant Panchmi
2nd Week 6 Feb – 7 Feb	Quantification of growth, thermodynamics of growth, effect of different factors on growth. Fermentation concepts and types.
9 Feb, 2025	Sunday
3rd Week 13 Feb -14 Feb	Microbial Fermenters/Bioreactors: Basic design of fermenters. Physico-chemical standards used in bioreactors (agitation, aeration, pH, temp., dissolved oxygen etc.).
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4th Week 20 Feb-21 Feb	Types of fermenters stirred tank, bubble column, airlift etc. Biodegradation of xenobiotic compounds. + TEST
23 Feb, 2025	Sunday
5th Week 27 Feb- 28 Feb	Process Development and Downstream Processing: Shake flask fermentation, scale up of the process. Downstream processing – Separation of particles, disintegration of cells, extraction, concentration, purification and drying of the products.
26 Feb, 2025	MahaShivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- B.Sc. Semester VI

Subject- Microbial Biotechnology

Paper- XIII

2 March, 2025	Sunday
2nd Week 6 March– 7 March	Microbial Products: a brief discussion about production of certain industrial products such as –Alcohol, Alcoholic beverage (Beer), Organic acids (citric acid), Antibiotics (penicillin)
3rd Week 9 March - 16 March	Holi Vacations
4th Week 20 March–21 March	Amino acids (glutamic acid, Vitamin (B12), enzymes (protease, alpha-amylase). Microbial polysaccharides and polyesters; production of xanthan gum and polyhydroxyalkanoates (PHA). + DISCUSSIONS
23 March, 2025	Sunday, Shaheed Diwas/Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5th Week 27 March–28 March	Sessional Exams
30 March, 2025	Sunday
6th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April,2025)

Name of the Teacher– Manpreet Kaur

Class- B.Sc. Semester VI

Subject- Microbial Biotechnology

Paper- XIII

April,2025 1 st Week 3April –4April	Brief account of Steroid Biotransformation. Microbial Foods: Single Cell Proteins. Sewage waste water treatment technique and plants
6April,2024	Sunday
2 nd Week 10 April- 11April	Bioconversions – Biomining and bioleaching. Biogas production. Microbial technology in agriculture- Bioinsecticides, bioherbicides, biocontrol agents for disease control, advantages over chemical methods. Biofertilizers.
3 rd Week 17 April -18April	Genetically engineered microbes: concept and technique; use of GEM in Agriculture, Industry and Medicine.
10 April, 2025 13April,2025 14April,2025	Mahavir Jayanti Sunday Dr. B.R.Ambedkar Jayanti
20April,2025	Sunday
4 th Week 24April -25April	DISCUSSIONS + REVISION
27April,2025	Sunday
29 April, 2025 30 April, 2025	Parshuram Jayanti Akshya Tritya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- M.Sc. Semester IV

Subject- Animal Biotechnology

Paper- BT-121

January, 2025 1 st Week 1, 3 Jan	Animal Biotechnology- Scope, global perspective and new horizons, Historical perspective.
5 Jan, 2025 6 Jan, 2025	Sunday Shri Guru Gobind Singh Ji Jayanti
2 nd Week 6, 7, 8, 10 Jan	Economically important livestock breeds, Model animals in animal Biotechnology and genetic engineering. + TEST
12 Jan, 2025	Sunday
3 rd Week 13, 14, 15, 17 Jan	Somatic Cell Genetics: Production of hybrid cells, Properties of hybrids, Applications hybrid cells.
19 Jan, 2025	Sunday
January, 2025 4 th Week 20, 21, 22, 24 Jan	Gene Transfer into Animal Cells: DNA transfer techniques into mammalian cells: calcium phosphate precipitation, DEAE-dextran procedure, polycation DMSO, microinjection, electroporation.
26 Jan, 2025	Sunday, Republic Day
5 th Week 27, 28, 29, 31 Jan	Selectable markers, viral vectors for gene transfer into mammalian cells: SV40, adenovirus, vaccinia, bovine papilloma virus, baculovirus, retrovirus. + TEST

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- M.Sc. Semester IV

Subject- Animal Biotechnology

Paper- BT-121

2 Feb, 2025	Sunday, Basant Panchmi
2 nd Week 3, 4, 5, 7 Feb	Transgenic animals: Transgenic mice: Methodology and applications; Transgenic cattle, Livestock transgenesis- production of drugs using Animals.
9 Feb, 2025	Sunday
3 rd Week 10, 11, 14 Feb	Biotechnology in livestock assisted reproduction, biodiversity and conservation: Biotechnology in conservation of livestock diversity, Superovulation,
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 17, 18, 19, 21 Feb	Embryo biotechnology- Embryo collection, evaluation, and transfer, IVF and <i>in vitro</i> embryo production. + TEST
23 Feb, 2025	Sunday
5 th Week 24, 25, 28 Feb	Cryobanking of germplasm, oocytes and sperm, Somatic cell nuclear transfer, Stem cells technology in livestock
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- M.Sc. Semester IV

Subject- Animal Biotechnology

Paper- BT-121

March, 2025 2 March, 2025	Sunday
2 nd Week 3, 4, 5, 7 March	Animal cloning: Concepts of animal cloning, Principles and techniques of cloning, Applications of animal cloning.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 17, 18, 19, 21 March	Animal genomics: crucial role for health and biomedical sciences. Models used in animal genomics.
23 March, 2025	Sunday, Shaheedi Diwas/Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 24 March–29 March	Sessional Exams
30 March, 2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to April, 2025)

Name of the Teacher– Manpreet Kaur

Class- M.Sc. Semester IV

Subject- Animal Biotechnology

Paper- BT-121

April, 2025 1 st Week 1, 2, 4 April	Functional genomics and livestock traits assessment
6 April, 2024	Sunday
2 nd Week 7, 8, 9, 11 April	Livestock in the post genomic era of biology and medicine
10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday Dr. B.R. Ambedkar Jayanti
3 rd Week 15, 16, 18 April	PYQ Papers Discussions
20 April, 2025	Sunday
4 th Week 21, 22, 23, 25 April	DISCUSSIONS + TEST
27 April, 2025	Sunday
5 th Week 28 April, 2025	REVISION
29 April, 2025 30 April, 2025	Parshuram Jayanti Akshya Tritiya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Ms. Sonika

Class -M.sc I Biotechnology Sem-II

Subject-Bioinformatics

Paper-M24-BTY-204

January, 2025 4thWeek 21 Jan-24Jan	Bioinformatics and Biological Databases: Central Dogma of molecular biology.
26 Jan,2025	Sunday, Republic Day
5thWeek 28Jan– 31 Jan	Basics of Human Genome project. Introduction, Goal, Scope, Applications of Bioinformatics. Introduction to Biological Databases and Information Retrieval systems.

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Ms. Sonika
Class -M.sc I Biotechnology Sem-II
Subject-Bioinformatics
Paper-M24-BTY-204

February, 2025 1 st Week 1 Feb, 2025	Introduction to Pairwise Sequence Alignment: Evolutionary Basis, Sequence Homology versus Sequence Similarity, Sequence Similarity versus Sequence Identity.
2 Feb, 2025	Sunday, Basant Panchmi
2 nd Week 4,5,6,7 Feb	Scoring matrix. Database Similarity Searching: Exhaustive and Heuristic, Basic Local Alignment Search Tool.
9 Feb, 2025	Sunday
3 rd Week 11,13,14 Feb	Promoter and Regulatory Elements in Eukaryotes, Prediction Algorithms. Molecular Phylogenetics: Molecular Evolution and Molecular Phylogenetics, Terminology.
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 18,19,20,21 Feb	Promoter and Regulatory Elements in Eukaryotes, Prediction Algorithms. Molecular Phylogenetics: Molecular Evolution and Molecular Phylogenetics.
23 Feb, 2025	Sunday
5 th Week 25,27, 28 Feb	Terminology BLAST, FASTA. Multiple Sequence Alignment: Exhaustive Algorithms, Heuristic Algorithms. Position- MOTIFS and Domains, Regular Expressions, Protein Family Databases, Sequence Logos.
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Ms. Sonika
Class -M.sc I Biotechnology Sem-II
Subject-Bioinformatics
Paper-M24-BTY-204

March,2025 1 st Week 1 March, 2025	Databases, Sequence
2 March,2025	Sunday
2 nd Week 3,4,5,6 March	Gene and Promoter Prediction: Categories of Gene prediction Programs.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 18,19,20,21 March	Gene Prediction in Prokaryotes, Gene Prediction in Eukaryotes, Promoter and Regulatory Elements in Prokaryotes.
23 March,2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 25,26,27,28 March	Gene Phylogeny versus Species Phylogeny, Forms of Tree Representation, Finding a True Tree.
30 March,2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Ms. Sonika

Class -M.sc I Biotechnology Sem-II

Subject-Bioinformatics

Paper-M24-BTY-204

April,2025 1 st Week 1,2,3,4 April	Distance-Based Methods, Character-Based Methods, Phylogenetic Tree Evaluation, Phylogenetic Programs.
6April,2024	Sunday, Ram Navmi
2 nd Week 8,9,11April	Structural Bioinformatics: Introduction to Protein Structure Database. Protein Structural Visualization
10 April, 2025 13April,2025 14April,2025	Mahavir Jayanti Sunday, Vaisakhi Dr. B.R.Ambedkar Jayanti
3 rd Week 15,16,17, 18April	Protein Structure Comparison, Protein Structure Classification. Methods of Secondary and tertiary Structure Prediction for Globular Proteins.
20April,2025	Sunday
4 th Week 21April -28April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday Parshuram Jayanti Akshya Tritya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher– Ms. Sonika

Class -M.sc I Biotechnology Sem-II

Subject-Bioinformatics

Paper-M24-BTY-204

May,2025 1 st Week 1,2 May	Homology Modelling, Threading and Fold Recognition, Ab Initio Protein Structural predictions. Introduction to Drug Discovery.
4May ,2025	Sunday
2 nd Week 6,7,8,9 May	Genomics and Proteomics: Genome Mapping, Genome Sequence Assembly, Comparison of SAGE and DNA Microarrays, introduction to Proteomics, various tools and techniques, application/similarity of Proteomics to mankind.
11May,2025	Sunday
3 rd Week 13,14,15,16May	Genome Annotation, Comparative Genomics, Functional Genomics. Sequence-Based Approaches.
18May ,2025	Sunday
4 th Week 19 May - 24 May	Microarray-Based Approaches.
25May ,2025	Sunday
5 th Week 26 May - 31 May	Revision and Discussion
29May ,2025	Maharana Partap Jayanti
1 June,2025 Onwards	UniversityExaminations

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher–Ms. Sonika

Class-B.Sc Ist Sem-II

Subject- General Microbiology

Paper-B23-BTY-201

February, 2025 3 rd Week 10,11 Feb	History and evolution of microbiology with special reference to the contribution of the scientists: A. V. Leeuwenhoek, Louis Pasteur of the scientists: A. V. Leeuwenhoek, Louis Pasteur, Robert Koch, Edward Jenner, and Alexander Fleming.
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4 th Week 17,18,19 Feb	Introduction to classification of microorganisms: Microbial taxonomy, different criteria, including molecular approaches. Prokaryotic and Eukaryotic cells, Morphology and cell structure of major groups of microorganisms, eg, Bacteria, Algae, Fungi, and Protozoa.
23 Feb, 2025	Sunday
5 th Week 24,25 Feb	Microbial phylogeny and current classification of bacteria. Stains and staining procedures: Acidic, basic and neutral stains, Gram staining, Acid fast staining, Flagella staining, Endospore staining. Distribution and characterization.
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher–Ms. Sonika

Class-BSc Ist Sem-II

Subject- General Microbiology

Paper-B23-BTY-201

March,2025 1 st Week 1 March, 2025	Cultivation and Maintenance of microorganisms: Nutritional requirements of microorganisms. Methods of isolation, purification, and preservation of microorganisms.
2 March,2025	Sunday
2 nd Week 3,4,5 March	Microbial growth: Study of growth curve, generation time, quantitative measurement of growth and factors affecting growth of bacteria.
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 17,18,19 March	Bacterial Reproduction: Transformation, Transduction and Conjugation. Endospores and sporulation in bacteria. Viruses: General characteristics of viruses, difference between example of each and their importance.
23 March,2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 24,25,26 March	Viruses on the basis of nucleic acids, phage, and animal cell viruses, example of each and their importance. Brief idea of the lytic cycle and lysogeny.
30 March,2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher–Ms. Sonika

Class-BSc Ist Sem-II

Subject- General Microbiology

Paper-B23-BTY-201

April, 2025 1 st Week 1, 2 April	Brief idea of lytic cycle and lysogeny. Control of microorganisms: By physical and chemical antimicrobial agents including antibiotics and their mode of action.
6 April, 2024	Sunday, Ram Navmi
2 nd Week 7, 8, 9 April	Control of microorganisms: By physical and chemical antimicrobial agents including antibiotics and their mode of action.
10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday, Vaisakhi Dr. B.R. Ambedkar Jayanti
3 rd Week 15, 16 April	Antibiotics and their mode of action.
20 April, 2025	Sunday
4 th Week 21 April - 28 April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday Parshuram Jayanti Akshya Tritya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher–Ms. Sonika

Class-BSc Ist Sem-II

Subject- General Microbiology

Paper-B23-BTY-201

May,2025 1 st Week 3 May	Food and Water Microbiology: Bacterial pollutants of water, coliforms and non coliforms. .
4May,2025	Sunday
2 nd Week 5,6,7 May	Sewage composition and its disposal. Microbial spoilage of foods.
11May,2025	Sunday
3 rd Week 12May-17May	Major food born infections and intoxications. Microbiology of fermented Foods.
18May,2025	Sunday
4 th Week 19 May - 24 May	Microbial ecology
25May,2025	Sunday
5 th Week 26 May - 31 May	Microenvironment & Niche. Soil microbiology: Types & functions of microorganisms in soil.
29May,2025	Maharana Partap Jayanti
1 June,2025 Onwards	UniversityExaminations

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Ms. Chetna

Class- B.Sc. II year Biotechnology (Major)

Subject- Recombinant DNA Technology

Paper- B23-BTY- 401

February, 2025 3rd Week 10,11 Feb	Introduction and scope of Genetic Engineering, Miles stones in Genetic engineering, Central role of E. coli in genetic engineering. Purification of total cell DNA, plasmid DNA, phage DNA, Yield Analysis Doubts and Revision
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4th Week 17,18,19 Feb	Nucleic acid blotting- Blotting techniques, Southern blotting, northern blotting, western blotting Hybridization techniques- In-situ hybridization, FISH, DNA polymerase, Polynucleotide kinase, Alkaline phosphatase, Nucleases, Methylases, Terminal deoxynucleotidyl transferase
23 Feb, 2025	Sunday
5th Week 24,25 Feb	Reverse transcriptase, Restriction endonucleases (R.E.) Nomenclature, types of Restriction Enzymes, Host controlled restriction and modification, Recognition sequence. Test and Revision
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Ms. Chetna

Class- B.Sc. II year Biotechnology (Major)

Subject- Recombinant DNA Technology

Paper- B23-BTY- 401

March, 2025 2 nd Week 3,4,5 March	Blunt and sticky ends, applications, Ligases, Linker, Adaptor, Homopolymer tailing, Nick translation system, General features, Types of cloning vectors- Plasmid, bacteriophage, phagemid, cosmid; Plasmid Biology: Structural and Functional Organization of Plasmids, Plasmid Replication, Stringent and Relaxed Plasmids, Doubts and Revision
3 rd Week 9 March - 16 March	Holi Vacations
4 th Week 17,18,19 March	Incompatibility of Plasmid Maintenance, Ti plasmids; Biology of Bacteriophage Lambda: Lambda Phage as a natural in vivo vector, in vitro construction of lambda vector, Bacteriophage (ssDNA Phages), Cauliflower Mosaic Virus, Artificial chromosomes (YAC, BAC, PAC) Construction of recombinant DNA, Test and Revision
23 March, 2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5 th Week 24,25,26 March	Preparation competent cell, Episomes Gene transfer using Plasmids and other cloning vectors; Other techniques of gene transfer: Microinjection, Electroporation, Ultrasonication. Transformation, Transfection, Selection of transformed cells, Selection and Screening of Recombinants (bacteria and phages).
30 March, 2025	Sunday
6 th Week 31 March, 2025	Id-ul- Fitr

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Ms. Chetna

Class- B.Sc. II year Biotechnology (Major)

Subject- Recombinant DNA Technology

Paper- B23-BTY- 401

April,2025 1 st Week 1,2 April	Cloning strategies in yeast, E. coli and B. subtilis; Direct selection, Preparation and comparison of Genomic and cDNA library Revision
6 April, 2024	Sunday, Ram Navmi
2 nd Week 7,8,9April	Identification from a gene- genomic library, cDNA library, Screening strategies- Probes, Colony and plaque hybridization. Test and Revision
10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday, Vaisakhi Dr. B.R. Ambedkar Jayanti
3 rd Week 15,16 April	Polymerase Chain reaction: Principle and applications of Polymerase chain reaction (PCR), primer-design, and RT- (Reverse transcription) PCR, Applications of Genetic Engineering: Genetic engineering in animals, Genetic engineering in plants,
20 April, 2025	Sunday
4 th Week 21 April - 28 April	Sessional Exams
27 April, 2025	Sunday

29 April, 2025 30 April, 2025	Parshuram Jayanti Akshya Tritya
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KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Ms. Chetna

Class- B.Sc. II year Biotechnology (Major)

Subject- Recombinant DNA Technology

Paper- B23-BTY- 401

May , 2025 2 nd Week 5,6,7 May	Therapeutic products produced by genetic engineering-blood proteins, human hormones, immune modulators and vaccines; DNA Fingerprinting, Gene therapy, Restriction mapping, Genome mapping.
11 May, 2025	Sunday
3 rd Week 12,13,14 May	Test and Revision
18 May , 2025	Sunday
4 th Week 19,20,21 May	Doubts Clearance and Revision
25 May , 2025	Sunday
5 th Week 26,27,28 May	Doubts Clearance and Revision
29 May , 2025	Maharana Partap Jayanti
1 June, 2025 Onwards	University Examinations

**KUMARI VIDYAVATI ANAND D.A.V College for Women,
Karnal**

**Lesson Plan for the Even Semester
(January to May, 2025)**

Name of the Teacher – Ms. Chetna

Class- Bachelor of Vocation in Food Science and Quality Control (Sem-II)

Subject- Microbiology -II

Paper- B23-FTQ-204

February, 2025 3rd Week 13Feb	Basic aspects and scope of food microbiology; Intrinsic and extrinsic factors that affect microbial growth in foods; Microbial spoilage of Milk, fruits, fruit juices, vegetables
12 Feb, 2025 16 Feb, 2025	Guru Ravidas Jayanti Sunday
4th Week 20 Feb	Microbial spoilage of cereals, meat, poultry, sea foods; Carbonated soft drinks, canned foods, chemical changes caused by microorganisms, control of spoilage. Doubts and Revision
23 Feb, 2025	Sunday
5th Week 27 Feb	Food Fermentations, traditional fermented foods of India and other Asian countries Revision
26 Feb, 2025	Maha Shivratri

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Ms. Chetna

Class- Bachelor of Vocation in Food Science and Quality Control (Sem-II)

Subject- Microbiology -II

Paper- B23-FTQ-204

March, 2025	Food preservation-Physical methods, Probiotics, prebiotics and synbiotics. TEST and Revision
2 March, 2025	Sunday
2nd Week 6 March	Chemical preservatives and natural antimicrobial compounds, biology-based preservation system.
3rd Week 9 March - 16 March	Holi Vacations
4th Week 20 March	Control of microorganisms by use of low and high temperature, asepsis, water activity, drying, preservatives, radiation and pressure for control of microorganisms.
23 March, 2025	Sunday, Shaheedi Diwas/ Martyrdom Day of Bhagat Singh, Rajguru & Sukhdev
5th Week 27 March	Microbiology of milk and milk products; Sources of contamination, spoilage and prevention.
30 March, 2025	Sunday
6th Week 31 March, 2025	Id-ul- Fitr

**KUMARI VIDYAVATI ANAND D.A.V College for Women,
Karnal**

**Lesson Plan for the Even Semester
(January to May, 2025)**

Name of the Teacher – Ms. Chetna

Class- Bachelor of Vocation in Food Science and Quality Control (Sem-II)

Subject- Microbiology -II

Paper- B23-FTQ-204

April,2025 1st Week 3 April	Microbiology of fruits and vegetables; Cereal and cereal products; Meat and meat products. TEST and Revision
6 April, 2024	Sunday, Ram Navmi
2nd Week 10 April	Microbiology of Fish and other sea foods; Poultry and eggs. Sugar and sugar products, salts and spices.
10 April, 2025 13 April, 2025 14 April, 2025	Mahavir Jayanti Sunday, Vaisakhi Dr. B.R. Ambedkar Jayanti
3rd Week 17 April	Food poisoning caused by bacteria: Salmonella, Staphylococcal poisoning. Sources, incubation period, mechanism of action. TEST and Revision
20 April, 2025	Sunday
4th Week 21 April - 28 April	Sessional Exams
27 April, 2025 29 April, 2025 30 April, 2025	Sunday Parshuram Jayanti Akshya Tritya

KUMARI VIDYAVATI ANAND D.A.V College for Women, Karnal

Lesson Plan for the Even Semester (January to May, 2025)

Name of the Teacher – Ms. Chetna

Class- Bachelor of Vocation in Food Science and Quality Control (Sem-II)

Subject- Microbiology -II

Paper- B23-FTQ-204

May,2025 1 st Week 1 May	Food poisoning caused by bacteria Botulinum Clostridium perfringens and B.cereus. Sources, incubation period, mechanism of action Test and Revision
4 May , 2025	Sunday
2 nd Week 8 May	Revision and TEST of Unit- IV
11 May, 2025	Sunday
3 rd Week 15 May	Doubts and Revision
18 May , 2025	Sunday
4 th Week 22 May	Doubts and Revision
25 May , 2025	Sunday
29 May , 2025	Maharana Partap Jayanti
1 June, 2025 Onwards	University Examinations