

# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Vivek Srivastava

Designation :- Associate Professor

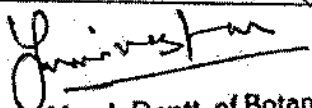
Class :- B.Sc .Final year

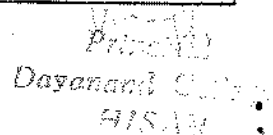
Section :-Medical A1

Subject :-Botany

Paper Name and Paper Code :- Cell Biology (BOT 501 1)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus The Cell Theory
18 August 2022	Holiday
19 August to 20 August 2022	Prokaryotic and eukaryotic cells; Cell size and shape
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Eukaryotic Cell components. Cell Cycle: Overview of Cell cycle,
28 August 2022	Sunday
29 August to 03 September 2022	Mitosis and Meiosis; Molecular controls
04 September 2022	Sunday
05 September to 10 September 2022	Mitochondria: Structure, marker enzymes, composition; Semiautonomous nature; Symbiont hypothesis; Proteins synthesized within mitochondria; mitochondrial DNA.
11 September 2022	Sunday
12 September to 17 September 2022	Chloroplast Structure, marker enzymes, composition; semiautonomous nature, chloroplast DNA. Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	ER, Golgi body Structures and roles. Class Assignment
23 September 2022	Holiday
24 September 2022	Lysosomes structure and roles.
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Peroxisomes and Glyoxisomes: Structures, composition, functions in animals and plants and biogenesis.
02 October 2022	Sunday
03 October-04 October	Nucleus: Nuclear Envelope- structure of nuclear pore complex

  
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2022	
05 October 2022	Holiday
06 October-07 October 2022	Chromatin; molecular organization, DNA packaging in eukaryotes, euchromatin and heterochromatin
08 October 2022	
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	nucleolus and ribosome structure (brief).
23 October - 30 October 2022	Diwali Holiday
31 October 2022	The functions of Plasma membranes
01 November	Holiday
02 November -05 November 2022	Models of Plasma membrane structure
06 November 2022	Sunday
07 November 2022	The fluidity of Plasma membranes
08 November 2022	Holiday
09 November-12 November 2022	Membrane proteins and their functions;
13 November 2022	Sunday
14 November-19 November 2022	Carbohydrates in the membrane
20 November 2022	Sunday
21 November-26 November 2022	Faces of the membranes; Selective permeability of the membranes;
27 November 2022	Sunday
28 November -30 November 2022	Cell wall.

*J. J. J.*

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Teacher's Signature

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# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022


Name of teacher :- Dr. Vivek Srivastava

Designation :- Associate Professor

Class :- B.Sc. Final year      Section :- Medical A2      Subject :- Botany

Paper Name and Paper Code :- Cell Biology (BOT 501 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus The Cell Theory
18 August 2022	Holiday
19 August to 20 August 2022	Prokaryotic and eukaryotic cells; Cell size and shape
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Eukaryotic Cell components. Cell Cycle: Overview of Cell cycle,
28 August 2022	Sunday
29 August to 03 September 2022	Mitosis and Meiosis; Molecular controls
04 September 2022	Sunday
05 September to 10 September 2022	Mitochondria: Structure, marker enzymes, composition; Semiautonomous nature; Symbiont hypothesis; Proteins synthesized within mitochondria; mitochondrial DNA.
11 September 2022	Sunday
12 September to 17 September 2022	Chloroplast Structure, marker enzymes, composition; semiautonomous nature, chloroplast DNA. Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	ER, Golgi body Structures and roles. Class Assignment
23 September 2022	Holiday
24 September 2022	Lysosomes structure and roles.
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Peroxisomes and Glyoxisomes: Structures, composition, functions in animals and plants and biogenesis.
02 October 2022	Sunday
03 October- 04 October	Nucleus: Nuclear Epvelope- structure of nuclear pore complex

  
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2022	
05 October 2022	Holiday
06 October-07 October 2022	Chromatin; molecular organization, DNA packaging in eukaryotes, euchromatin and heterochromatin
08 October 2022	
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	nucleolus and ribosome structure (brief).
23 October - 30 October 2022	Diwali Holiday
31 October 2022	The functions of Plasma membranes
01 November	Holiday
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06 November 2022	Sunday
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08 November 2022	Holiday
09 November-12 November 2022	Membrane proteins and their functions;
13 November 2022	Sunday
14 November-19 November 2022	Carbohydrates in the membrane
20 November 2022	Sunday
21 November-26 November 2022	Faces of the membranes; Selective permeability of the membranes;
27 November 2022	Sunday
28 November -30 November 2022	Cell wall.

Teacher's Signature

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DAYANAND COLLEGE, HISAR  
 Department of Biotechnology  
 LESSON PLAN (2022-2023)  
 Semester- 1 (B. Sc. -I) year  
 Submitted by Dr Kanehan


Discipline Specific Elective Biotechnology Paper-I  
 Introduction to Biotechnology  
 (BIT 101 L)

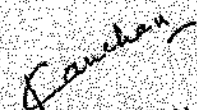
Sr. No.	Month	Topics
1.	August 17, 2022	Introduction to Biotechnology: History and major landmarks in the development of biotechnology, Introduction to gene and genomes, Proteins and proteome.
2	August 18, 2022	Janmashtami holiday
3	August 19, 2022 to August 20, 2022	Fermentation technology: General introduction, basic technique and applications.
4	August 21, 2022	Sunday
5	August 22, 2022 to August 27, 2022	Plant Tissue Culture: General introduction, basic technique and applications, Animal Tissue Culture: General introduction, basic technique and applications
6	August 28, 2022	Sunday
7	September 1, 2022 to September 3, 2022	Genetic Engineering: Introduction and history, Recombinant DNA technology, Genetically modified organisms (GMOs), DNA finger printing and forensic analysis.
8	September 4, 2022	Sunday

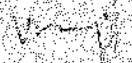
Max. Marks: 80  
 Internal Assessment: 20

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9	September 5, 2022 to September 10, 2022	Applications of biotechnology: Applications of biotechnology in agriculture, animal husbandry, veterinary sciences, food & feed industry, chemical industry
10	September 11, 2022	Sunday
11	September 12, 2022 to September 17, 2022	environment, bioremediation & waste water treatment, solid waste management, biofuels, human health and medicine (Monoclonal antibodies, hybridoma technology and embryo transfer technology)
12	September 18, 2022	Sunday
13	September 19, 2022 to September 24, 2022	Bio-safety and Ethics: Biotechnology research in India, Biotechnology in context of developing world, Brief account of safety guidelines and risk assessment in biotechnology
14	September 25, 2022	Sunday
15	September 26, 2022 to September 30, 2022	Ethics in Biotechnology, Intellectual property rights. Nanotechnology: Introduction, history and scope (Brief account)
16	October 1, 2022	Assignment Submission
17	October 2, 2022	Sunday
18	October 3, 2022	Test

  
 Dr. Vivek Srivastava  
 (Associate Professor)  
 Head, Dept. of Biotechnology

  
 Dr. KANCHAN  
 (Assistant Professor)  
 Subject Tutor

  
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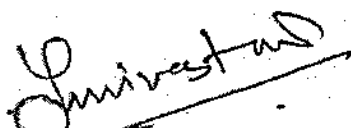
**DAYANAND COLLEGE, HISAR**  
 Department of Biotechnology  
**LESSON PLAN (2022-2023)**  
 Semester- 1(B. Sc. -I) year  
 Submitted by Dr Kanehan


**Discipline Specific Elective Biotechnology Paper-I**  
**Biochemistry-I**  
**(BIT 102 L)**

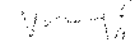
Sr. No.	Month	Topics
1.	October 4,2022 to October 8,2022	Biochemistry: Introduction, History and major landmarks in the development of biochemistry, Chemical Foundations of Life – biomolecules and biological chemistry.
2	October 9,2022	Sunday
3	October 10,2022 to October 15,2022	Interactions in biological systems: Intra and intermolecular forces, Electrostatic and hydrogen bonds, Disulfide bridges, Hydrophobic and hydrophilic molecules and forces, Water and weak interactions, pH and buffers.
4	October 16,2022	Sunday
5	October 17,2022 to October 20,2022	Carbohydrates: Structure, Function and properties of biologically important monosaccharides, disaccharides and polysaccharides. Homo & Hetero Polysaccharides, Mucopolysaccharides
6	October 21,2022	Sunday
7	October 22,2022	Bacterial cell wall polysaccharides, Glycoprotein's and their biological functions
8	October 23,2022 to October 26,2022	Diwali Vacations

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9	October 17,2022 to October 29,2022	Amino acids and Proteins: Structure and properties of amino acids, Essential amino acids,
10	October 30,2022	Rare and non-protein amino acids, acid base behaviour/zwitterions; pKa value and titration curve.
11	October 30,2022	Holiday
12	October 31,2022	Solve Doubts and Difficulties.
13	November 1,2022	Haryana Day
14	November 2 to November 4,2022	Proteins: Peptide bond, Structure and function of some. Different Level of structural organization of proteins biologically important peptides Types of proteins and their classification. Forces stabilizing protein structure and shape
15	November 5,6 2022	CTET Exam.
16	November 7,2022	Lipids: Introduction and Classification - simple and complex lipids, Fatty acids - structure and nomenclature, soap value, acid value, iodine number, rancidity
17	November 8,2022	Lipids: Introduction and Classification - simple and complex lipids, Fatty acids - structure and nomenclature, soap value, acid value, iodine number, rancidity.
18	November 21,2022 to November 23,2022	Revision and problem taken
19	November 24,2022	Assignment Submission
20	November 25,2022	Class Test

  
**Dr. Vivek Srivastava**  
 (Associate Professor)  
 Head, Dept. of Biotechnology

  
**Dr. KANCHAN**  
 (Assistant Professor)  
 Subject Tutor

  
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*Dayanand College, Hisar*  
 Department of Biotechnology  
 Lesson Plan (2022 – 2023)  
 Semester III (B.Sc. – II) Year  
 Submitted by *Dr. Puneet Beniwal*  
 Biotechnology Paper VII  
 Molecular Biology  
 (BIT 301 L)

*Maximum Marks : 80*

*Internal Assessment : 20*

Sr. No.	Month	Topics
1	August 17, 2022	Molecular Biology: Introduction to molecular aspects of life. DNA as the genetic material – experiments providing DNA and RNA as genetic material.
2	August 18, 2022	Janamashthmi Holiday
3	August 19 – 20, 2022	Nucleic acids: Structure, function and properties of DNA and RNA. Watson and Crick model of DNA. DNA forms (A, B and Z), their characteristic.
4	August 21, 2022	Sunday
5	August 22 – 27, 2022	Different types of RNA, their structure and function. Eukaryotic genomes: Chromosomal organization and structure. Euchromatin, heterochromatin, centromere, telomere. Chromatin structure (nucleosome), histone and non-histone proteins.
6	August 28, 2022	Sunday
7	August 29 – September 3, 2022	DNA Replication: Central dogma of molecular biology. Semi-conservative mode of DNA replication, experimental proof. Unidirectional and bidirectional mode of DNA replication, theta model. DNA replication in prokaryotes and

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		eukaryotes, different stages, proteins and enzymes involved. DNA damage and repair: causes of DNA damage, mutations. Repair mechanisms- photo reactivation, excision repair, mismatch repair.
8	September 4, 2022	Sunday
9	September 5 – 10, 2022	Transcription in prokaryotes and eukaryotes, diff. stages, mechanism, promoters, transcription factors, RNA polymerases. Post transcriptional modifications- 5' cap formation, 3'-end processing/polyadenylation and gene splicing and generation of mature mRNA. Inhibitors of transcription.
10	September 11, 2022	Sunday
11	September 12 – 17, 2022	Genetic Code: concept, elucidation or cracking of genetic code, features of genetic code, Wobble hypothesis. Structure of gene- introns/exons, regulatory sequences, structure of prokaryotic gene.
12	September 18, 2022	Sunday
13	September 19 – 24, 2022	Translation/Protein synthesis: Mechanism of initiation, elongation and termination of protein synthesis in prokaryotes and eukaryotes. Inhibitors of translation. Post-translational modifications.
14	September 25, 2022	Sunday
15	September 26 – 30, 2022	Regulation of Gene Expression in prokaryotes and eukaryotes, induction and repression, positive and negative regulation. Operon model- lac, ara, trp, catabolite repression, transcription attenuation.
16	October 1, 2022	Assignment Submission
17	October 2, 2022	Sunday
18	October 3, 2022	Test

*Vivek Srivastava*  
**Dr. Vivek Srivastava**

**(Associate Professor)**

**Head, Dept. of Biotechnology**

*Puneet Beniwal*  
**Dr. Puneet Beniwal**

**(Assistant Professor)**

**Subject Tutor**

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**Dayanand College, Hisar**  
**Department of Biotechnology**  
**Lesson Plan (2022 – 2023)**  
**Semester III (B.Sc. – II) Year**  
**Submitted by Dr. Puneet Beniwal**  
**Biotechnology Paper VIII**  
**Bio-analytical Techniques**  
**(BIT 302 L)**

*Maximum Marks : 80*

*Internal Assessment : 20*

<b>Sr. No.</b>	<b>Month</b>	<b>Topics</b>
1	October 4 – 8, 2022	Microscopy: Simple microscopy, phase contrast microscopy, fluorescence and electron microscopy (TEM and SEM).
2	October 9, 2022	Sunday
3	October 10 – 15, 2022	pH meter, Spectroscopy: Principle and law of absorption, colorimetry, spectrophotometry (visible, UV, infrared), cell fractionation techniques.
4	October 16, 2022	Sunday
5	October 17 – 20, 2022	Isolation of sub-cellular organelles and particles. Chromatography: Principle of chromatography, Paper chromatography, thin layer chromatography.
6	October 21, 2022	Sunday
7	October 22 – 26, 2022	Diwali Vacations
8	October 27 -29, 2022	Column chromatography, silica and gel filtration.
9	October 30, 2022	Sunday
10	October 31, 2022	Affinity and ion exchange chromatography.
11	November 1, 2022	Holiday
12	November 2 – 4, 2022	Gas chromatography, HPLC.
13	November 5 -6, 2022	CET Exam
14	November 7, 2022	HPLC.
15	November 8, 2022	Holiday
16	November 9 – 12, 2022	Electrophoresis: Introduction to electrophoresis. Starch-gel.

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17	November 13, 2022	Sunday
18	November 14 – 19, 2022	Polyacrylamide gel (native and SDS-PAGE), agarose-gel electrophoresis.
19	November 20, 2022	Sunday
20	November 21 – 26, 2022	Pulse field gel electrophoresis, immuno- electrophoresis, isoelectric focusing, Western blotting.
21	November 27, 2022	Sunday
22	November 28 – 30, 2022	Assignment Submission.
23	December 1 – 3, 2022	Test
24	December 4, 2022	Sunday
25	December 5 – 10, 2022	Revision and Clarification of doubts.
26	December 11, 2022	Sunday
27	December 12 – 17, 2022	Revision and Clarification of doubts.
28	December 18, 2022	Sunday

*Dr. Vivek Srivastava*

(Associate Professor)

Head, Dept. of Biotechnology

*Dr. Puneet Beniwal*

(Assistant Professor)

Subject Tutor

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**DAYANAND COLLEGE, HISAR**  
 Department of Biotechnology  
**LESSON PLAN (2022- 2023)**  
 Semester- V (B. Sc. -III)  
 Submitted By: Dr. Raj Rani  
 Discipline Specific Elective Biotechnology Paper-I  
 Plant Biotechnology  
 (BIT 501 L)

Sr. No.	Month	Topics
1	August 17, 2022	Course outcomes discussion.
2	August 18, 2022	Janmashtami holiday.
3	August 19, 2022 to August 20, 2022	Plant Tissue Culture: Introduction, Concept, History, Scope and Applications. Plant Tissue Culture Laboratory: Layout, organization, equipments, instruments and other requirements. Aseptic Techniques: General Sanitation/cleanliness of PTC laboratory and precautions regarding maintenance of aseptic conditions, Washing, drying and sterilization of glassware, sterilization of media.
4	August 21, 2022	Sunday
5	August 22, 2022 to August 27, 2022	Culture Media: Nutritional requirements for plant tissue culture, role of different media components, plant growth regulators, different culture media viz. MS, B5 Nitsch and White's medium. In-vitro methods in plant tissue culture:
6	August 28, 2022	Sunday
7	September 1, 2022 to September 3, 2022	Micropropagation, (different routes of multiplication-axillary, bud proliferation etc.)

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		Sunday
9	September 5,2022 to September 10,2022	Synthetic seeds (a brief account), Meristem culture Callus and suspension culture techniques: Introduction, principle, methodology, applications and limitations Somaclonal variation (Brief account only) Organ culture: Anther & Pollen culture, ovary, ovule, embryo and endosperm culture-concept, technique, applications and limitations.
10	September 11,2022	Sunday
11	September 12,2022 to September 17,2022	Protoplast culture: Protoplast isolation, viability test and its culture. Somatic hybridization - protoplast fusion techniques (chemical and electro-fusion), selection of hybrids, production of symmetric and asymmetric hybrids and cybrids. Practical applications of somatic hybridization.
12	September 18,2022	Sunday
13	September 19,2022 to September 24,2022	Production of secondary metabolites in vitro: introduction, technique and utilities. Plant germ plasm conservation and cryopreservation. Genetic Engineering in plants: Introduction, <i>Agrobacterium tumefaciens</i> and <i>A. rhizogenes</i> mediated transformation
14	September 25,2022	Sunday
15	September 26,2022 to September 27,2022	Ti plasmid. Strategies for gene transfer to plant cells. Binary and cointegrate vectors. Direct DNA transfer/Physical methods of gene transfer in plants -biolistic method, electroporation, liposome mediated, Calcium phosphate mediated, microinjection etc.

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16	September 28,2022 to September 30,2022	Transgenic Plants: Introduction and applications. Developing insect resistance, bacterial, fungal and viral disease resistance and abiotic stress tolerance in plants.
17	October 1,2022	Edible vaccines.
18	October 2,2022	Sunday
19	October 3,2022 to October 5,2022	Improving food quality - nutritional enhancement of plants (carbohydrates, seed storage proteins and vitamins). Plants as Bioreactors: antibodies, polymers, industrial enzymes (Brief account only)
20	October 6,2022	Assignment submission.

*Dr. Vivek Srivastava*

Dr. Vivek Srivastava  
(Associate Professor)  
Head, Dept. of Biotechnology

*Dr. Raj Rani*

Dr. RAJ RANI  
(Assistant Professor)  
Subject Tutor

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DAYANAND COLLEGE, HISAR

Department of Biotechnology

LESSON PLAN (2022- 2023)

Semester- V (B. Sc. -III)

Submitted By: Dr. Raj Rani

Discipline Specific Elective Biotechnology Paper-II

Microbial Biotechnology

(BIT 502 L)

Sr. No.	Month	Topics
1.	October 7,2022-October 8,2022	Microbial Biotechnology: Historical landmarks, General concept. Screening and Isolation of Micro organisms: Industrially important microbes, their screening and isolation, enrichment culture. Strain improvement- bacterial genetics, mutant selection, Recombination, recombinant DNA technology.
2	October 9,2022	Sunday
3	October 10,2022 to October 13,2022	<del>Strain preservation and maintenance.</del> Nutrition and cultivation of microorganisms: Basic nutrition and metabolism, Natural and Synthetic media, Sterilization techniques, Microbial growth kinetics. Microbial Fermenters/Bioreactors: Basic design of fermenters. Physico-chemical standards used in bioreactors (agitation, aeration, pH, temp., dissolved oxygen etc.). Types of fermenters- stirred tank, airlift etc.
4	October 14,2022 to October 15,2022	Annual function and convocation function.
5	October 16,2022	Sunday

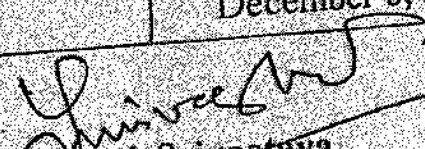
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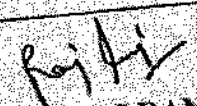


	October 17, 2022 to October 20, 2022	Fermentation types – Continuous, Batch culture, Solid state and Submerged. Quantification of growth, thermodynamics of growth, effect of different factors on growth. Process Development and Downstream Processing: Shake flask fermentation, scale up of the process. Separation of particles, disintegration of cells, extraction, concentration, purification and drying of the products.
7	October 21, 2022	Problems Taken and Assign the assignments.
8	October 22, 2022	Assesment Test.
9	October 23, 2022 to October 26, 2022	Diwali Vacations.
10	October 28, 2022 to October 29, 2022	Microbial Products: a brief discussion about production of certain industrial products such as –Alcohol Alcoholic beverage (Beer), Organic acids (citric acid), Antibiotics (penicillin), Amino acids (glutamic acid, Vitamin (B12), enzymes (protease, alpha amylase) and Biotransformation. Microbial Foods: Single Cell Proteins
11	October 30, 2022	Sunday
12	October 31, 2022	Assignment submission
13	November 1, 2022	Haryana Day
14	November 2, 2022 to November 4, 2022	Sewage waste water treatment: Aerobic and anaerobic digestion. Bioremediation. Biodegradation of xenobiotic compounds. Biotransformation, Biomining, bioleaching, biogas production.
15	November 5, 6, 2022	CET EXAM

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17	November 8, 2022	Biofertilizer production unit IIAU, Visit. Guru Nanak Jayanti.
18	November 9, 2022 to November 11, 2022	Microbial technology in agriculture- Bioinsecticides, bioherbicides.
19	November 12, 2022	Assessment Test.
20	November 13, 2022	Sunday.
21	November 14, 2022 to November 19, 2022	biocontrol agents for disease control, advantages over chemical methods.
22	November 20, 2022	Sunday.
23	November 21, 2022 to November 23, 2022	Biofertilizers.
25	November 25, 2022	Assignment Submission.
26	November 26, 2022	Class Test.
27	November 27, 2022	Sunday.
28.	November 28, 2022 to November 30, 2022	Revision and Problems taken.
29	December 1, 2022 to December 2, 2022.	Extra Class for Slow Learners.
30.	December 3, 4 2022	HTET EXAM.
31.	December 5, 2022 to December 8, 2022.	Revision and Problems taken.

  
 Dr. Vivek Srivastava  
 (Associate Professor)  
 Head, Department of Biotechnology

  
 Dr. RAJ RANI  
 (Assistant Professor)  
 Subject Tutor

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DAYANAND COLLEGE, HISAR  
 Department of Biotechnology  
 LESSON PLAN (2022-2023)  
 Semester- II (B. Sc. -I) year  
 Submitted by Dr Kanchan

Discipline Specific Elective Biotechnology Paper-I  
 General Microbiology  
 (BIT 201 L)

Max. Marks: 80  
 Internal Assessment: 20

Sr. No.	Month	Topics
1.	16 January 2023	Course outcomes discussion
2	17 January 2023 to 21 January 2023	Introduction, Importance and Scope of Microbiology Definition and history of microbiology, contributions of Antony van Leeuwenhoek, Louis Pasteur, Robert Koch etc., Branches of microbiology.
3	22 January 2023	Sunday
4	23 January 2023 to 25 January 2023	Microscope Construction and working principles different types of microscopes – compound, dark field Phase contrast, Fluorescence and Electron (Scanning)
5	26 January 2023	Republic Day
6	27 January 2023 to 28 January 2023	Sterilization techniques: Principles and Applications Physical Methods, Autoclave, Hot air oven, Laminar airflow, Seitz filter, Sintered glass filter, and membrane filter,
7	29 January 2023	Sunday

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**DAYANAND COLLEGE, HISAR**  
**Department of Biotechnology**  
**LESSON PLAN (2022-2023)**  
**Semester- II (B. Sc. -I) year**  
**Submitted by Dr Kanchan**


**Discipline Specific Elective Biotechnology Paper-I**  
**General Microbiology**  
**(BIT 201 L)**

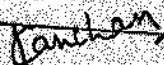
**Max. Marks: 80**  
**Internal Assessment: 20**

Sr. No.	Month	Topics
1.	16 January 2023	Course outcomes discussion
2	17 January 2023 to 21 January 2023	Introduction, Importance and Scope of Microbiology: Definition and history of microbiology, contributions of Antony van Leeuwenhoek, Louis Pasteur, Robert Koch etc., Branches of microbiology.
3	22 January 2023	Sunday
4	23 January 2023 to 25 January 2023	Microscope Construction and working principles of different types of microscopes – compound, dark field, Phase contrast, Fluorescence and Electron (Scanning
5	26 January 2023	Republic Day
6	27 January 2023 to 28 January 2023	Sterilization techniques. Principles and Applications of Physical Methods, Autoclave, Hot air oven, Laminar airflow, Seitz filter, Sintered glass filter, and membrane filter,
7	29 January 2023	Sunday

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8	30 January 2023 to 4 February 2023	Chemical Methods; Alcohol, Aldehydes, Phenols, Halogens and Gaseous agents, Radiation Methods: UV rays and Gamma rays, Staining techniques: Principles of staining, types of stains – simple stains, structural stains and Differential stains.
9	5 February 2023	Sunday
10	6 February 2023 to 11 February 2023	Microbial Taxonomy: Concept of microbial species and strains, classification of bacteria based on – morphology (shape and flagella), cell wall, nutrition, extreme environment and 16S rRNA techniques. Viruses and Bacteria: Bacteria – Ultrastructure of bacteria cell (both Gram positive and Gram negative) including endospore and capsule.
11	12 February 2023	Sunday
12	13 February 2023 to 18 February 2023	Viruses – Structure and classification (A brief account), Plant viruses – CaMV, Animal viruses – FMDV, Bacterial Virus – Lambda Phage. Pathogenic Microorganisms: Bacterial diseases of man – tetanus, Tuberculosis, Pneumonia, Cholera and Typhoid. Viral diseases: AIDS (HIV), Ebola, Swine Flu, Hepatitis
13	19 February 2023	Sunday
14	20 February 2023 to 25 February 2023	Microbial Growth and Metabolism: Kinetics of microbial growth, growth curve, synchronous growth, factors affecting bacterial growth. Methods to study growth. Respiration: Glycolysis, Kreb's cycle (TCA)
15	26 February 2023	Sunday
16	27 February 2023	Problems Taken and Assign the assignments.
17	28 February 2023 to 4 March 2023	Oxidative Phosphorylation, Bacterial Photosynthesis: Photosynthetic apparatus in prokaryotes, Photophosphorylation & Dark reaction.
18	5 March, 2023 to 12 March, 2023	Holi Vacations

  
**Dr. Vivek Srivastava**  
 (Associate Professor)  
 Head, Dept. of Biotechnology

  
**Dr. KANCHAN**  
 (Assistant Professor)  
 Subject Tutor

  
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**DAYANAND COLLEGE, Hisar**  
**Department of Biotechnology**  
**Lesson Plan 2022-2023**  
**Semester II nd (B. Sc. – 1st year)**  
**Paper - BIT 202 L**  
**Submitted by Dr Kanchan**

**SUBJECT: Biochemistry II**

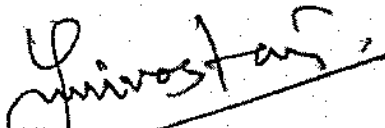
Sr. No.	Date	Topics
1	16 January, 2023	Course outcomes discussion
2	17 January, 2023 to 21 January, 2023	Enzymes: introduction, active site, energy of activation, transition state hypothesis, lock and key hypothesis, induced fit hypothesis. Enzyme classification
3	23 January, 2023 to 25 January, 2023	Enzyme Kinetics – Hyperbolic curve, $K_m$ , $V_{max}$ , $MM$ equation, Lineweaver Burk plot/Double reciprocal plot. Effect of pH and temperature on enzyme activity.
4	26 January, 2023	Republic Day
5	27 January, 2023 to 28 January, 2023	Vitamins: Introduction, Types of vitamins – structure of water soluble vitamins and their coenzyme derivatives, Fat soluble vitamins. Deficiency symptoms and dietary sources.
6	29 January, 2023	Sunday
7	30 January, 2023 to 4 February, 2023	Hormones : Steroid Hormones: structure and importance.

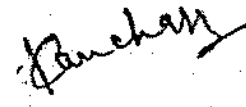
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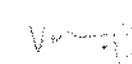
8	5 February, 2023	Sunday
9	6 February, 2023 to 11 February, 2023	Metabolism: General Introduction, catabolism and anabolism, Bioenergetics, Carbohydrates metabolism: Glycolysis, Tricarboxylic acid cycle,
10	12 February, 2023	Sunday
11	13 February, 2023 to 18 February, 2023	Lipid Metabolism: $\beta$ -oxidation of saturated fatty acids. Gluconeogenesis Glycogenolysis
12	19 February, 2023	Sunday
13	20 February 2023 to 25 February, 2023	glycogen synthesis and their regulation
14	26 February 2023	Sunday
15	27 February 2023	Assignment Submission
16	28 February 2023 to 4 March, 2023	Peptide Hormones: structure and function of important peptide hormones.
17	5 March, 2023 to 12 March, 2023	Holi Vacations
18	13 March, 2023	Revision
19	14 March, 2023	Doubt Classes
20	15 March, 2023 to 18 March, 2023	Amino acid Metabolism: Transamination, oxidative deamination and decarboxylation reactions in context of amino acid degradation
21	19 March, 2023	Sunday
22	20 March, 2023 to 25 March, 2023	Degradation of Triacylglycerols. Synthesis of Fatty acids
23	26 March, 2023	Sunday
24	27 March, 2023 to 31 March, 2023	Enzyme Inhibition – Competitive, non-competitive and uncompetitive inhibition.
25	1 April, 2023	Class Test

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26	2 April, 2023	Sunday
27	3 April, 2023 to 8 April, 2023	Fat soluble vitamins. Deficiency symptoms and dietary sources.
28	9 April, 2023	Sunday
29	10 April, 2023 to 15 April, 2023	Revision and Presentation
30	16 April, 2023 to 22 April, 2023	Problems taken
31	23 April, 2023	Sunday
32	24 April, 2023 to 29 April, 2023	Revision of topics Lineweaver Burk plot/Double reciprocal plot.
33	30 April, 2023	Class test
34	1 May to 10 May	Revision and Problems taken

  
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*Dayanand College, Hisar*  
 Department of Biotechnology  
 Lesson Plan (2022 - 2023)  
 Semester IV (B.Sc. - II) Year  
 Submitted by *Dr. Puneet Beniwal*

**Biotechnology Paper X**

*Immunology*

(BIT 401 L)

*Maximum Marks : 80*

*Internal Assessment : 20*

Sr. No.	Month	Topics
1	January 16 - 21, 2023	Immunology: Introduction, History and Scope. Terminology of immune system Immunity: Cells and Organs of the Immune System - Haematopoiesis, B and T cells (types and receptors), Null cells, Monocytes, Polymorphs. Primary and Secondary Lymphoid organs- Thymus, Spleen, Lymph nodes, MALT, GALT, BALT.
2	January 22, 2023	Sunday
3	January 23 - 25, 2023	Innate and Adaptive Immunity: Definition, types of Immunity- Innate, Adaptive/acquired (active, passive, natural/artificial, Humoral and Cell mediated immunity). Features of Immune Response - memory, cell specificity/diversity, recognition of self and non-self.
4	January 26, 2023	Holiday
5	January 27 - 28, 2023	Antigens: Concept, Types of Antigens, Antigenic determinants/epitopes, Hapten, Antigen and Immunogen. Antigenicity and Immunogenicity.

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6	January 29, 2023	Sunday
7	January 30 – February 4, 2023	Factors affecting antigenicity, Adjuvants Antibodies: Structure, Types/Classes, properties and functions of Immunoglobulins. Antigen – Antibody Interactions: Binding sites, Binding forces, Affinity, Avidity, Cross reactions. Precipitation and Agglutination reactions, RIA, ELISA, Immunofluorescence, Flow cytometry and Fluorescence activated cell sorter (FACS).
8	February 5, 2023	Sunday
9	February 6 – 11, 2023	Complement system: Structure, components, properties and functions.
10	February 12, 2023	Sunday
11	February 13 – 18, 2023	MHC and Antigen processing and presentation: Structure and function of Major Histocompatibility Complex – Class I and Class II MHC molecules, Endocytic pathway and Cytosolic pathway of Antigen processing and presentation.
12	February 19, 2023	Sunday
13	February 20 – 25, 2023	Immune Response: Introduction, Humoral Immunity and Cell mediated immunity– Primary and Secondary immune response. Hypersensitivity, Types of hypersensitivity, Autoimmunity, autoimmune disease.
14	February 26, 2023	Sunday
15	February 27 – March 3, 2023	Immunological tolerance. Vaccines: concept, types of vaccines- Inactivated, Attenuated and Recombinant vaccines (Peptide and DNA vaccines).
16	March 4, 2023	Assignments to be given.
17	March 5 – 12, 2023	Holi Vacations

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**Dr. Vivek Srivastava**  
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 Head, Dept. of Biotechnology

*Dr. Puneet Beniwal*  
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 (Assistant Professor)  
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 Department of Biotechnology  
 Lesson Plan (2022 – 2023)  
 Semester IV (B.Sc. – II) Year  
 Submitted by *Dr. Puneet Baniwal*  
 Biotechnology Paper XI  
 Recombinant DNA Technology  
 (BIT 402 L)


*Maximum Marks : 80*


*Internal Assessment : 20*


<i>Sr. No.</i>	<i>Month</i>	<i>Topics</i>
1	March 13 – 18, 2023	Recombinant DNA Technology and Genetic Engineering: Introduction, history, scope and applications. Tools of Recombinant DNA technology: Steps in gene cloning.
2	March 19, 2023	Sunday
3	March 20 – 25, 2023	Gene cloning tools - Restriction enzymes and their features. Ligases, polymerases, alkaline phosphatases, kinases, transferases and other DNA engineering enzymes. Linkers and adapters.
4	March 26, 2023	Sunday
5	March 27 -31, 2023	Gene Cloning Vectors: Introduction, Properties of host, nomenclature of vectors, properties of a suitable vector. Plasmid vectors, bacteriophage. M13 vectors. Expression vectors, BACs.
6	April 1, 2023	Assignments Submission
7	April 2, 2023	Sunday
8	April 3 - 8, 2023	Transformation: Techniques of introducing r-DNA into the desired host, competent cells, electroporation and microinjection. Screening and selection of transformants and their characterization, selection of clone having the specific DNA insert - immunological screening and colony hybridization. Marker genes- selectable and scorable markers.
9	April 9, 2023	Sunday
10	April 10 – 15, 2023	Gene Libraries: Construction of Genomic and cDNA library

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		advantages and limitations, screening of gene libraries. DNA amplification through PCR: Basic features and applications of PCR, types and modifications like inverse PCR, RT-PCR, anchored PCR, nested PCR.
11	April 16, 2023	Sunday
12	April 17 – 22, 2023	DNA sequencing techniques: Maxam – Gilbert's method, Sanger's dideoxy chain termination method, Automated DNA sequencing. Genome Mapping: Concept and applications. Restriction enzyme digestion and restriction mapping. Southern and Northern analysis.
13	April 23, 2023	Sunday
14	April 24 – 29, 2023	DNA finger printing, Western blotting, dot blots and slot blots. RFLP, RAPD (brief only). Applications of Recombinant DNA technology: Production of recombinant proteins of pharmaceutical importance- insulin, human growth hormone, recombinant vaccines (hepatitis B) etc. Genetically modified organisms (GMOs).
15	April 30, 2023	Sunday
16	May 1, 2023	Class Test
17	May 2 – 6, 2023	Revision and clarification of doubts
18	May 7, 2023	Sunday
19	May 8 – 12, 2023	Revision and clarification of doubts

  
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**DAYANAND COLLEGE, HISAR**  
**Department of Biotechnology**  
**LESSON PLAN (2022- 2023)**  
**Semester- VI (B. Sc. -III)**  
**Submitted By: Dr. Raj Rani**

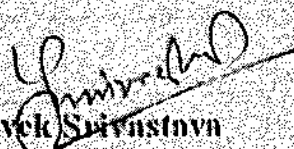
**Discipline Specific Elective Biotechnology Paper-IV**  
**Animal Biotechnology**  
**(BIT 601 L)**

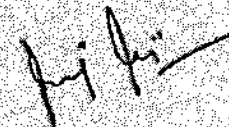
Sr. No.	Month	Topics
1	16 January 2023	Course outcomes discussion.
2	17 January 2023 to 21 January 2023	Animal Cell & Tissue Culture: Introduction, Principles & practice. History and Development of animal cell culture. Scope and Applications. Culture Media: Media components, Serum containing and serum free media. Natural media- Plasma-clot, biological fluids, tissue extracts. Growth factors required for proliferation of animal cells.
3	22, January 2023	<b>Sunday</b>
4	23, January 2023 to 25 January 2023	Chemically defined media, balanced salt solutions. Physical requirements for growing animal cells in culture
5	26, January 2023	<b>Republic Day</b>
6	27, January 2023 to 28 January 2023	Primary Cell Culture techniques: Initiation of cell culture-substrates (glass, plastic, metals) their preparation and sterilization.
7	29, January 2023	<b>Sunday</b>
8	30, January 2023 to 4 February 2023	Isolation of tissue explants, disaggregation-enzyme disaggregation and mechanical disaggregation of the tissue. Development of primary culture and cell lines. Contamination in

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		animal cell cultures. Suspension culture, Growth curve of animal cells in culture. Secondary cell culture – transformed cell and continuous cell lines. Finite and infinite cell lines.
9	5 February 2023	Sunday
10	6 February 2023 to 11 February, 2023	Cell lines: Commonly used cell lines- their organization and characteristics. Organ Culture: technique, advantages, applications and limitations. Artificial skin. Transfection of animal cells: transfection methods, Selection markers. Cloning and expression of foreign genes in animal cells: Expression vectors.
11	12 February 2023	Sunday
12	13 February 2023 to 18 February, 2023	Over production of recombinant proteins. Hybridoma Technology: Production of monoclonal antibodies and their applications. Embryo transfer technology- technique, its applications. Artificial insemination. Animal clones. Transgenic Animals: transgenic sheep, cow, pig, goat etc.
13	19 February 2023	Sunday
14	20 February 2023 to 25 February, 2023	Production of transgenic mice, Gene targeting in mice, applications of gene targeting.
15	26, February 2023	Sunday
16	27, February, 2022	Assessment Test.
17	28 February, 2023 to 4 March 2023	Therapeutic products through genetic engineering – blood proteins, insulin, growth hormone etc. Gene Therapy: introduction, types of gene therapy, major achievements, problems and prospects. Stem cells in gene therapy.
18	5 March, 2023 to 12, March 2023	Holi Vacations

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Dr. RAJ RANI  
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Subject Tutor

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**DAYANAND COLLEGE, HISAR**  
**Department of Biotechnology**  
**LESSON PLAN (2022- 2023)**  
**Semester- VI (B. Sc. -III)**  
**Submitted By: Dr. Raj Rani**


**Discipline Specific Elective Biotechnology Paper-V**  
**Bioinformatics (BIT 602 L)**

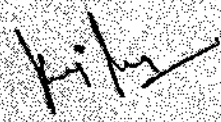
1	March 13,2023	Course outcomes discussion.
2	March 14,2023 to March 18,2023	Basics of computer and Bioinformatics: Fundamental aspects of computer and Internet in relation to bioinformatics. Database management systems (Object-oriented and relational), Introduction, History, goals and Scope, applications and limitations of Bioinformatics.
3	March 19,2023	Sunday.
4	March 20,2023 to March 25,2023	Information Networks (EMB-NET, NIC-NET, INFLIBNET). Introduction to Genomics and genome projects – information flow in biology DNA sequence data, experimental approach to genome sequence data.
5	March 26,2023	Sunday.
6	March 27,2023 to March 31,2023	Genome information resources. Functional Proteomics – protein sequence and structural data. protein information resources and secondary data bases. Computational Genomics - Internet basics,
7	April 1,2023	Assignment submission.

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8	April 2, 2023	Sunday
9	April 3, 2023 to April 8, 2023	Biological data analysis and application, sequence data bases, NCBI model, File format.
10	April 9, 2023	Sunday
11	April 10, 2023 to April 15, 2023	Protein primary sequence comparison, pair wise alignment and analysis, algorithm BLAST
12	April 16, 2023	Sunday
13	April 17, 2023 to April 22, 2023	Variants of BLAST, multiple sequence alignment. DATA base searching using BLAST and FASTA.
14	April 23, 2023	Sunday
15	April 24, 2023 to April 29, 2023	Predictive methods using DNA and protein sequences protein prediction, motif, tertiary structure).
16	April 30, 2023	Sunday
17	May 1, 2023	Assessment test.
18	May 2, 2023 to May 6, 2023	Structural data bases. Protein data bank.
19	May 7, 2023	Sunday
20	May 8, 2023 to May 12, 2023	Revision and problems taken.

  
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 Head, Department of Biotechnology

  
 Dr. RAJ RANI  
 (Assistant Professor)  
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# DAYANAND PG College, HISAR

Lesson Plan of Year 2022-2023 (Odd Semester)

Department- Mathematics

Course Name- Algebra: CML-106/BAMH111

Programme Name- B.Sc (Non Med, Electronics, Comp. Science)/B.A. I

Teachers-Dr. Inderjit Singh, Ms. Brahmvidya, Ms. Suman, Mrs. Namrata SEM-I

Month	Week	Topic	Assignment/ Test
AUG	3rd	1. Symmetric, skew symmetric	
	4th	2. Hermitian and skew Hermitian	
SEPT	1st	1. Elementary operation on matrices, Rank of a matrix, Inverse of a matrix	1st Assignment
	2nd	2. Linear dependence and independence of rows and columns of matrices, Row rank and column rank of a m	
	3rd	3. Eigen values, eigen vectors and the characteristic equation of a matrix, Minimal polynomial of a matrix.	
	4th	4. Cayley Hamilton theorem and its use in finding inverse of a matrix.	
OCT	1st	1. Application of matrices to a system of linear (both homogenous and non-homogenous) equations.	Minor Test
	2nd	2. Theorems on consistency of a system of linear equations	
	3rd	3. Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.	
	4th	4. Descartes' rule of signs, Relations between the roots and coefficients of general polynomial equation in one variable.	
NOV	1st	1. Solution of polynomial equations having conditions on roots, Common roots and multiple roots.	2nd Assignment
	2nd	2. Transformation of equations, Nature of the roots of an equation.	
	3rd	3. Descartes' rule of signs, Solution of cubic equations (Cardan's method).	
	4th	Revision, Test	

## COURSE: CALCULUS: CML-107/BAMH112

Programme Name- B.Sc (Non Med, Electronics, Comp. Science)/B.A. I

Teacher- Ms. Monika, Ms. Brahmvidya, Ms. Rekha Rani SEM-I

Month	Week	Topic	Assignment/ Test
AUG	3rd	Definition of the limit of a function, Basic properties of limits, Continuous functions and classification of discontinuity	
	4th	Differentiability, Successive differentiation.	
SEPT	1st	Leibnitz theorem, Maclaurin and Taylor series expansions	1st Assignment
	2nd	Asymptotes in Cartesian coordinates, Intersection of curve and its asymptotes	
	3rd	Asymptotes in polar coordinates, Curvature	
	4th	Radius of curvature for Cartesian curves, parametric curves, polar curves, Newton's method	
OCT	1st	Radius of curvature for pedal curves, Tangential polar equations	Minor Test
	2nd	Centre of curvature, Circle of curvature, Chord of curvature, evolutes	
	3rd	Tests for concavity and convexity, Point of inflexion, Multiple points, Cusps, nodes and conjugate points, Type of cusps	
	4th	Tracing of curves in Cartesian, parametric and polar co-ordinates	
NOV	1st	Reduction formulae, Rectification	2nd Assignment
	2nd	Intrinsic equations of curve, Quadrature and Sectional area	
	3rd	Area bounded by closed curves, Volumes and Surfaces of solids of revolution	
	4th	Theorems of Pappus and Guldinus Revision	

*Dr. Inderjit Singh*

Programme Name- B.Sc(Non Med, Electronics, Comp. Science)/B.A. I  
 Teacher- Dr. Inderjit Singh, Ms. Brahmvidya, Ms. Monika, Mr. Sumit, Mr. Naresh

SEM-I

Month	Week	Topics
AUG	3rd	Program To Calculate Simple Interest ,Program to calculate Compound Interest .
	4th	Program To Calculate Arithmetic Mean Of Three Numbers
SEPT	1st	Program To Calculate Area And Perameter Of A Circle Program To Calculate Area Of Triangle By Heron's Formula
	2nd	Program To Check Wheather The Number Is Odd or Even Program to Calculate Greatest Of Three Numbers
	3rd	Program To Find The Roots Of A Quadratic Equation Program to Reverse The Digits Of A Positive Number
	4th	Program to Convert Decimal To Binary Program To Generate First n Prime Numbers
		Program to Check Wheather The Number Is Prime or not
OCT	3rd	Program To Check A Year Is Leap Or Not
	4th	Program To Find The Sum Of First n Natural Numbers
	1st	Program to Generate Pyramid
	2nd	Program to find simple interest using switch statement
NOV	3rd	Program to prepare Electricity Bill,
	4th	Program to Calculate Gross salary of an Employee
		Practical File Completion

COURSE NAME: NUMERICAL ANALYSIS: CML-307/BAMH202

PROGRAM NAME- B.Sc(Non Med, Electronics, Comp. Science)/B.A III  
 TEACHERS- Mrs. Kanta, Dr. Neeru Bala, Mr. Hitesh

SEM-III

Month	Week	Topic	Test/Assign.
AUG	3rd	Finite difference operators and their relation ,finding the missing terms and effect of error in a difference tabular values	Test/Assign.
	4th	interpolation with equal intervals :Newton 's forward and backward interpolation formulae	
SEPT	1st	Newton's divided difference,lagrange's interpolation formule ,hermite formulae	Assignment
	2nd	central difference : Gauss forward and backward interpolation formulae, sterling ,Bessel formulae	
	3rd	Binomial ,Poisson ,normal distribution, Numerical differentiation	
	4th	Eigen value problems .Power method ,Jacobi's method, Given's method,	
OCT	2nd	Numerical Integration: Newton-Cote's formula, trapizoidal rule ,Simpson's rule Gauss quadrature formula, chebychev formula	Minor Test.
	3rd	Numerical solution of ordinary differential equations: single step method picards method ,Taylor series method	
	4th	Euler's method ,runge-kutta method	
	1st	Multiple step methods, Predictor-Corrector method	
NOV	2nd	Modified Euler's method, Milne simpson's method	
	3rd	Revision, Group Discussion	
	4th	Test	

Course Name- Advanced Calculus- CML306/BAMH201

Programme Name- B.Sc (Non Med, Electronics, Comp. Science), B.A II  
 Teacher- Ms. Kiran, Mr. Naresh, Mr. Hitesh

SEM-III

Month	Week	Topic	Test/Assign.
A	3rd	Continuity, Sequential continuity, properties of continuous functions Uniform continuity.	

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U G	4th	Chain rule of differentiability, Mean value theorems, Rolle's theorem and Lagrange's mean value theorem and their geometrical interpretations.	
S E P T	1	Taylor's theorem with various form of remainders.	Assignment
	2nd	Darboux intermediate value theorem for derivatives, Indeterminate forms.	
	3rd	Limit and continuity of real valued functions of two variables.	
	4th	Partial differentiation, Total differentials.	
O C T	1st	Composite functions and implicit functions, Change of variables, Homogeneous functions.	Test
	2nd	Euler's theorem on homogeneous functions, Taylor's theorem for functions of two variables.	
	3rd	Differentiability of real valued functions of two variables. Schwarz and Young's theorem, implicit function theorem.	
	4th	Maxima, Minima and saddle points of two variables. Lagrange's method of multipliers.	
N O V	1st	Curves: Tangents, Principal normals, Binormals.	Assignment
	2nd	Serret-Frenet formulae, Locus of the centre of curvature. Spherical curvature.	
	3rd	Locus of centre of Spherical curvature. Involute, Evolute, Bertrand curves.	
	4th	Revision and Group Discussion.	

**Course Name- Maths Lab-III-CMP310/BAMH203**

**Programme Name- B.Sc.(Non Med, Electronics, Comp. Science), B.A II**

**Teacher- Dr. Neeru Bala, Ms. Neelam, M s. Suman, Ms. Rekha Rani, Mr. Hitesh**

Month	Week	Topic
A U G	3rd	To interpolate the data using Newton's forward interpolation formula.
	4th	To interpolate the data using Newton's backward interpolation formula.
S E P T	1st	To interpolate the data using Gauss's forward interpolation formula.
	2nd	To interpolate the data using Gauss's backward interpolation formula.
	3rd	To interpolate the data using Lagrange's interpolation formula.
	4th	To find the roots of algebraic and transcendental equations using Bisection method.
O C T	1st	To find the roots of algebraic and transcendental equations using Regula Falsi method.
	2nd	To find the roots of algebraic and transcendental equations using Secant method.
	3rd	To find the roots of algebraic and transcendental equations using Newton-Raphson's method.
	4th	To solve the system of linear equations using Gauss-elimination method.
N O V	1st	To solve the system of linear equations using Gauss-Seidel iteration method. To solve the system of linear equation using Gauss-jordan method.
	2nd	To find the largest eigen value of a matrix by Power-method. To integrate numerically using Trapezoidal rule.
	3rd	To integrate numerically using Simpson's one-third rule. To integrate numerically using Simpson's three-eighth rule.
N O V	4th	To find numerical solution of ordinary differential equations by Euler's method/ Modified Euler's method. To find numerical solution of ordinary differential equations by Runge-Kutta method.

**Course Name- Groups & Rings: CML-506/BAMH301**

**Programme Name- BA/BSc.(Non Med, Electronics, Comp. Science) III**

**TEACHERS- Dr. Inderjit Singh, Ms. Renu, Mr. Hitesh**

**SEM-V**

*3/11/21*

Month	Week	Topic	Assignment/ Test
A U G	3rd	Definitions of a Group, Examples of Abelian and Non Abelian groups.	
	4th	The group $Z_n$ of integers under addition modulo $n$ & group $U(n)$ , Cyclic Groups	
S E P	1st	Subgroups and Criteria, Cosets and Properties	1st Assignment
	2nd	Index of Subgroup, Coset decomposition, Lagrange's Theorem and its Consequences	
	3rd	Normal Subgroups,	
	4th	Quotient Groups, Homomorphisms	
O C T	1st	Isomorphisms, Automorphisms on Group,	Minor Test
	2nd	Permutation Groups, Alternating Groups	
	3rd	Centre of a group, Class equation of group, Introduction to Rings.	
	4th	Subrings, Integral Domains and Fields.	
N O V	1st	Characteristics of Ring, Ideals (Prime, Maximal)	2nd Assignment
	2nd	Ring Homomorphism, Theorem on Ring Homomorphism	
	3rd	Quotient Rings, Field of Quotients of an Integral Domain, Euclidean Ring	
	4th	Polynomial Rings, Polynomial over Rational Field, Eisenstein Criteria of Irreducibility	

**COURSE SEQUENCES AND SERIES: CML-507/BAMH302**

PROGRAM NAME- B.Sc (Non Med, Electronics, Comp. Science)/B.A III

TEACHERS - Dr. Anju Devi, Ms. Suman, Ms. Brahmvaidya

SEM-V

Month	Week	Topic	Test/Assign.
A U G	3rd	Topology of real numbers: boundedness, infimum, supremum, limit points, neighbourhoods	
	4th	Interior points, open sets, closed sets, closure of a set	
S E P	1st	Sequences: real sequences and their convergence, theorems on limits of sequences	Assignment
	2nd	bounded and monotonic sequences, cauchy's sequences, subsequences	
	3rd	convergence and divergence of infinite series, comparison tests, cauchy's general principle of convergence	
	4th	convergence and divergence of geometric series, hyperharmonic series	
O C T	1st	Rabbe's test, De Morgan test, Gauss test, cauchy's nth root and condensation test	
	2nd	Alternating series, Arbitrary series	
	3rd	Fourier's series, Dirichlet's conditions, Parseval's identity for Fourier series	
	4th	Fourier's series for even and odd functions, half range series, change of intervals	
N O V	1st	Riemann's integral, Darboux's theorem, integrability of continuous, monotonic functions and discontinuous functions	
	2nd	The fundamental theorem of integral calculus, mean value theorems of integral calculus	
	3rd	Revision, Group Discussion	
	4th	Test	

**Course - Number Theory & Trigonometry: CML-508/BAMH303**

Programme Name- B.A/BSc (Non Med, Electronics, Comp. Science) III

Teachers- Dr. Anju Devi, Mr. Sumit, Mrs. Rekha

SEM-V

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Month	Week	Topic	Test/Assign.
AUG	3rd	Primes, Fundamental Theorem of Arithmetic	
	4th	Linear Diophantine equations in two variables.	
SEPT	1st	Linear Congruences	Assignment
	2nd	Fermat's theorem, Wilson's theorem and its converse.	
	3rd	Divisibility, G.C.D.(Greatest Common Divisors), L.C.M.(Least Common Multiple).	
	4th	The number of divisors and the sum of divisors of a natural number n(The functions $d(n)$ and $s(n)$ ).	
OCT	1st	Complete Residue System and Reduced Residue System modulo m, Euler $\phi$ function.	Test
	2nd	Euler's Generalization of Fermat's theorem.	
	3rd	Chinese Remainder Theorem, Quadratic Residues.	
	4th	Moebius Function and Moebius Inversion Formula.	
NOV	1st	Legendre Symbols, Lemma of Gauss, Gauss Reciprocity law.	
	2nd	Greatest integer function $[x]$ , Expansion of trigonometrical functions.	
	3rd	Hyperbolic functions and their properties, Inverse circular and hyperbolic functions and their properties, Logarithm of a complex quantity.	
	4th	Gregory's series, Summation of trigonometric series, Revision.	

**Course Name-Business Mathematics-I:BC-105**

Programme Name- BCom. I

Teachers-Mrs. Namarta, Ms. Monika, Mr. Naresh, Mrs. Kanta

Sem-I

Month	Week	Topics	Assignment/Test
AUG	3rd	Logarithm	
	4th	Anti-logarithm	
SEPT	1st	Arithmetic Progression	1st Assignment
	2nd	Geometric Progression	
	3rd	Simple derivative of different functions	
	4th	Rules of differentiation	
OCT	1st	Maxima and Minima of functions of one variable.	Minor Test
	2nd	Definition and Types of matrix.	
	3rd	Algebra of matrices, Properties of determinant.	
	4th	Adjoint of matrices, Elementary row and column operation, Finding inverse of matrices.	
NOV	1st	Solution of a system of linear equations having unique solution and involving not more than three variables.	2nd Assignment Revision Tests
	2nd	Certain different types of interest rates. Concept of present value And amount of sum.	
	3rd	Types of annuities, Present value and amount of an annuity.	
	4th	Valuation of simple loans and debentures, Problems relating to sinking funds.	

PROGRAMME NAME-B.B.A I

TEACHER-Mrs. Rekha

**COURSE NAME:ELEMENTS OF BUSINESS MATHEMATICS:BBA-105**

SEM-I

Month	Week	Topic	Test/Assign.
AUG	3rd	Theory of sets- Meaning, elements, types, presentation and equality of sets	
	4th	Union, intersection, complement and difference of sets, venn diagram	
SEPT	1st	Cartesian product of two sets, application of set theory	Assignment
	2nd	Indices and logarithms, arithmetic and geometric progressions and their business applications	

*20/09*

P T	3rd	Sum of first n natural numbers, sum of squares and cubes of first n natural number	
	4th	Permutations	
O C T	1st	Combinations	Minor test
	2nd	Binomial theorem, Quadratic equations	
	3rd	Matrices-Types, Properties, Addition, Multiplication, Transpose, Inverse	
N O V	4th	Properties of determinants, solution of simultaneous linear equation	
	1st	Differentiation and Integration	
	2nd	Business application of Matrices	
	3rd	Revision, Group Discussion	
	4th	Test	

Programme Name-M.Sc. I  
Teacher- Ms. Brahmvidya

Course Name- Algebra-MAL:511  
SEM-I

Month	Week	Topic	Assignment/ Test
A U G	3rd	Zassenhaus's lemma, normal and subnormal series, composition series	
	4th	Schreier's theorem, Jordan -Holder theorem, commutators and their prop	
S E P T	1st	Three subgroup lemma of P.Hall, central series, nilpotent groups	Assignment
	2nd	Upper and Lower central series and their properties, invariant and chief series	
	3rd	Solvable groups, derived series, field theory, Prime fields	
	4th	Extension fields, Algebraic and Transcendental extensions and their theorems	
O C T	1st	Algebraically closed field, Conjugate elements	Minor Test
	2nd	Normal extensions, Separable and Inseparable extensions	
	3rd	Perfect fields, Construction with ruler and compass	
	4th	Finite Fields, Roots of unity, Cyclotomic polynomial, Primitive elements	
N O V	1st	Automorphisms of extensions, Galois extension, Fundamental theorem of Galois theory	
	2nd	Solutions of polynomial equations by radicals, insolvability of the general equation of degree five by radicals	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. I  
Teacher-Mr. Sumit

Course Name- Real Analysis-MAL:512  
Sem-I

Month	Week	Topic	Assignment/ Test
A U G	3rd	Definition and existence of Riemann-Stieltjes integral, properties of the integral, Integration and differentiation	
	4th	Fundamental theorem of calculus, integration of vector valued function	
S E P T	1st	Sequences and series of function, pointwise and uniform convergence, Cauchy criterion for uniform convergence	Assignment
	2nd	Weierstrass M-Test, Abel's and Dirichlet's tests, Uniform convergence and continuity	
	3rd	Uniform convergence and Riemann-Stieltjes Integration, Weierstrass Approximation theorem	
	4th	Power series, Uniqueness theorem for power series, Abel's Theorems	
	1st	Functions of several variables, linear transformations, derivatives in an open subset, partial derivatives, derivatives of higher orders	

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O C T	2nd	Taylor's theorem, Inverse function theorem, Implicit function theorem, Jacobians, Lagrange's multiplier method	Minor Test
	3rd	extremum problems with constraints, Set functions	
	4th	Intuitive idea of measure, Elementary properties of measure, Measurable sets and their fundamental properties.	
N O V	1st	Lebesgue measure of sets of real numbers, algebra of measurable sets, Borel sets	
	2nd	Equivalent formulation of measurable sets in terms of open, closed, Non Measurable sets	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. I  
Teacher-Mr. Suman

Course Name- MECHANICS-MAL:513  
SEM-I

Month	Week	Topic	Assignment/ Test
A U G	3rd	Moments and products of Inertia, Theorems of parallel and perpendicular axes, principal axes	
	4th	The momental ellipsoid, Equipomental systems, Coplanar distributions, G	
S E P	1st	Holonomic and non holonomic systems, Scleronomic and Rheonomic systems, Lagrange's equations for a holonomic system	Assignment
	2nd	Lagrange's equations for a conservative and impulsive forces, Kinetic energy as quadratic function of velocities, Generalized potential, Hamilton's variables	
	3rd	Hamilton's variables, Donkin's theorem, Hamilton canonical equations, Cyclic coordinates, Routhy's equations, Jacobi-Poisson theorem	
	4th	Hamilton's Principle, Principle of least action, Poincare-Cartan integral invariant, Whittaker's equations, Hamilton-Jacobi equation, method of separation of variables	
O C T	1st	Lagrange's brackets, condition of canonical character of transformation in terms of Lagrange brackets and Poisson brackets	Minor Test
	2nd	Invariance of Lagrange brackets and Poisson brackets under canonical transformations	
	3rd	Gravitation: Attraction and potential of rod, disc, spherical shells and sp	
	4th	Laplace and Poisson equations, Work done by self attracting systems	
N O V	1st	Distributions for a given potential, Equipotential surfaces, surface and solid harmonics	
	2nd	surface density in terms of surface harmonics	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. I  
Teacher- Mr. Rahul

COURSE NAME: ORDINARY DIFFERENTIAL EQUATIONS-MAL:514  
SEM-I

Month	Week	Topic	Assignment/ Test
A U G	3rd	Initial value problem and the equivalent integral equation, $\epsilon$ -approximate solution, Cauchy-Euler construction of an $\epsilon$ -approximate solution, Ascoli-Arzelà theorem	
	4th	Cauchy-Peano existence theorem, Lipschitz condition, Picard-Lindelöf th	

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S E P T	1st	solution of initial-value problems by Picard method, Approximate methods of solving first-order equations: Power series method Numerical methods	Assignment
	2nd	Continuation of solutions, maximum interval of existence, Extension theorem, Dependence of solutions on initial conditions	
	3rd	Matrix method for homogeneous first order systems, nth order equations	
	4th	Total differential equations: Conditions of integrability, methods of solution	
O C T	1st	Gronwall's differential inequality, comparison theorems involving differential inequalities	Minor Test
	2nd	Zeros of solutions, Sturm's separation and comparison theorems, Oscillatory and non-oscillatory equations	
	3rd	Riccati's equations and its solution, Pruffer transformation	
	4th	Sturm-Liouville boundary value problems	
N O V	1st	Lagrange's identity and green's formula for second order equation	
	2nd	properties of eigen values and eigen functions	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. I  
Teacher- Dr. Anju Devi

COURSE NAME: COMPLEX ANALYSIS-I-MAL:515

Month	Week	Topic	Assignment/ Test
A U G	3rd	Cauchy Riemann equations, Analytic functions, Reflection principle	
	4th	Complex Integration, Antiderivatives, Cauchy-Goursat theorem	
S E P T	1st	Simply and multiply connected domains, Cauchy Integral formula, Higher order derivatives	Assignment
	2nd	Morera's theorem, Cauchy's inequality, Liouville's theorem	
	3rd	The fundamental theorem of Algebra, Maximum Modulus principle, Schwarz lemma	
	4th	Poisson's formula, Taylor's series, Laurent's series	
O C T	1st	Isolated singularities, Meromorphic functions, Argument principle	Minor Test
	2nd	Rouche's theorem, Residues, Cauchy's residue theorem	
	3rd	Evaluation of integrals, Mittag-Leffler's expansion theorem	
	4th	Branches of many valued functions with special reference to $\arg z$ , $\log z$	
N O V	1st	Bilinear transformations, their properties and classification	
	2nd	Examples of conformal mapping	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. I  
Teacher- Mrs. Namarta

COURSE NAME: PROGRAMMING WITH FORTRAN (THEORY)-MAL:516  
SEM-I

Month	Week	Topic	Assignment/ Test
A U G	3rd	Computer Programming in FORTRAN 90/95: Numerical constants and variables, arithmetic expressions, implicit declaration, named constants, Input/output	
	4th	list directed input/output statements, Format specifications	

S E P T	1st	Declaration including KIND specifications, use of complex variables	Assignment
	2nd	Logical expressions and control flow, conditional flow, IF structure, Block DO loop	
	3rd	Counted controlled loops, arrays, input/output of arrays, arrays with variable size using ALLOCATABLE statement	
	4th	arrays handling functions, multidimensional arrays	
O C T	1st	Strings, declaration of character variables, character handling functions	Minor Test
	2nd	operators on strings, Subprograms, Types of Subprograms	
	3rd	Significance functions, subroutines, procedures with array arguments, Rec	
	4th	Derived types, Elements of derived type, arrays and derived type Processing files	
N O V	1st	Sequential file, Direct Access file, creating and closing a file	
	2nd	Pointers and Accessing elements using pointers with example	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name- MSc  
Teacher- Mrs. Namarta

COURSE : PROGRAMMING WITH FORTRAN (PRACTICAL)-MAL:517  
SEM-I

Month	Week	Topics
A U G	3rd	Program To find area of circle
	4th	Program to find area of triangle by Heron's formula
S E P T	1st	Program To check leap year
		Program To find sum of digits of a number
	2nd	Program To find sum of sine series
		Program to Calculate Greatest Of Three Numbers
	3rd	Program To Find The Roots Of A Quadratic Equation
		Program to generate Fibonacci Series
O C T	4th	Program to find sum of cosine series
	1st	Program to find the sum of matrix
	2nd	Program to Check Whether The Number Is Prime or not
	3rd	Program To find transpose of a matrix
N O V	4th	Program To Find The trace of a matrix
	1st	Program to find product of matrix
	2nd	Program to generate first n prime numbers
	3rd	Revision

Programme Name-M.Sc. II  
Teacher- Ms. Renu

COURSE NAME: TOPOLOGY-MAL631  
Sem-III

Month	Week	Topic	Assignment/ Test
A U G	3rd	Definitions and examples of topological spaces, Closed sets, Closure, Dense subsets, Neighbourhoods, Interior, Exterior and boundary points of a set	
	4th	Accumulation points and derived sets, Bases and subbases, Subspaces	
S E P	1st	Alternate methods of defining a topology in terms of Kuratowski Closure operator and neighbourhood systems, continuous functions and homeomorphisms	Assignment
	2nd	Compactness, Continuous functions and compact sets, basic properties of compactness, compactness and finite intersection property	

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T	3rd	sequency... point compactification	Minor Test
	4th	Compactness in metric spaces, Equivalence of compactness, countable compactness and sequential compactness in metric spaces	
O C T	1st	Connected spaces, Connected spaces on the real line Components, Locally connected spaces	
	2nd	First and second Countable spaces, Lindelof's theorem, Seperable spaces Second countability and searability	
	3rd	Seperation axioms, $T_0, T_1$ and $T_2$ spaces, Their characterisation and prope	
	4th	Regular and normal spaces, Urysohn's Lemma, $T_3$ and $T_4$ spaces , complete regularity and normality	
N O V	1st	Product topological spaces, Projection topological spaces, Projection mapping	
	2nd	Tychonoff product topology in terms of standard sub base and its characterisations	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. II  
Teacher- Mr. Naresh

COURSE NAME: PARTIAL DIFFERENTIAL EQUATIONS-MAL632  
Sem-III

Month	Week	Topic	Assignment/ Test
A U G	3rd	Solution of Partial Differential Equations Transport Equation -Initial value Problem	
	4th	Non-homogeneous Equation, Laplace's Equation - Fundamental solution	
S E P	1st	Mean value formulas, Properties of Harmonic functions, Green's function, Energy methods	Assignment
	2nd	Wave Equation -solution by spherical means, Non-homogeneous equations	
	3rd	Energy methods, Poisson's formula, Kirchoff's formula	
	4th	D. Alembert's formula, uniqueness of solution domain of dependence of solution	
O C T	1st	Heat Equation-Fundamental solution, Solution of initial value problem , Non homogeneous equation	Minor Test
	2nd	Mean value formula, Nonlinear First order PDE - Complete Integrals, Envelopes, Characteristics	
	3rd	Hamilton - Jacobi Equations, Hamilton's ODE, Hopf-Lax formula, Weak sol	
	4th	Representation of solutions- Seperation of variables, Similarity solutions	
N O V	1st	Fourier and Laplace Transform, Hopf-Cole transform	
	2nd	Hodograph and Legendre Transforms, Potential functions	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name-M.Sc. II  
Teacher- Ms. Rekha Rani

COURSE NAME: MECHANICS OF SOLIDS-I-MAL633

Month	Week	Topic	Assignment/ Test
A U G	3rd	Cartesian Tensor: Coordinate transformation, Cartesian Tensor of different order, Sum or difference and product of two tensors, Contraction theorem, Kronecker tensor, alternate tensor	
	4th	Scalar invariant of second order tensor, Quotient law	

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S E P T	1st	Symmetric second order tensor gradient, divergence, curl of a tensor field	Assignment
	2nd	Analysis of strain: affine transformations, infinitesimal affine deformation. Geometrical interpretation of the components of strain	
	3rd	Strain quadric of Cauchy, principal strains and invariants, General infinitesimal deformation, Saint Venant's equations of compatibility	
	4th	Analysis of stress Stress tensor, equations of equilibrium, transformation of coordinates	
O C T	1st	Stress of quadric of Cauchy, principal stress and invariants	Minor Test
	2nd	Maximum normal and shear stresses	
	3rd	Equations of elasticity Generalised Hooke's law, homogenous isotropic	
	4th	Elastic moduli for isotropic media, equilibrium and dynamic equations for an isotropic elastic solid	
N O V	1st	Strain energy function and it's connection with Hooke's law	
	2nd	Beltrami-Michell compatibility equations, Saint-Venant's principle	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

**COURSE: COMPUTING LAB II (MATLAB PROGRAMMING & APPLICATIONS)-MAP634**

Programme Name- M.Sc. II

Teacher- Mrs. Kiran

Sem-III

Month	Week	Topic	Assignment/ Test
A U G	3rd	User defined functions and function files: Main features of a function file, saving a function file, using a user defined function, comparison between script files and function files	
	4th	Anonymous and inline functions, using function handles for passing a function	
S E P T	1st	Using a function name for passing a function into a function, subfunctions, nested functions	Assignment
	2nd	Polynomials : Value of a polynomial, roots of a polynomial, addition, multiplication and division of polynomial, derivatives of polynomials	
	3rd	Curve fitting with polynomials, the polyfit function, curve fitting with functions other than polynomials	
	4th	Applications in numerical analysis: Solution of an equation with one variable, numerical integration, ordinary differential equations	
O C T	1st	Three dimensional plots : Line plots, mesh and surface plots, plots with special graphics, the view command	Minor Test
	2nd	Symbolic math: Solving algebraic equations, differentiation, integration, solving an ODE	
	3rd	Plotting symbolic expressions, numerical calculations with symbolic expressions	
	4th	Numerical methods-Interpolation: Lagrange's interpolation formula, Newton Gregory Forward and backward interpolation formula	
N O V	1st	Solution of a system of linear equations: Gauss Elimination method, Gauss Jordan method	
	2nd	Solution of ordinary differential equations: Euler's method, Euler's Modified method, Runge Kutta 2nd & 4th order method	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

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Month	Week	Topic	Assignment/ Test
AUG	1st	Primes in certain arithmetical progression, Fermat numbers	Assignment
	2nd	Mersenne numbers, Approximation of irrational numbers by rationals	
SEPT	1st	Hurwitz's theorem, Irrationality of $e$ & $\pi$	Assignment
	2nd	System of linear congruences Chinese remainder theorem, Quadratic residues and non-residues	
	3rd	Legendre's Symbol, Gauss Lemma and its applications	
	4th	Quadratic law of reciprocity Jacobi's symbol	
OCT	1st	Riemann Zeta function $\zeta(s)$ and its convergence, application in prime numbers	Minor Test
	2nd	$\zeta(s)$ as Euler's product, evaluation of $\zeta(2)$ and $\zeta(2k)$ , Dirichlet series with simple properties, Introduction to modular function	
	3rd	Dirichlet series as analytic function & its derivative, Euler's products	
	4th	Euler's summation formula and some elementary asymptotic formula, Average order of the arithmetical functions $d(n)$ , $\sigma_a(n)$ , $\phi(n)$ , $\mu(n)$ and $M(n)$	
NOV	1st	Partial sums of a Dirichlet product and their application to $\mu(n)$ and $\Omega(n)$ , Chebyshev's functions $\Psi(x)$ and $\psi(x)$ and relation between them	Assignment
	2nd	Shapiro's Tauberian theorem and its applications, partial sums of the Mobius function, Selberg's asymptotic formula	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

SEM-III

Month	Week	Topic	Assignment/ Test
AUG	3rd	Formal Logic - Statements, Symbolic, Representation and Tautologies, Quantifiers	Assignment
	4th	Proposition Logic, Lattices - Lattices as partially ordered sets, Their properties, Lattices as Algebraic systems	
SEPT	1st	Some special Lattices, e.g., complete, complemented and Distributive Lattices.	Assignment
	2nd	Sets Some Special Lattices e.g., Bounded, Complemented & Distributive Lattices.	
	3rd	Boolean Algebra - Boolean Algebra as Lattices, Various Boolean Identities,	
	4th	The Switching Algebra example, Join - Irreducible elements, Atoms and Minterms, Boolean Forms and Their Equivalence, Minterm Boolean Forms,	
OCT	1st	Sum of Products canonical Forms, Minimization of Boolean Functions, Applications of Boolean Algebra to Switching Theory	Minor Test
	2nd	Graph Theory - Definition of Graphs, Paths, Circuits, Cycles and Subgraphs, Induced Subgraphs, Degree of a vertex, Connectivity,	
	3rd	Planar Graphs and their properties, Euler's Formula for Connected Planar Graph, Complete and Complete Bipartite Graphs	
	4th	Trees, Spanning Trees, Minimal Spanning Trees, Matrix Representation of Graphs	

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N O V	1st	Euler's theorem on the Existence of Eulerian Paths and circuits, Directed Graphs, Indegree and outdegree of a vertex,	
	2nd	Weighted undirected Graphs, Strong Connectivity and Warshall's Algorithm, Directed Trees, Search Trees, Tree Traversals,	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

Programme Name- MScII  
Teacher- Mrs. Kiran

COURSE: :PROGRAMMING WITH MATLAB (PRACTICAL)-MAP634  
SEM-III

Month	Week	Topics	
A U G	3rd	Program for calculating roots, polynomial value at a point	
	4th	Program to find addition, multiplication and division	
S E P	1st	Program To find derivative of a polynomial	
		Program for solving a non-linear equation	
	2nd	Program To find maximum and minimum values of a polynomial	
	3rd	Program To calculate numerical integration of function	
O C T		Program to fit a polynomial of degree three & plot it	
	4th	Program for curve fitting with function other than polynomials	
	1st	Program to find value of y between points using interpolation	
	2nd	Program to find coordinates x, y, z are given as function of parameter t	
N O V	3rd	Program To convert temperature from Fahrenheit to Celsius	
	4th	Program To solve ODE using Euler's method	
	1st	Program to solve the function using Runge Kutta method	
	2nd	Program to solve a 1st order ordinary differential equation	
	3rd	Revision	

Programme Name-BCA I  
Teacher- Mrs. Namrata

COURSE: ELEMENTS OF MATHEMATICAL FOUNDATIONS-BCA-PC(L)112  
SEM-I

Month	Week	Topic	Assignment/ Test
A U G	3rd	Sets, subsets and operations on sets	
	4th	Venn-Diagram of sets, power sets, equivalence relations on sets	
S E P	1st	Partition of a sets, partially ordered sets, boolean algebra	1st Assignment
	2nd	Basic properties of limits, continuous functions and classification of discontinuities	
	3rd	Derivatives of a functions, derivatives of logarithmic, exponential, trigonometric, inverse trigonometrically and hyperbolic functions	
	4th	higher order derivatives	
O C T	1st	Addition, multiplication of matrices, laws of matrix algebra	Minor Test
	2nd	Singular and non singular matrices, inverse and rank of a matrix	
	3rd	Rank of the product of two matrices, system of linear equation	
	4th	Characteristic equations of a square matrix, Cayley Hamilton theorem	
N O V	1st	Eigen values and eigen vectors	2nd Assignment
	2nd	Eigen values and eigen vectors of symmetric and skew-symmetric, hermitian and skew-hermitian	
	3rd	Group Discussion, Revision	
	4th	Doubt session	

COURSE: ORDINARY DIFFERENTIAL EQUATIONS & LAPLACE TRANSFORMS-CML206/BAMH121

Programme Name-B.Sc(Non Med, Electronics, Comp. Science) /B.A I

Teachers-Dr. Inderjit Singh, Ms. Suman, Ms. Riddhi, Ms. Rekha Rani

SEM-II

*B. Singh*

# Dayanand Post Graduate College, Hisar

## Department of Zoology

### Lesson plan for session- 2022-23

Name of Assistant Professor: Dr. Urmila and Dr. Poonam Devi


Class: B. Sc. I Medical (A) and Biotechnology (B) (I<sup>st</sup> Semester)

Subject: Zoology

Lesson Plan: August 2022 to December 2022

### Zoology 101L (Animal Diversity I)

Date	Topic
22 August-27 August	Phylum Protozoa: General characters, Classification and locomotory organs and mode of locomotion among Protozoans
28 August	SUNDAY
29 August-03 September	Phylum Porifera: General characters and Classification and Canal system of Sycon
04 September	SUNDAY
05 September-10 September	Phylum Coelenterata: General characters and Classification, polymorphism in Coelenterata
11 September	SUNDAY
12 September-17 September	Phylum Platyhelminthes: General characters, Classification, Reproduction system
18 September	SUNDAY
19 September-22 September	Phylum Platyhelminthes: life history of <i>Taenia</i>
23 September	HOLIDAY (SHAHFEDI DIWAS)
24 September	Phylum Nematelminthes: General characters
25 September	SUNDAY
26 September	HOLIDAY (MAHARAJA AGRASEN JAYANTI)
27 September-01 October	Phylum Nematelminthes: Classification, Reproductive system and life history of <i>Ascaris</i>
2 October	SUNDAY/ HOLIDAY (GANDHI JAYANTI)
03 October-04 October	Phylum Annelida: General characters and Classification, Metamerism
05 October	HOLIDAY (DUSSERA)
06 October-08 October	Phylum Arthropoda: General characters and Classification
09 October	SUNDAY/ HOLIDAY (MAHARISHI YAMHIKI JAYANTI)

  
Professor Incharge  
Department of Zoology  
Dayanand College, Hisar

Principal  
Dayanand College, Hisar

10 October-15 October	Phylum Arthropoda: Vision in Arthropoda, Metamorphosis in insects
16 October	SUNDAY
17 October-21 October	Phylum Mollusca: General characters and Classification Torsion in Gastropoda
22 October- 26 October	DIWALI VACATIONS

### Zoology 102L (Animal Diversity II)

DATE	TOPIC
27 October -28 October	Phylum Echinodermata: General characters and Classification and Water-vascular system in Asteroidea
29 October	SUNDAY
30 October-31 October	Phylogeny of Protochordata Subphylum Urochordata: Classification, Theories of origin of Chordata
1 November	HOLIDAY (HARYANA DAY)
02 November-5 November	Subphylum Cephalochordata: General characters and Classification and affinities
06 November	SUNDAY
07 November	Superclass Agnatha: Class Cyclostomata: characters
08 November	HOLIDAY (GURU NANAK DEV JAYANTI)
09 November-12 November	Superclass Agnatha: Class Cyclostomata: classification and affinities
13 November	SUNDAY
14 November-19 November	Class chondrichthyes: Characters and classification
20 November	SUNDAY
21 November- 26 November	Class osteichthyes: Characters and classification and Osmoregulation in Pisces
27 November	SUNDAY
28 November- 03 December	Class Amphibia: Characters, classification and parental care in Amphibians
04 December	SUNDAY
05 December-10 December	Class Reptilia: Characters and classification, poisonous and non-poisonous snakes
11 December	SUNDAY
12 December- 17 December	Class Reptilia: Poisonous apparatus and biting mechanism in snakes

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 Director of Studies

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 Durgam Chaudhary College  
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18 December	SUNDAY
19 December-24 December	Class Aves: Characters, Classification and Flight adaptation in Birds
25 December	SUNDAY/HOLIDAY (CHRISTMAS DAY)
26-27 December	Class Mammalia: Characters Classification and Origin of Mammals

Assignment – upto 10<sup>th</sup> October, 2022 and upto 7<sup>th</sup> November, 2022  
Unit test -

*Univest*  
Professor Acharya  
Department of Zoology  
Dayanand College, Hisar

Poonam Devi

Principal  
Dayanand College  
HISAR

# Dayanand Post Graduate College, Hisar

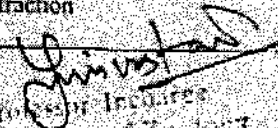
## Department of Zoology

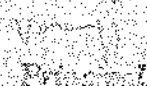
### LESSON PLAN FOR SESSION- 2022-23

Name of Assistant Professor: Mr. Sachin & Ms. Garima  
Class: B. Sc. II Medical and Biotechnology (3<sup>rd</sup> Semester)  
Subject: Zoology  
Lesson Plan: August 2022 to December 2022

#### ZOOLOGY 301 L I (PHYSIOLOGY AND BIOCHEMISTRY-I)

Date	Topic
16 August 2022	General Introduction of Syllabus
17 Aug. to 18 Aug. 2022	Structure & Classification of Neuron
19 August 2022	Krishna Janmashtami
20 August 2022	Structure & Classification of Neuron
22 Aug. to 24 Aug. 2022	Properties of Nerve Fibers
25 August 2022	Graded Potential
26 Aug. to 27 Aug. 2022	Origin of Action Potential
28 August 2022	Sunday
29 Aug. to 31 Aug. 2022	Propagation of Nerve Impulse
01 Sept. to 02 Sept. 2022	Nerve Impulse Conduction Through Axo-Dendritic synapse
03 September 2022	Ultrastructure of Skeletal Muscle
04 September 2022	Sunday
05 September 2022	Ultrastructure of Myofibrillar Filaments
06 Sept. to 08 Sept. 2022	Physical Changes in Muscle Contraction
09 Sept. to 10 Sept. 2022	Molecular basis of Muscle Contraction
11 September 2022	Sunday
12 September 2022	Energy For Muscle Contraction

  
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13 Sept. to 14 Sept. 2022	Theory of Muscle Contraction
15 Sept. to 17 Sept. 2022	Physiology of Digestion in Alimentary Canal
18 September 2022	Sunday
19 Sept. to 20 Sept. 2022	Absorption of Carbohydrates, Proteins & Lipids
21 Sept. to 22 Sept. 2022	Composition of Blood, Hemostasis
23 September 2022	Shaheed Diwas
24 September 2022	Structure of Heart
25 September 2022	Sunday
26 September 2022	Maharaja Agrasen Jayanti
27 Sept. to 28 Sept. 2022	Cardiac Cycle
29 Sept. to 30 Sept. 2022	Pulmonary Ventilation And Respiratory Volumes
01 October 2022	Transport of Oxygen And Carbon dioxide
02 October 2022	Sunday
03 October 2022	Haldane & Bohr's Effect
04 October 2022	General Introduction of Excretion And Structure of Nephrons
05 October 2022	Dussehra
06 Oct. to 07 Oct. 2022	Physiology of Urine Formation
08 October 2022	Counter Current Mechanism
09 October 2022	Haldane & Bohr's Effect
04 October 2022	General Introduction of Excretion And Structure of Nephrons

**ZOOLOGY 302 I (PHYSIOLOGY AND BIOCHEMISTRY-II)**

DATE	TOPIC
11 Oct. to 12 Oct. 2022	Spermatogenesis and Spermiogenesis

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13 Oct. to 15 Oct. 2022	Oogenesis and its Hormonal Control
16 October 2022	Sunday
17 Oct. to 18 Oct. 2022	Menstrual cycle
19 Oct. to 20 Oct. 2022	Structure and Function of Pituitary, Thyroid Gland
21 October 2022	Structure And Function of Parathyroid, Pancreas, Adrenal Gland
22 Oct. to 26 Oct. 2022	Diwali Vacation
27 October 2022	Structure And Function of Parathyroid, Pancreas, Adrenal Gland
28 Oct. to 29 Oct. 2022	Glycolysis
30 October 2022	Sunday
31 October 2022	Kreb's Cycle
01 November 2022	Haryana Day
02 Nov. to 03 Nov. 2022	Pentose Phosphate Pathway
04 Nov. to 05 Nov. 2022	Glycogen Metabolism
06 November 2022	Sunday
07 November 2022	Electron Transport Chain
08 November 2022	Guru Nanak Dev Jayanti
09 November 2022	Electron Transport Chain
10 Nov. to 11 Nov. 2022	Gluconeogenesis
12 November 2022	Doubt Session
13 November 2022	Sunday
14 Nov. to 15 Nov. 2022	Biosynthesis of Palmitic Acid
16 Nov. to 17 Nov. 2022	Beta oxidation of Palmitic Acid
18 Nov. to 19 Nov. 2022	Protein Metabolism
20 November 2022	Sunday

  
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21 Nov. to 22 Nov. 2022	Urea Cycle
23 Nov. to 24 Nov. 2022	Introduction of Enzymes
25 Nov. to 26 Nov. 2022	Properties and Classification of Enzymes
27 November 2022	Sunday
28 Nov. to 29 Nov. 2022	Mechanism of Action of Enzyme
30 Nov. to 01 Dec. 2022	Factors affecting Enzyme Activity
01 Dec. to 03 Dec. 2022	Energy Kinetics of Enzymes
04 December 2022	Sunday
05 December 2022	Inhibition of Enzymes
06 December 2022	Regulation of Enzyme activity
07 December 2022	Doubt Session for Paper I

Assignment & Unit Tests – upto 10<sup>th</sup> Sept. 2022 and upto 10<sup>th</sup> Nov., 2022.

*Good*  
*Good*

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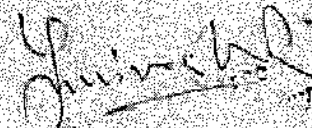
## Department of Zoology

### Lesson plan for session- 2022-23

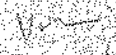
Name of Assistant Professor: Dr. Sumi Rani & Dr. Poonam Devi  
Class: B. Sc. III Medical (A1, A2) and Biotechnology (B) (5<sup>th</sup> Semester)  
Subject: Zoology  
Lesson Plan: August 2022 to December 2022

### Zoology 501L (Applied Zoology I)

Date	Topic
16 August-18 August	Host: Definitive host, Intermediate host
19 August	HOLIDAY (JANAMASHTMI)
20 August	Parasitism
21 August	SUNDAY
22 August-27 August	Symbiosis, Commensalism, Reservoir, Zoonosis, Transmission
28 August	SUNDAY
29 August-03 September	Prevention and control of diseases: Tuberculosis, typhoid
04 September	SUNDAY
05 September-10 September	Brief account of <i>Rickettsia prowazekii</i> , <i>Borrelia recurrentis</i> , and <i>Trypanosoma pallidum</i>
11 September	SUNDAY
12 September-17 September	Life history and pathogenicity of <i>Entamoeba histolytica</i> and <i>Plasmodium vivax</i>
18 September	SUNDAY
19 September-22 September	Life history and pathogenicity of <i>Trypanosoma gambiense</i> and <i>Ancylostoma duodenale</i>
23 September	HOLIDAY (SHAHEEDI DIWAS)
24 September	Life history and pathogenicity of <i>Wuchereria bancrofti</i>
25 September	SUNDAY
26 September	HOLIDAY (MAHARAJA AGRASEN JAYANTI)

  
Dr. Sumi Rani  
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Poonam Devi

  
Dr. Poonam Devi  
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Zoology 502 L (Applied Zoology II)

DATE	TOPIC
27 September-01 October	Biology, Control and damage caused by <i>Helicoverpa armigera</i> , <i>Pyrilla perpusilla</i>
2 October	SUNDAY/ HOLIDAY (GANDHI JAYANTI)
03 October-04 October	Biology, Control and damage caused by <i>Papilio demoleus</i>
05 October	HOLIDAY (DUSSHERA)
06 October- 08 October	Biology, Control and damage caused by <i>Callosobruchus chinensis</i>
09 October	SUNDAY/ HOLIDAY (MAHARISHI VALMIKI JAYANTI)
10 October-15 October	Biology, Control and damage caused by <i>Sitophilus oryzae</i> and <i>Tribolium castaneum</i>
16 October	SUNDAY
17 October-21 October	Medical importance and control of <i>Pediculus humanus corporis</i>
22 October- 26 October	DIWALI VACATIONS
27 October -28 October	Medical importance and control of <i>Anopheles</i>
29 October	SUNDAY
30 October-31 October	Medical importance and control of <i>Culex</i>
1 November	HOLIDAY (HARYANA DAY)
02 November-5 November	Medical importance and control of <i>Aedes</i> and <i>Xenopsylla cheopis</i>
06 November	SUNDAY
07 November	Preservation and artificial insemination in cattle: Introduction
08 November	HOLIDAY (GURU NANAK DEV JAYANTI)
09 November-12 November	Preservation and artificial insemination in cattle; Induction of early puberty and synchronization of estrus in cattle
13 November	SUNDAY
14 November-19 November	Poultry Farming: Principles of poultry breeding, Management of breeding stock and broilers
20 November	SUNDAY
21 November- 26 november	Poultry Farming: Processing and preservation of eggs
27 November	SUNDAY

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Lesson plan for session- 2022-2023

Class: B. Sc. I Medical and Biotechnology (2<sup>nd</sup> Semester)

Subject: Zoology

Zoology 201L (Comparative Anatomy and Developmental Biology of Vertebrates I)

Tentative Dates	Topics
7 Feb 2023 to Feb. 10, 2023	General introduction of syllabus Integumentary System: Derivatives of integument w.r.t. glands and digital tips
11 Feb 2023 to Feb. 14, 2023	Skeletal System: Evolution of visceral arches
15 Feb 2023 to Feb. 20, 2023	Digestive System: Brief account of alimentary canal, Digestive glands
21 Feb 2023 to Feb. 28, 2023	Respiratory System: Brief account of gills
1 Mar 2023 to Mar 4, 2023	Lungs, air sacs and swim bladder
5 Mar 2023 to Mar 12, 2023	Holi Vacation
13 Mar 2023 to Mar 18, 2023	Circulatory System: Evolution of heart and aortic arches
20 Mar 2023 to Mar 25, 2023	Urinogenital System: Succession of kidney
27 Mar 2023 to Mar 31, 2023	Comparative account of Opisthonephros and Metanephros
1 April, 2023	PROBLEM SOLVING
3 April 2023- April 8, 2023	Evolution of Urinogenital Ducts
10 April 2023- April 15, 2023	Nervous System: Comparative account of brain
17 April 2023- April 22, 2023	Sense Organs: Types of receptors
24 April 2023- April 29, 2023	PROBLEM SOLVING
30 April 2023- May 04, 2023	Revision Work
May 06 2023 - May 16, 2023	Doubt class and Revision

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*Vijay*  
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**Zoology 202L (Comparative Anatomy and Developmental Biology of Vertebrates II)**

Tentative Dates	Topics
7 Feb 2023 to Feb 10, 2023	Early Embryonic development: Gametogenesis: Spermatogenesis and oogenesis w.r.t. mammals.
11 Feb 2023 to Feb. 14, 2023	Vitellogenesis in birds
15 Feb 2023 to Feb. 20, 2023	Fertilization: External (Amphibians), Internal (Mammals).
21 Feb 2023 to Feb. 28, 2023	Block to polyspermy
1 Mar 2023 to Mar 4, 2023	Early development of Frog and Humans (structure of mature egg and its membrane)
5 Mar 2023 to Mar 12, 2023	Patterns of cleavage, fate map upto formation of gastrula
13 Mar 2023 to Mar 18, 2023	Early Embryonic development: Types of morphogenetic movements, Fate of germ layers
20 Mar 2023 to Mar 25, 2023	Neurulation in frog embryo
27 Mar 2023 to Mar 31, 2023	Late Embryonic development: Implantation of embryo in humans, Formation of human placenta and functions
1 April, 2023	Class Assignment
3 April 2023- April 8, 2023	Late Embryonic development: Other types of placenta on the basis of histology, Metamorphic events in frog life cycle and its hormonal regulation
10 April 2023- April 15, 2023	Class test
17 April 2023- April 22, 2023	Control of Development: Fundamental processes in development- Gene activation
24 April 2023- April 29, 2023	Determination, Induction, Differentiation
30 April 2023- May 01, 2023	Revision Work
06 May 2023 - May 16, 2023	Control of Development: Morphogenesis, Intercellular communication, Cell movements and cell death

*Chinista*  
 Professor Lecturer  
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*Pooja Desai*


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Department of Biotechnology  
**LESSON PLAN (2022-2023)**  
 Semester- I (M. Sc.-I) year  
 Submitted by: Dr.Mamta Sharma  
**Introductory Biotechnology**  
**(BTL 511)**

Sr. No.	Month	Topics
5	October 17,2022 to October 21,2022	Biotechnology: An overview-definition, scope and importance of Biotechnology, Concept of Recombinant DNA technology and Gene Cloning, Microbial Biotechnology: A brief account of microbes in industry and agriculture, Metabolic engineering for over production of metabolites.
6	October 22,2022 to October 26,2022	Diwali Holiday
7	October 27,2022	Assign the Assignments and Assesment Test.
8	October 28,2022	Solve Doubts and Difficulties.
9	October 29,2022	Plant Biotechnology: Introduction to plant tissue culture and its applications.
10	October 30,2022	Sunday
11	October 31,2022 to 5 November, 2022	Gene transfer methods in plants, Transgenic plants (A brief introduction), Chloroplast and mitochondria engineering.
12	November 6,2022	Sunday
13	November 7,2022	Assesment Test
14	November 8,2022	Guru Nanak jayanti holiday
15	November 9,2022 to November 12,2022	Animal Biotechnology: <i>In-vitro</i> fertilization and embryo transfer in humans and livestock, Transfection technique and transgenic animals. Animal Cloning.
16	November 13, 2022	Sunday

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17	November 14, 2022 to November 19, 2022	Environmental Biotechnology: (A brief account) Role of biotechnology in pollution control, Sewage treatment, Energy management, Bioremediation, Restoration of degraded lands and Conservation of biodiversity.
18	November 20, 2022	Sunday
19	November 21, 2022 to November 26, 2022	Medical Biotechnology: (A brief account) Biotechnology in medicine, Vaccines, Diagnostic, forensic, Gene therapy, Nano Medicine & Drug Delivery Cell & Tissue Engineering, Stem Cell therapy.
20	November 27, 2022	Sunday
21	November 28, 2022 to December 3, 2022	Nano Science & Technology: An Overview, Insights and intervention into the Nano world, Important Developments, Societal implications & Ethical issues in Nanotechnology, Applications of Nanobiotechnology in different areas.
22	December 4, 2022	Sunday
23	December 5, 2021 to December 10, 2022	Bioinformatics: (A brief account) Importance, Scope of Bioinformatics, world wide web as a tool, Bioinformatics institutes and databases, Bioinformatics training & limitations.
24	December 11, 2022	Sunday
25	December 12, 2022 to December 17, 2022	Bio-business and Bio-safety, Biotechnology for developing countries and IPR
26	December 18, 2022	Sunday
27	December 19, 2022	Unit test
28	December 20, 2022 to December 24, 2022	Revision and problems taken
29	December 25, 2022	Sunday
30	December 26 & 27, 2022	Problems taken

  
 Dr. Vivek Srivastava  
 (Associate Professor)  
 Head, Dept. of Biotechnology

  
 Dr. Manita Sharma  
 (Assistant Professor)  
 Subject Tutor


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**Department of Biotechnology**  
**LESSON PLAN (2022-2023)**  
**Semester- I (M. Sc.-I) year**  
**Submitted by: Dr.Mamta Sharma**  
**Cell Biology**  
**(BTL 513)**

Sr. No.	Month	Topics
1.	October 17,2022 to October 21,2022	Structural organization and function of intracellular organelles: Cell wall, nucleus, mitochondria, Golgi bodies, lysosomes, endoplasmic reticulum, peroxisomes, plastids, vacuoles, chloroplast, structure & function of cytoskeleton and its role in motility.
2.	October 22,2022 to October 26,2022	Diwali Holiday
3.	October 27,2022	Assign the Assignments and Assesment Test.
4.	October 28,2022	Membrane structure and function: Structure of model membrane, lipid bilayer and membrane protein diffusion, osmosis, ion channels, active transport, membrane pumps.
5.	October 29,2022	Mechanism of sorting and regulation of intracellular transport, electrical properties of membranes.
6.	October 30,2022	Sunday
7.	October 31,2022 to 5 November, 2022	Cell signaling Hormones and their receptors, cell surface receptor, signaling through G-protein coupled receptors, signal transduction pathways, second messengers and regulation of signaling pathways
8.	November 6,2022	Sunday
9.	November 7,2022	Assesment Test
10.	November 8,2022	Guru Nanak jayanti holiday
11.	November 9,2022 to November 12,2022	Cell division and cell cycle: Mitosis and meiosis, their regulation, steps in cell cycle, regulation and control of cell cycle.
12.	November 13, 2022	Sunday

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13.	November 14,2022 to November 19,2022	Cellular communication: general principles of cell communication, cell adhesion and roles of different adhesion molecules, gap junctions, extracellular matrix, integrins. Neurotransmission and its regulation.
14.	November 20,2022	sunday
15.	November 21,2022 to November 26,2022	Cancer Genetic rearrangements in progenitor cells, oncogenes, tumor suppressor genes, cancer and the cell cycle, virus-induced cancer, metastasis, interaction of cancer cells with normal cells
16.	November 27,2022	Sunday
17.	November 28,2022 to December 3,2022	apoptosis, therapeutic interventions of uncontrolled cell growth.
18.	December 4,2022	Sunday
19.	December 5,2021 to December 10,2022	Photosynthetic apparatus, light reaction, cyclic and noncyclic photoinduced electron flow
20.	December 11,2022	Sunday
21.	December 12,2022 to December 17,2022	C3 and C4 cycle and their regulation and CAM pathway
22.	December 18,2022	Sunday
23.	December 19,2022	Neurotransmission and its regulation.
24.	December 20,2022 to December 24,2022	Photorespiration, dark phase of photosynthesis.
25.	December 25,2022	Sunday
26.	December 26,27	Rivision and problem taken

  
Dr. Vijay Srivastava  
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 Department of chemistry  
 LESSON PLAN (2022-2023)  
 Semester- I (M. Sc.-1) year  
 Submitted by: Dr.Mamta Sharma  
 Chemistry of Life Science :ACL-514(b)

1.	October 20,2022 - October 21,2022	Cell Structure and Functions Structure of prokaryotic and eukaryotic cells, intracellular organelles and their functions.
2.	October 22,2022 to October 26,2022	Diwali Holiday
3.	October 27,2022	Assign the Assignments and Assessment Test.
4.	October 28,2022	Comparison of plant and animal cells
5.	October 29,2022	Overview of metabolic processes- catabolism and anabolism. ATP- the biological energy currency.
6.	October 30,2022	Sunday
7.	November 3,2022 to 5 November, 2022	Kreb's cycle, glycolysis, glycogenesis and Glycogenolysis,
8.	November 6,2022	Sunday
9.	November 10,2022 to November 12,2022	Carbohydrates: Introduction, structure and functions of important derivatives of monosaccharides like glycosides, deoxy sugars, myoinositol, amino sugars. N-acetylmuramic acid, sialic acid, disaccharides and polysaccharides. Structural polysaccharides - cellulose and chitin. Storage polysaccharides - starch and glycogen.
10.	November 13, 2022	sunday
11.	November 17,2022 to November 19,2022	Heteropolysaccharides- glycosaminoglycans.Glycoconjugates-glycoprotein and glycolipids. Role of sugar in biological recognition. Blood group substances
12.	November 20,2022	sunday

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13.	November 24,2022 to November 26,2022	Fatty acids, essential fatty acids, structure and function of triacylglycerols, glycerophospholipids, sphingolipids, cholesterol, bile acids, prostaglandins. Lipoproteins-composition and function and role in atherosclerosis.
14.	November 27,2022	sunday
15.	December 1,2022 to December 3,2022	Properties of lipid aggregates-micelles, bilayers, liposomes and their possible biological functions. Biological membranes. Fluid mosaic model of membrane structure.
16.	December 4,2022	sunday
17.	December 8,2021 to December 10,2022	Lipid metabolism, Chemical and enzymatic hydrolysis of proteins to peptides, amino acid sequencing, geometry of peptide linkage. Secondary structure- $\alpha$ -helix, $\beta$ -sheets, super secondary structure.
18.	December 11,2022	sunday
19.	December 15,2022 to December 17,2022	Tertiary structure, Quaternary structure of proteins. Various forces responsible for stabalization of protein structure. Purine and pyrimidine bases of nucleic acids, base pairing via H-bonding.
20.	December 18,2022	sunday
21.	December 22,2022 to December 24,2022	Structure of ribonucleic acid (RNA) and deoxyribonucleic acids (DNA), double helix model of DNA and forces responsible for holding it.
22.	December 25,2022	sunday
23.	December 29-31,2022	Revision and problem taken

  
Dr. Virek Srivastava  
(Associate Professor)

Head, Dept. of Biotechnology

  
Dr. Manita Sharma  
(Assistant Professor)

Subject Tutor

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DAYANAND COLLEGE, HISAR  
 Department of Biotechnology  
 LESSON PLAN (2022-2023)  
 Semester- III (M. Sc.-II) year  
 SUBMITTED BY: Dr. Ritu Saharan

ENZYMOLGY AND ENZYME TECHNOLOGY (BTL 532)

Sr. No.	Month	Topics
1	August 17, 2022 to August 20, 2022	Introduction: Historical background, Enzymes vs Chemical catalyst, Enzyme nomenclature and classification
2	August 21, 2022	Sunday
3	August 22, 2022 to August 27, 2022	Units of activity, Methods for enzyme assays.
4	August 28, 2022	Sunday
5	August 29, 2022 to	Extraction and purification of enzymes, Cofactors and
6	September 21, 2022	Sunday
7	August 29, 2022 to September 03, 2022	Enzyme Specificity: Substrate and reaction specificity, Lock & key hypothesis.
8	September 04, 2022	Sunday
9	September 05, 2022 to September 10, 2022	Induced Fit hypothesis, Wrong way binding hypothesis, Three-point attachment hypothesis.
10	September 11, 2022	Sunday
11	September 12, 2022 to September 17, 2022	Mechanism of action of selected enzymes i.e., chymotrypsin.
12	September 18, 2022	Sunday


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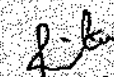


13	September 19, 2022 to September 24, 2022	Mechanism of action of selected enzymes i.e., trypsin, papain, Lysozyme, ribonuclease.
14	September 25, 2022	Sunday
15	September 26, 2022 to October 01, 2022	Assignments submission and presentation
16	October 2, 2022	Sunday
17	October 3, 2022 to October 08, 2022	Enzyme Kinetics: Factors affecting velocity of enzyme catalyzed reactions, Michaelis-Menten hypothesis.
18	October 9, 2022	Sunday
19	October 10, 2022	Assessment test
20	October 11, 2022 to October 15, 2022	Presentation seminar
21	October 16, 2022	Sunday
22	October 17, 2022 to October 22, 2022	Transformation of Michaelis-Menten equation and determination of $K_m$ and $V_{max}$ relationship
23	October 23, 2022	Sunday
24	October 22, 2022 to October 26, 2022	Diwali vacation
25	October 27, 2022 to October 28, 2022	Multireactant enzymes.
26	October 29, 2022	Sunday
27	October 31, 2022 to 5 November, 2022	Enzymes inhibition i.e., reversible and irreversible inhibition, Competitive, Non-competitive and uncompetitive inhibition.
28	November 6, 2022	Sunday

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29	November 7, 2022 to November 12, 2022	Regulatory Enzymes: Allosteric enzymes, Sequential and symmetry models, covalently regulated enzymes.
30	November 13, 2022	Sunday
31	November 14, 2022 to November 19, 2022	Uses of isolated enzymes in food and chemical industries, Therapeutic & medicinal use of enzymes.
32	November 20, 2022	Sunday
33	November 21, 2022 to November 26, 2022	Protein Engineering: Concept and Methods, Site directed mutagenesis, Active site mapping, Nature of the active site,
34	November 27, 2022	Sunday
35	November 28, 2022 to December 03, 2022	Identification of functional groups at the active site, Immobilized enzymes—methods and applications.
36	December 04, 2022	Sunday
37	December 05, 2022 to December 07, 2022	
	December 08, 2022	

  
 Dr. Vivek Srivastava  
 (Associate Professor)  
 Head, Dept. of Biotechnology

  
 Dr. Ritu Saharan  
 (Assistant Professor)  
 Subject Tutor

  
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LESSON PLAN (2022-2023)

Semester- III (M. Sc.-II) year  
Molecular Genetics  
(BTL 533)


Sr. No.	Month	Topics
1	August 17, 2022 to August 20, 2022	Inheritance: Historical background
2	August 21, 2022	Sunday
3	August 22, 2022 to August 27, 2022	Extra chromosomal inheritance, Sex linked inheritance
4	August 28, 2022	Sunday
5	August 29, 2022 to September 3, 2022	Inheritance of quantitative traits, Sex influenced and sex limited traits.
6	September 4, 2022	Sunday
7	September 5, 2022 to September 10, 2022	Molecular Organizations of Chromosomes
8	September 11, 2022	Sunday
9	September 12, 2022 to September 17, 2022	Viral and bacterial chromosomes
10	September 18, 2022	Sunday
11	September 19-24, 2022	Nucleosome and chromatin structure
12	September 25, 2022	Sunday


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13	September	metachromatin, and telomere, Euchromatin and
14	October 2, 2022	Sunday
15	October 3-8, 2022	Polytene and lamp brush chromosomes, Genome complexity
16	October 9, 2022	Sunday
17	October 10-15, 2022	Linkage and recombination of gene
18	October 16, 2022	Sunday
19	October 17, 2022 to October 21, 2022	Gene mapping by three point test cross, Tetrad analysis
20	October 22, 2022 to October 26, 2022	Diwali Holiday
21	October 27, 2022	Assign the Assignments and Assesment Test.
22	October 28, 2022	Solve Doubts and Difficulties.
23	October 29, 2022	Mapping through somatic cell hybridization
24	October 30, 2022	Sunday
25	October 31, 2022 to 5 November, 2022	Pseudogenes, Overlapping genes, Oncogenes, Repeated genes, Gene amplification
26	November 6, 2022	Sunday
27	November 7, 2022	Assesment Test
28	November 8, 2022	Guru Nanak jayanti holiday
29	November 9, 2022 to November 12, 2022	<i>E.coli</i> recombination system, Bacterial plasmids

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30	November 13, 2022	Sunday
31	November 14, 2022 to November 19, 2022	Positive and negative interference, Molecular mechanism of recombination
32	November 20, 2022	Sunday
33	November 21, 2022 to November 26, 2022	Post-meiotic segregation, Molecular mechanism of spontaneous mutations, Molecular mechanism of mutations induced by known chemical mutagens
34	November 27, 2022	Sunday
35	November 28, 2022 to December 3, 2022	Types of DNA repair, Molecular mechanism of suppression, Somatic mutations
36	December 4, 2022	Sunday
37	December 5, 2021 to December 10, 2022	Gene Concept: Classical concept, Fine structure of the gene, Molecular concept of the gene
38	December 11, 2022	Sunday
39	December 13, 2022 to December 17, 2022	<del>Bacterial and viral genetics: Transformation, conjugation and transduction, Molecular mechanism of recombination in bacteria, IS and Tn elements in bacteria, Lytic cascade and lysogenic repression</del>
40	December 18, 2022	Sunday
41	December 19, 2022	Unit test
42	December 20, 2022 to December 24, 2022	Revision and problems taken
43	December 25, 2022	Sunday
44	December 26 & 27, 2022	Problems taken

  
 Dr. Vivek Srivastava  
 (Associate Professor)  
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 Dr. Asha  
 (Assistant Professor)  
 Subject Tutor

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**COLLEGE, HISAR**  
**Department of Biotechnology**  
**LESSON PLAN (2022-2023)**  
**Semester- III (M. Sc.-II) year**  
**Genetic Engineering**  
**(BTP 535)**

Sr. No.	Month	Topics
1	August 17, 2022 to August 20, 2022	Introduction: Historical background, Restriction enzymes, and modifying enzymes,
2	August 21, 2022	Sunday
3	August 22, 2022 to August 27, 2022	Restriction mapping, Construction of chimeric DNA
4	August 28, 2022	Sunday
5	August 29, 2022 to September 3, 2022	staggered cleavage, Addition of poly dA and dT tails, Blunt end ligation, Gene cloning
6	September 4, 2022	Sunday
<del>September 5, 2022 to September 10, 2022</del>		
<del>September 10, 2022</del>		
8	September 11, 2022	Sunday
9	September 12, 2022 to September 17, 2022	Vehicles for gene cloning, Plasmids, Bacteriophages, Cosmids and Phagemids as vectors,
10	September 18, 2022	Sunday
11	September 19-24, 2022	PI vectors, F- factor based vectors, Plant and animal viruses as vector
12	September 25, 2022	Sunday
13	September 26-Oct 1, 2022	Artificial chromosomes as vectors (YAC, BAC, PAC and MAC vectors),

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14	October 2, 2022	Sunday
15	October 3-8, 2022	Expression vectors- use of promoters and expression cassettes, Bacteriophages as expression vectors.
16	October 9, 2022	Sunday
17	October 10-15, 2022	Virus expression vectors, Binary and shuttle vectors
18	October 16, 2022	Sunday
19	October 17, 2022 to October 21, 2022	Isolation Sequencing and Synthesis of Genes: Methods of gene isolation
20	October 22, 2022 to October 26, 2022	Diwali Holiday
21	October 27, 2022	Assign the Assignments and Assesment Test.
22	October 28, 2022	Solve Doubts and Difficulties.
23	October 29, 2022	Chromosome walking
24	October 30, 2022	Sunday
25	October 31, 2022 to 5 November, 2022	Construction and screening of genomic and cDNA libraries, Chromosome jumping
26	November 6, 2022	Sunday
27	November 7, 2022	Assesment Test
28	November 8, 2022	Guru Nanak jayanti holiday
29	November 9, 2022 to November 12, 2022	Transposone tagging, Map based cloning
30	November 13, 2022	Sunday

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31	November 14,2022 to November 19,2022	DNA sequencing Techniques (Maxam Gilbert's chemical degradation methods and Sanger's dideoxy chain termination method), Automated DNA sequencing, Organochemical gene synthesis
32	November 20,2022	Sunday
33	November 21,2022 to November 26,2022	Molecular Probes and PCR: Molecular probes, Labeling of probes, Radioactive vs Non-radioactive labeling, Uses of molecular probes, Polymerase Chain Reaction- basic principle, Modified PCR (Inverse PCR, Anchored PCR)
34	November 27,2022	Sunday
35	November 28,2022 to December 3,2022	PCR for mutagenesis, asymmetric PCR, RT PCR, PCR walking), Gene cloning Vs. Polymerase chain reaction, Applications of PCR in biotechnology, Ligase chain reaction
36	December 4,2022	Sunday
37	December 5,2021 to December 10,2022	Molecular Markers and DNA Chip Technology: Molecular Markers- types and applications, Construction of molecular maps (genetic and physical maps), DNA chip Technology & Microarrays (a brief account).
38	December 11,2022	Sunday
39	December 12,2022 to December 17,2022	Genomics and Proteomics: Whole genome sequencing and functional genomics (a brief account), Applications of genomics and Proteomics with special reference to Arabidopsis and Rice.
40	December 18,2022	Sunday
41	December 19,2022	Unit test
42	December 20,2022 to December 24,2022	Revision and problems taken
43	December 25,2022	Sunday
44	December 26 &27,2022	Problems taken

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**LESSON PLAN (2022-2023)**  
 Semester- III (M. Sc.-II) year  
**INTRODUCTORY BIOINFORMATICS**  
 (BTL 534)

Sr. No.	Month	Topics
1	August 17, 2022 to August 20, 2022	Introduction to Bioinformatics: Definition, role, scope and limitation of bioinformatics.
2	August 21, 2022	Sunday
3	August 22, 2022 to August 27, 2022	Different branches of bioinformatics. Terminologies: Internet browser, software, hardware,
4	August 28, 2022	Sunday
5	August 29, 2022 to September 3, 2022	database, Network, Network In System, algorithm
6	September 4, 2022	Sunday
7	September 5, 2022 to September 10, 2022	Biological Data Banks: An introduction to data mining and data security
8	September 11, 2022	Sunday
9	September 12, 2022 to September 17, 2022	Data warehousing, Data capture, Data Analysis
10	September 18, 2022	Sunday
11	September 19-24, 2022	Data Banks, Gene banks, EBTL nucleotide sequence data bank,

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12	September 25, 2022	Sunday
13	September 26-Oct 1, 2022	Sequence data bank, rRNA data Bank, Peptide data bank
14	October 2, 2022	Sunday
15	October 3-8, 2022	Data Bank similarity searches (BLAST, FASTA, PSI-BLAST algorithms multiple),
16	October 9, 2022	Sunday
17	October 10-15, 2022	Structural Data Bank (Cambridge small molecules crystal structure data Bank),
18	October 6, 2022	Sunday
19	October 17, 2022 to October 21, 2022	Biodiversity Data Bases: Organizing Biological SPP information, Data sets in Biodiversity informatics (Spp 2000,
20	October 22, 2022 to October 26, 2022	Diwali Holiday
21	October 27, 2022	Assign the Assignments and Assessment Test
22	October 28, 2022	Solve Doubts and Difficulties.
23	October 29, 2022	Calculation of conformational energy of Bio-molecules
24	October 30, 2022	Sunday
25	October 31, 2022 to 5 November, 2022	Tree of life, ATCC, NCBI Spp analyst collaboration. (ICTV, Animal virus information system) a brief account.
26	November 6, 2022	Sunday
27	November 7, 2022	Assesment Test
28	November 8, 2022	Guru Nanak jayanti holiday

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29	November 9,2022 to November 12,2022	Sequence Analysis: Computational methods and significance
30	November 13, 2022	Sunday
31	November 14,2022 to November 19,2022	homology algorithms (BLAST) for proteins and nucleic acids,
32	November 20,2022	Sunday
33	November 21,2022 to November 26,2022	open reading frames, annotations of genes, conserved protein motifs related structure / function
34	November 27,2022	Sunday
35	November 28,2022 to December 3,2022	Phylogenetic analysis: Introduction and importance, phylogenetic tree, methods of phylogenetic analysis, Application of Bioinformatics and Scientific Documentation
36	December 4,2022	Sunday
37	December 5,2021 to December 10,2022	Virtual library searching Medline, Science citation indexes, Electronic Journals, Grants and finding information. Research documentation- preparation of research report, setting up of a laboratory, seminar, paper
38	December 11,2022	Sunday
39	December 12,2022 to December 17,2022	How to write dissertation? Guidelines for writing of literature, materials and method, result, discussion, Presentation and references
40	December 18,2022	Sunday
41	December 19,2022	Unit test
42	December 20,2022 to December 24,2022	Revision and problems taken
43	December 25,2022	Sunday
44	December 26 & 27,2022	Problems taken

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**LESSON PLAN - M.A. (FINAL) ENGLISH**

**THIRD SEMESTER**

**COURSE-XI: Critical Theory (PART-I)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: August-September 2022**

**Unit-I**

**Aristotle: Poetics**

**Month: October 2022**

**Unit-II**

**Bharatmuni: Natyashastra (Ed. Dr. N.P. Unni) Chapter-I: The Origin of Drama  
Chapter-VI: Sentiments; Chapter-VII: The Exposition of Emotion**

**Month: November 2022**

**Unit-III**

**Horace: Ars Poetica**

**Month: December 2022**

**Unit-IV**

**Dr. Johnson: Preface to Shakespeare**

**Revision**

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**LESSON PLAN - M.A. (FINAL) ENGLISH**  
**THIRD SEMESTER**  
**COURSE-XII: American Literature (PART-I)**

Max. Marks: 100

End Semester Exam: 80

Internal Assessment: 20

Time: 3 Hours

**Course Content:**

Month: **August-September 2022**

Unit-I

Walt Whitman: "One's Self I Sing", "There was a Child Went Forth", "When Lilacs last in the  
Dooryard Bloom'd", "Crossing Brooklyn Ferry", "On the Beach at Night", "Song of Myself"  
(Section 6 and Section 321)

Unit-II

Emily Dickinson: "This is My Letter to the World", "Success is Counted Sweetest", "Much  
Madness is Divinest Sense", "Because I could not stop for Death", "A Narrow Fellow in the  
Grass", "The Heart Asks Pleasure First", "I Never Saw a Moor", "A Bird Came down the  
Walk".

Month: **October 2022**

Unit-III

Mark Twain: The Adventures of Huckleberry Finn

Month: **November 2022**

Unit-IV

Henry James: The Portrait of a Lady

Month: **December 2022**

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**LESSON PLAN - M.A. (FINAL) ENGLISH**

**THIRD SEMESTER**

**COURSE-XIII: Indian Writing in English (Part-1)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: August-September 2022**

**Unit-I**

**Sri Aurobindo: Savitri, Book IV**

**Month: October 2022**

**Unit-II**

**Kamala Das: The following Poems from R. Parthasarathy, ed. Ten Twentieth Century Indian Poets. "The Freaks", "My Grandmother's House", "A Hot Noon in Malabar" "The Sunshine Cat", "The Invitation", "The Looking Glass".**

**Month: November 2022**

**Unit-III**

**Jayant Mahapatra: "The Logic", "A Missing Person", "Glass", "The Whorehouse in a Calcutta Street", "Indian Summer" "Lost".**

**Month: December 2022**

**Unit-IV**

**Mulk Raj Anand: Coolie**

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**LESSON PLAN - M.A. (FINAL) ENGLISH**

**THIRD SEMESTER**

**COURSE-XIV: (Option-ii): English Language (Part-1)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: August-September 2022**

**Unit-1**

Phonetics: Speech Mechanism, Role of different organs of speech, Sounds of English, Description of Sounds, Syllable and Stress, Intonation and its functions

**Month: October 2022**

**Unit-II**

a) Transcribing words phonemically with primary stress (using the symbols of Oxford Advanced Learner's Dictionary, 7th edition)

b) Marking stress and tones (falling/rising/falling-rising) in sentences

**Month: November 2022**

**Unit-II**

History of English Language: Old English, Middle English, Latin, Celtic and Scandinavian Influence on Old English, Renaissance and the English Language, Change from Old to Modern English.

**Month: December 2022**

**Unit-IV**

(a) Word formation process: Coinage; Borrowing; Compounding; Blending Clipping; Back formation; Conversion; Acronyms; Derivation; Prefixes; Suffixes; Affixes

(b) Translation: Hindi to English

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**LESSON PLAN - M.A. (FINAL) ENGLISH**  
**THIRD SEMESTER**  
**COURSE-XV: (Option-1) Literature and Gender (Part-1)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: August-September 2022**

**Unit-I**

**Charlotte Bronte: Jane Eyre**

**Unit-II**

**Virginia Woolf: To the Lighthouse**

**Month: October 2022**

**Unit-III**

**Virginia Woolf: A Room of One's Own**

**Month: November 2022**

**Unit-IV**

**Doris Lessing: The Golden Notebook**

**Month: December 2022**

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Lesson Plan - M.A. (PREVIOUS) ENGLISH

FIRST SEMESTER

COURSE 1: LITERATURE IN ENGLISH: 1550-1660 (Part-1)

Max. Marks: 100

End Semester Exam: 80

Internal Assessment: 20

Time: 3 Hours

Course Content:

Month: November 2022

Unit-I

Philip Sidney:

The following Sonnets from Astrophel and Stella are prescribed "Vertue alas, now let me take some rest "Not at first sight, nor with a dribbed shot". It is most true, that eyes are formed to serve", "Reason, in faith thou art well serv'd, that still", "Alas have I not paine enough my friend" "Your words my friend (right healthful Causticks) blame, "This night while sleepe begins with heavy Wings", "Stells off sees the Verie face of Wo". "No more, my dear, no more these Counsels trie". "Desire, though my old Companion art

Month: December 2022

Unit-II

John Donne:

The following poems from The Metaphysical Poets ed Helen Gardner (Penguin) are prescribed: "The Flea" "The Good Morrow" "Song: Go and Catch a Falling Star", "The Sun Rising" "The Canonization", "A Valediction Forbidding Mourning", "The Extasie", "Batter My Heart Three Person' d God".

Unit-III

John Milton: Paradise Lost, Book-I

Month: January 2023

Unit-IV

William Shakespeare: Twelfth Night

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Lesson Plan - M.A. (PREVIOUS) ENGLISH

FIRST SEMESTER

COURSE-II: LITERATURE IN ENGLISH: 1660-1798 (Part-1)

Max. Marks: 100

End Semester Exam: 80

Internal Assessment: 20

Time: 3 Hour

Course Content:

Month: November 2022

Unit-I

John Dryden: Absalom and Achitophel

Month: December 2022

Unit-II

Alexander Pope: The Rape of the Lock.

Unit-III

William Congreve: The Way of the world

Month: January 2023

Unit-IV

Richard Sheridan: The School for Scandal

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**Lesson Plan - M.A. (PREVIOUS) ENGLISH**

**FIRST SEMESTER**

**COURSE-III: LITERATURE IN ENGLISH: 1798-1914 (Part-1)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: November 2022**

**Unit-I**

**William Wordsworth**

"To the Cuckoo", "The Solitary Reaper", "Daffodils", "Tintern Abbey", "Ode on Intimations of Immortality", "Lucy Gray", "Simon Lee, The old Huntsman", "The Tables Turned".

**Unit-II**

**John Keats**

"On First Looking Into Chapman's Homer", "When I have Fears that I may Cease to Be", "Ode to a Nightingale", "Ode on a Grecian Urn", "Ode on Melancholy", "To Autumn", "To Psyche".

**Month: December 2022**

**Unit- III**

**Charles Dickens: Oliver Twist**

**Month: January 2023**

**Unit- IV**

**George Eliot: The Mill on the Floss**

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**Lesson Plan - M.A. (PREVIOUS) ENGLISH**

**FIRST SEMESTER**

**Course IV: LITERATURE IN ENGLISH: 1914-2000 (Part-1)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: November 2022**

**Unit I:**

**TS Eliot: The Waste Land**

**Month: December 2022**

**Unit II:**

**Philip Larkin:**

**"No Road", Poetry of Departures",**

**"Going, Going", "Deceptions", "Next Please",**

**"If My Darling", "Reasons for Attendance"**

**"Wedding Wind", "Church Going", "The Old Fools"**

**"Church Going", "Whitsun Weddings"**

**Unit III:**

**Kingsley Amis: Lucky Jim**

**Month: January 2023**

**Unit IV:**

**EM. Forster: A Passage to India**

**Revision**

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**Lesson Plan - M.A. (PREVIOUS) ENGLISH**

**FIRST SEMESTER**

**COURSE-V: STUDY OF A GENRE (OPTION-1) FICTION (PART -1)**

**Max. Marks: 100**

**End Semester Exam: 80**

**Internal Assessment: 20**

**Time: 3 Hours**

**Course Content:**

**Month: November 2022**

**Unit-I**

**E.M. Forster: Aspects of the Novel**

**Unit-II**

**Jane Austen: Pride and Prejudice**

**Month: December 2022**

**Unit-III**

**Nathaniel Hawthorne: The Scarlet Letter**

**Month: January 2023**

**Unit-IV**

**James Joyce: A Portrait of the Artist as a Young Man**

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**Lesson Plan - B.Sc (ENGLISH)**  
**LANGUAGE SKILLS COMPILSORY COURSE-I**  
**Semester-I**  
**SCHEME OF EXAMINATION**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 Hours**

**Course Content:**

**Month: August-September 2022**

- Let Me Not to the Marriage of True Minds + Translation from Hindi to English
- Death Be Not Proud + Paragraph Writing
- On His Blindness

**Month: October 2022**

- The Retreat + Common Phrasal Verbs
- Shadwell + Prepositions
- Know Then Thyself

**Month: November 2022**

- The Little Black Boy + Common Errors
- Three Years She Grew...
- England In 1819
- Crossing the Bar

**Month: December 2022**

- Revision

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**Lesson Plan- B. A. I (Hons.) English**

**Semester I**

**SCHEME OF EXAMINATION**

**Paper-I: ENGH 101: Literature in English (1550-1660)**

**Max. Marks 100 marks**

**End Semester Exam 80 marks**

**Internal Assessment 20 marks**

**Time 3 hours**

**Course Content:**

**Month: August-September 2022**

**Unit I**

**Shakespeare: Comedy of Errors**

**Month: October 2022**

**Unit II**

**Marlowe : Doctor Faustus (Macmillan Annotated Classics Series)**

**Month: November 2022**

**Unit III**

**Francis Bacon: Essays 'Of Truth', 'Of Friendship'**

**Unit IV**

**Literary terms and Major Literary Movements of the period.**

**Month: December 2022**

**Revision**

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## Lesson Plan - B. A. I (Hons.) English

### Semester 1

#### Paper-II: ENGH 102: Literature in English (1550-1660)

Max. Marks: 100 marks

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Time: 3 hours

#### Course Content:

Month: August-September 2022

i) Sir Philip Sidney:

Sonnets from Astrophel and Stella:

"Love in truth, and fain in verse my love to show" (I) "It is most true that eyes are formed to serve" (V) "When Nature made her chief work, Stella's eyes" (VII) "Reason in faith thou art well served, that still" (X) "With how sad steps, O Moon, thou climb'st the skies!" (xxxi) "Come sleep, O Sleep, the certain knot of peace" (XXXIX)

Month: October 2022

ii) William Shakespeare: Sonnets: "Shall I compare thee..." (XVIII) "When to the sessions..." (XXX) "Tir'd with all these..." (LXVI) "Thy glass will show thee..." (LXXVI) "Let me not to the marriage..." (CXVI) "My mistress' eyes are nothing..." (CXXX)

Month: November 2022

iii) John Donne: "The Good-Morrow" "The Sunne Rising" "A Valediction: Forbidding Mourning" "A Valediction Of Weeping" "Holy Sonnet: Since She whom I Love" (From Metaphysical Poets by Helen Gardener)

iv) Major Literary Works of the period by major writers as discussed in history of English Literature by William J. Long.

Month: December 2022

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**Lesson Plan - B. A. II(Hons.) English**

**Semester-III**

**SCHEME OF EXAMINATION**

**Paper A ENGH 201: Literature in English (1750-1830)**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 hours**

**Course Content:**

**Month: August-September 2022**

**Unit-I**

**William Wordsworth:**

**"Daffodils"**

**"The Solitary Reaper"**

**"The World is Too Much with Us"**

**"Lines Composed upon Westminster's Bridge"**

**"Lucy"**

**"It's a Beauteous Evening" (From Fifteen Poets)**

**Month: October 2022**

**Unit-II**

**S.T. Coleridge:**

**"Dejection: An Ode"**

**"Frost at Midnight" (From Fifteen Poets)**

**Month: November 2022**

**Unit-III**

**John Keats**

**"When I Have Fears" "La Belle Dame Sans Merci"**

**"On First Looking into Chapman's Homer"**

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**"To Autumn" (From Fifteen Poets)**

**Unit-IV**

**Major Literary Movements and Trends of the period.**

**Month: December 2022**

**Revision**

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**Lesson Plan - B. A. II(Hons.) English**

**Semester-III**

**SCHEME OF EXAMINATION**

**PAPER B: ENGH 202: Literature in English (1750-1830)**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 hours**

**Course Content:**

**Month: August-September 2022**

**Unit-I**

**Oliver Goldsmith's The Vicar of Wakefield**

**Month: October 2022**

**Unit-II**

**Jane Austen's Pride and Prejudice**

**Month: November 2022**

**Unit-III**

**Charles Lamb**

**"Poor Relations"**

**"The Superannuated Man" "In Praise of Chimney Sweepers"**

**"Imperfect Sympathies" (From & Book of English Essays, ed. WE Williams. Penguin.)**

**Unit-IV**

**Major literary Works and Writers of the period:**

**William Blake P.B. Shelley**

**Lord Byron**

**Walter Scott William Harlins**

**Elegy Written on a Country Churchyard**

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The Seasons by James Thomson Lyrical Ballads

Biographia Literaria Prometheus Unbound

Month: December 2022

Revision

*James Thomson  
Prometheus  
Biographia Literaria  
Unbound*

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**Lesson Plan - B. A. II(Hons.) English**

**Semester-III**

**SCHEME OF EXAMINATION**

**PAPER-C-ENGH 203: Grammar and Contemporary English Usage**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 hours**

**Course Content:**

**Month: August-September 2022**

**Unit-1**

**Essay**

**Unit-II**

**Comprehension**

**Month: October 2022**

**Unit-III**

**Grammar:**

**(a) Parts of Speech**

**(b) Verbs:**

**(i) Main and auxiliaries**

**(ii) Linking (or equative) Intransitive and transitive**

**(iii) Finite and non-finite**

**(iv) Sequence of Tenses**

**(c) Adverbs, adverbial particles and adverb phrases:**

**(i) Their Positions**

**(ii) Kinds of Time, Place, Manner, Frequency, Duration and Direction**

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Month: November 2022

Unit-IV

(a) Word Order: Position and order of objects; Substitute subjects: "its" and "there";  
Inversion of verb and subject after certain adverbs; Order of words in indirect questions

(b) Adjective equivalents

(i) Nouns

(ii) Participles

(iii) Gerunds

(c) Prepositions of time, place, direction; for and since; under, underneath; below, beneath,  
over and above; between and among: describing people and their clothes; at, by, in; on, out,  
of

Month: December 2022

Revision

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**Lesson Plan - B. A. III (Hons.) English**

**Semester-V**

**SCHEME OF EXAMINATION**

**Paper-A: ENGH 301: Modern British Literature-I**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 hour**

**Course Content:**

**Month: August-September 2022**

1. W.B. Yeats: "The Lake Isle of Innisfree"

"The Stolen Child"

"A Prayer for My Daughter"

"What Then?"

"When You are Old"

"The Wise Old Wicked Man" (From W.B. Yeats: Selected Poetry. Ed. Norman Jeffares)

**Month: October-November 2022**

**Unit II**

2. G. B. Shaw Saint Joan

**Month: December 2022**

**Revision**

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**Lesson Plan - B.A. III (Hons.) English**

**Semester-V**

**SCHEME OF EXAMINATION**

**Paper-B: ENGH 302: Indian Writing in English-I**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 hours**

**Course Content:**

**Month: August-September 2022**

**Unit I**

**Nissim Ezekiel:**

**"Enterprise", "Philosophy",**

**"Background", "Poet, Lover, Birdwatcher",**

**"Poem of the Separation" (From R.Parthasarthy. Ed Ten Twentieth Century Indian Poets)**

**Month: October-November 2022**

**Unit II**

**Girish Karnad: Hayavadana**

**Month: December 2022**

**Revision**

*Principals*  
*Department of English*  
*University of Mysore*

*92*  
Head  
Department of English

**Lesson Plan - B. A. III (Hons.) English**

**Semester V**

**Scheme of Examination**

**Paper-C: ENGH 303: Modern World Literature-I**

Max. Marks 100

End Semester Exam 80

Internal Assessment 20

Time 3 hours

**Course Content:**

**Month: August-September 2022**

Unit 1: Essays

M. H. Abrams:

(i) "Modernism and Post-modernism", From K. Narayana

Chandran ed. Texts and their Worlds II Delhi: Foundation Books, 2005)

(ii) "Feminist Criticism" (From Texts and their Worlds II)

**Month: October 2022**

Unit II: Essays

a. Ngugi Wa Thiong'o : "On the Abolition of English Department" (From Texts and their Worlds II)

b. Thomas B. Macaulay: "Minute on Indian Education" (From Texts and their Worlds II)

c. Meenakshi Mukherjee: "Interrogating Post-Colonialism" (From Texts and their Worlds II)

**Month: November 2022**

Unit III: Poetry

a. Bertolt Brecht: "The Burning of Books"

b. Wislawa Szymborska: "The End of the Beginning"

c. Derek Walcott: "A Far Cry from Africa"

d. Pablo Neruda: "Tonight I Can Write"

e. Margaret Atwood: "Journey to the Interior"

f. Faiz Ahmad Faiz: "A Prison Evening (All from Texts and their Worlds In)

**Month: December 2022**

Revision

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42  
Head  
Department of English

## Lesson Plan - B.A. (FUNCTIONAL ENGLISH)

### Semester-I

### SCHEME OF EXAMINATION

Max. Marks 100

End Semester Exam 60

Practical 20

(Oral/Viva)

Internal Assessment 20

Time 3 Hours

#### Course Content:

Month: August-September-October 2022

Section-B: Remedial Grammar: (30 Marks)

1. Articles
2. Parts of Speech
3. Nouns: Singular and Plural
4. Verbs: Linking Verbs, Transitive & Intransitive Verbs
5. Agreement of Verbs and Subject
6. Tenses & their Use.
7. Tag questions.
8. Transformation.
9. Confusion of Adjectives and Adverbs.
10. Adverbial use of No, Not and None.

Month: November 2022

1. Definition and Scope of Linguistics.
2. Difference between Phonetics and Phonology.
3. The Speech Mechanism.
4. Basic Concepts: Phoneme, Allophone, Vowel, Consonant, Consonant Cluster and Syllable.
5. Description of the British R.P. Speech Sounds: Vowels and Consonants.

Month: December 2022

Revision

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Dr. [Name]

42  
Head  
Department of English

## Lesson Plan - B.A.II (FUNCTIONAL ENGLISH)

### Semester III

### SCHEME OF EXAMINATION

Max. Marks 100

End Semester Exam 60

Practical 20

(Oral/Viva)

Internal Assessment 20

Time 3 Hours

#### Communicative and Writing Skills:

##### Course Content:

Month: August-September 2022

1. Spotting the errors pertaining to nouns, pronouns, adjectives and adverbs, subject verb concord.
2. Lexis: Idioms and phrases, words often confused, one-word substitution, foreign words (A selected list), vocabulary development through synonyms, antonyms, formation of words with affixes.

Month: October-November 2022

3. Developing writing skills: Writing small paragraphs on general and current issues, events and slogan writing.
4. Technical Writing:
  - (a) Drafting memo and circular
  - (b) e-mail writing
  - (c) Resume writing, Press Report Writing
  - (d) Writing Notices, Agendas, Minutes
  - (e) Note taking
5. Editing Skills: Use of capital letters, punctuation, parentheses, square brackets, ellipsis, apostrophe and quotation marks

Month: December 2022

Revision

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Head  
Department of English

## Lesson Plan B.A.III (FUNCTIONAL ENGLISH)

### Semester V

### SCHEME OF EXAMINATION

Max. Marks 100

End Semester Exam 60

Practical 20

{Oral/Viva}

Internal Assessment 20

Time 3 Hours

#### Course Content:

#### Month: August-September 2022

Unit-I "On His Blindness", "Alexander's Feast", "Epistle to Dr. Arbuthnot", "Tintern Abbey", "Kubla Khan", "Ode to the West Wind", "Stanzas Written in Dejection", "Ode on a Grecian Urn", "Ode to a Nightingale", "Ulysses", "The Lotus Eaters", "Tears Idle Tears", "My Last Duchess", "Rabbi Ben Ezra", "The Last Ride Together", "The Scholar Gypsy", "Dover Beach".

#### Month: October 2022

##### Unit-II

##### Business letters and faxes:

different types of formats, address, opening and closing, subject, heading, sub-heading, numbering, etc.

##### Unit-III

Scanning letters and faxes for specific information, acquiring familiarity with abbreviations and phrases commonly used in business correspondence.

#### Month: November 2022

##### Unit-IV

Writing letters of application with curriculum vitae/ Resume; letters of invitation, reply to invitation, Enquiry, reference, arrangements, announcing forthcoming Events, products, visits, making bookings and arrangements for conferences, trade fairs, etc., complaints and replies to complaints, apologies, thanks.

#### Month: December 2022

##### Revision

YR

Head

Department of English

**Lesson Plan - B.A. (ENGLISH General)**

**Semester-I**

**SCHEME OF EXAMINATION**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 Hours**

**Course Content:**

**Month: August-September 2022**

1. Speech Sounds
2. Choosing Our Universe + Extended Grammar
3. Are Dams the Temples of Modern India? + Extended Grammar
4. The Generation Gap + Extended Grammar

**Month: October 2022**

5. Language and National Identity + Extended Grammar
6. Wounded Plants + Extended Grammar
7. Playing the English Gentleman + Extended Grammar

**Month: November 2022**

8. Great Books Born out of Great Minds + Extended Grammar
9. The Responsibility of Young men + Extended Grammar
10. Bharat Mata + Extended Grammar

**Month: December 2022**

11. Revision

*YR*  
Head  
Department of English

*YR*  
Head  
Department of English

*Dr. J. K. Chatterjee*  
11/11/22

*YR*  
Head  
Department of English

**Lesson Plan - B.A. (ENGLISH General)**

**Semester-III**

**SCHEME OF EXAMINATION**

**Max. Marks 100**

**End Semester Exam 80**

**Internal Assessment 20**

**Time 3 Hours**

**Course Content:**

**Month: August-September 2022**

1. Important Poetic Forms and Devices
2. Sonnet XVIII (William Shakespeare) + Extended Grammar
3. Know Thyself + Extended Grammar
4. Elegy Written in a Country Churchyard + Extended Grammar

**Month: October 2022**

5. The World is Too Much with Us + Extended Grammar
6. Ode on a Grecian Urn + Extended Grammar
7. My Last Duchess + Extended Grammar
8. When You are Old + Extended Grammar

**Month: November 2022**

9. Where the Mind is Without Fear + Extended Grammar
10. The Bangle Sellers + Extended Grammar
11. Another Woman + Extended Grammar

**Month: December 2022**

12. Revision

*V. V. V.*  
*Head*  
*Department of English*

42  
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Department of English

# Lesson Plan - B.A. (ENGLISH General)

Semester-V

## SCHEME OF EXAMINATION

Max. Marks 100

End Semester Exam 80

Internal Assessment 20

Time 3 Hours

### Course Content:

Month: August-September 2022

1. Introduction of the Novel and the Novelist
2. Kanthapura Chapter 1 – 6
3. Word Accent and its Grammatical Functions

Month: October 2022

4. Kanthapura Chapter 7-12
5. Weak Forms in English Pronunciation
6. Introducing Intonation: Tone Groups and Tonic Syllable

Month: November 2022

7. Kanthapura Chapter 13-19
8. Sentence and its Types
9. Composition: Developing Hints into Paragraph and Story

Month: December 2022

10. Revision

YR  
Head  
Department of English

Dr. S. S. Srinivasan  
Department of English  
D. J. Somaiya Institute of  
Management Studies



# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Anju

Designation :- Assistant Professor

Class :- B.Sc. Second year

Section :- Medical A1

Subject :- Botany

Paper Name and Paper Code :- Plant Diversity and Human Welfare (BOT 307 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction to the syllabus . Plant diversity and its scope- Genetic diversity, Species diversity
18 August 2022	Holiday
19 August to 20 August 2022	Plant diversity at the ecosystem level, Agrobiodiversity and cultivated plant taxa, wild taxa.
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Values and uses of Biodiversity: Ethical and aesthetic values, Precautionary principle.
28 August 2022	Sunday
29 August to 03 September 2022	Methodologies for valuation, uses of plants.
04 September 2022	Sunday
05 September to 10 September 2022	Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity.
11 September 2022	Sunday
12 September to 17 September 2022	Loss of agrobiodiversity Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Projected scenario for biodiversity loss, Management of Plant Biodiversity Class Assignment
23 September 2022	Holiday
24 September 2022	Organizations associated with biodiversity Management- Methodology for execution-IUCN
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Organizations associated with biodiversity Management- Methodology for execution-, UNEP, UNESCO, WWF, NBPGR
02 October 2022	Sunday
03 October- 04 October 2022	Biodiversity legislation and conservations, Biodiversity information management and communication.

*Anju*  
Head, Deptt. of Botany,  
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05 October 2022	Holiday
06 October-07 October 2022	Conservation of genetic diversity, species diversity and ecosystem diversity, <i>In situ</i> and <i>ex situ</i> conservation
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Social approaches to conservation, Biodiversity awareness programmes, Sustainable development. Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	a) Importance of forestry their utilization and commercial aspects b) Avenue trees,
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Ornamental plants of India
01 November	Holiday
02 November -05 November 2022	Alcoholic beverages through ages.
06 November 2022	Sunday
07 November 2022	Fruits and nuts
08 November 2022	Holiday
09 November-12 November 2022	Important fruit crops their commercial importance
13 November 2022	Sunday
14 November-19 November 2022	Wood and its uses.
20 November 2022	Sunday
21 November-26 November 2022	Uses of microbes
27 November 2022	Sunday
28 November -30 November 2022	Revision.

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Teacher's Signature

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# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Priti

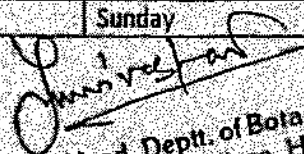
Designation :- Assistant Professor


Class :- B.Sc. Second year Section :- Medical A2 and Biotech B

Subject :- Botany

Paper Name and Paper Code :- Biofertilizer: (BPT 305 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus General account about the microbes used as biofertilizer – Rhizobium – isolation
18 August 2022	Holiday
19 August to 20 August 2022	General account about the microbes used as biofertilizer – Rhizobium – identification
21 August 2022	Sunday
22 August 2022 to 27 August 2022	General account about the microbes used as biofertilizer – Rhizobium – mass multiplication, carrier based inoculants Actinorrhizal symbiosis.
28 August 2022	Sunday
29 August to 03 September 2022	<i>Azospirillum</i> : isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms.
04 September 2022	Sunday
05 September to 10 September 2022	<i>Azotobacter</i> : classification, characteristics – crop response to <i>Azotobacter</i> inoculum
11 September 2022	Sunday
12 September to 17 September 2022	<i>Azotobacter</i> : maintenance and mass multiplication Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Cyanobacteria (blue green algae) <i>Azolla</i> and <i>Anabaena azollae</i> association, Nitrogen fixation Class Assignment
23 September 2022	Holiday
24 September 2022	Factors affecting growth blue green algae
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Blue green algae and <i>Azolla</i> in rice cultivation.
02 October 2022	Sunday

  
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Priti  
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03 October-04 October 2022	Mycorrhizal association, types of mycorrhizal association.
05 October 2022	Holiday
06 October-07 October 2022	Types of mycorrhizal association
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Mycorrhiza : taxonomy, occurrence and distribution, phosphorus nutrition Power point presentation Group discussion.
16 October 2022	Sunday
17 October -22 October 2022	Mycorrhiza: growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Organic farming
01 November	Holiday
02 November -05 November 2022	Organic farming – Green manuring and organic fertilizers
06 November 2022	Sunday
07 November 2022	Recycling of bio- degradable municipal
08 November 2022	Holiday
09 November-12 November 2022	Agricultural and Industrial wastes – biocompost making methods
13 November 2022	Sunday
14 November-19 November 2022	Types and method of vermicomposting Group discussion
20 November 2022	Sunday
21 November-26 November 2022	Vermicomposting – field Application.
27 November 2022	Sunday
28 November -30 November 2022	Revision.

*Shivraj*

Teacher's Signature

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22/5/22

# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Chhavi Mangla


Designation :- Assistant Professor

Class :- B.Sc. Second year      Section :- Medical A2 and Biotech B

Subject :- Botany

Paper Name and Paper Code :- Plant Anatomy (BOT 301 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus
18 August 2022	Holiday
19 August to 20 August 2022	Root and shoot apical meristems
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Simple and complex tissues
28 August 2022	Sunday
29 August to 03 September 2022	Theories of shoot apex
04 September 2022	Sunday
05 September to 10 September 2022	Structure of dicot and monocot root stem and leaf
11 September 2022	Sunday
12 September to 17 September 2022	Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Class Assignment
23 September 2022	Holiday
24 September 2022	Stomata and its types
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Epidermal hairs, Trichomes
02 October 2022	Sunday
03 October- 04 October	Vascular cambium -- structure and function, seasonal activity

  
Head, Deptt. of Botany  
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2022	
05 October 2022	Holiday
06 October-07 October 2022	Secondary growth in root and stem, Wood (heartwood and sapwood)
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Anamolous secondary growth in Boehravia and Dracaena
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Epidermis
01 November	Holiday
02 November -05 November 2022	
06 November 2022	Sunday
07 November 2022	Cuticle
08 November 2022	Holiday
09 November-12 November 2022	Anatomical aspects of adaptations in xerophytes
13 November 2022	Sunday
14 November-19 November 2022	Anatomical aspects of adaptations in hydrophytes
20 November 2022	Sunday
21 November-26 November 2022	Anatomical aspects of adaptations in halophytes
27 November 2022	Sunday
28 November -30 November 2022	Revision.

*Omivestav*

Head. Deptt. of Botany  
Dayanand College, Hisar

Teacher's Signature

*Omivestav*  
Head of Botany  
Dayanand College  
Hisar

# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Chhavi Mangla

Designation :- Assistant Professor

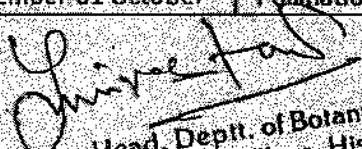
Class :- B.Sc. Second year

Section :- Medical A2 and Biotech B

Subject :- Botany

Paper Name and Paper Code :- Plant Embryology (BOT 302 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus
18 August 2022	Holiday
19 August to 20 August 2022	Structure of anther and pollen
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Structure and types of ovules
28 August 2022	Sunday
29 August to 03 September 2022	Types of embryo sacs
04 September 2022	Sunday
05 September to 10 September 2022	organization and ultrastructure of mature embryo sac
11 September 2022	Sunday
12 September to 17 September 2022	Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Class Assignment
23 September 2022	Holiday
24 September 2022	Placentation- Types
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Pollination mechanisms and adaptations

  
Head, Deptt. of Botany  
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02 October 2022	Sunday
03 October- 04 October 2022	Double fertilization
05 October 2022	Holiday
06 October-07 October 2022	Seed-structure appendages and dispersal mechanisms
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Endosperm types, structure and functions
23 October - 30 October 2022	Diwali Holiday
31 October 2022	
01 November	Holiday
02 November -05 November 2022	Dicot and monocot embryo
06 November 2022	Sunday
07 November 2022	Embryo-endosperm relationship
08 November 2022	Holiday
09 November-12 November 2022	Apomixis Definition, types
13 November 2022	Sunday
14 November-19 November 2022	Apomixis practical applications
20 November 2022	Sunday
21 November-26 November 2022	Apomixis Definition, types and practical applications
27 November 2022	Sunday
28 November -30 November 2022	Revision

*Imi vestan*

Head, Deptt. of Botany  
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Teacher's Signature

*Vinay*  
and College  
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# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Hemant Sharma

Designation :- Assistant Professor

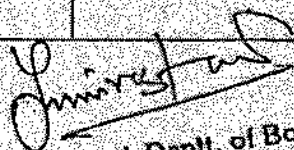
Class :- B.Sc. Second year

Section :- Medical A1

Subject :- Botany

Paper Name and Paper Code :- Plant Anatomy (BOT 301 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus
18 August 2022	Holiday
19 August to 20 August 2022	Root and shoot apical meristems
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Simple and complex tissues
28 August 2022	Sunday
29 August to 03 September 2022	Theories of shoot apex
04 September 2022	Sunday
05 September to 10 September 2022	Structure of dicot and monocot root stem and leaf
11 September 2022	Sunday
12 September to 17 September 2022	Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Class Assignment
23 September 2022	Holiday
24 September 2022	Stomata and its types
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Epidermal hairs, Trichomes
02 October 2022	Sunday
03 October- 04 October 2022	Vascular cambium – structure and function, seasonal activity

  
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05 October 2022	Holiday
06 October-07 October 2022	Secondary growth in root and stem, Wood (heartwood and sapwood)
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Anamolous secondary growth in Boehrvia and Dracaena
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Epidermis
01 November	Holiday
02 November -05 November 2022	
06 November 2022	Sunday
07 November 2022	Cuticle
08 November 2022	Holiday
09 November-12 November 2022	Anatomical aspects of adaptations in xerophytes
13 November 2022	Sunday
14 November-19 November 2022	Anatomical aspects of adaptations in hydrophytes
20 November 2022	Sunday
21 November-26 November 2022	Anatomical aspects of adaptations in halophytes
27 November 2022	Sunday
28 November -30 November 2022	Revision

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Head, Deptt. of Botany  
Dayanand College, Hisar

Teacher's Signature

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Principal  
Dayanand College  
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# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Hemant Sharma

Designation :- Assistant Professor

Class :- B.Sc. Second year      Section :- Medical A1      Subject :- Botany

Paper Name and Paper Code :- Plant Embryology (BOT 302 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus
18 August 2022	Holiday
19 August to 20 August 2022	Structure of anther and pollen
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Structure and types of ovules
28 August 2022	Sunday
29 August to 03 September 2022	Types of embryo sacs
04 September 2022	Sunday
05 September to 10 September 2022	organization and ultrastructure of mature embryo sac
11 September 2022	Sunday
12 September to 17 September 2022	Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Class Assignment
23 September 2022	Holiday
24 September 2022	Placentation- Types
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Pollination mechanisms and adaptations
02 October 2022	Sunday

*Hemant Sharma*  
 Head, Deptt. of Botany  
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03 October- 04 October 2022	Double fertilization
05 October 2022	Holiday
06 October-07 October 2022	Seed-structure appendages and dispersal mechanisms
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentations Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Endosperm types, structure and functions
23 October - 30 October 2022	Diwali Holiday
31 October 2022	
01 November	Holiday
02 November -05 November 2022	Dicot and monocot embryo
06 November 2022	Sunday
07 November 2022	Embryo-endosperm relationship
08 November 2022	Holiday
09 November-12 November 2022	Apomixis Definition, types
13 November 2022	Sunday
14 November-19 November 2022	Apomixis practical applications
20 November 2022	Sunday
21 November-26 November 2022	Apomixis Definition, types and practical applications
27 November 2022	Sunday
28 November -30 November 2022	Revision.

*Chiranjit*

Head, Deptt. of Botany  
Dayanand College, Hisar

Teacher's Signature

*Vijay*  
Principal  
Dayanand College,  
Hisar

# Dayanand college, Hisar

## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Anju

Designation :- Assistant Professor

Class :- B.Sc .First year


Section :- B Biotech

Subject :- Botany

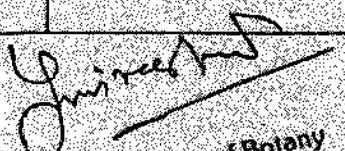
Paper Name and Paper Code :- Biodiversity of Microbes, Algae and Fungi (BOT III L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus Viruses – Discovery, general characteristics
18 August 2022	Holiday
19 August to 20 August 2022	Viruses – replication (general account), DNA virus (T-phage);
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Lytic and lysogenic cycle RNA virus (TMV) Economic Importance of Viruses.
28 August 2022	Sunday
29 August to 03 September 2022	Bacteria – Discovery, General characteristics and cell structure; Reproduction – vegetative, asexual and recombination (conjugation).
04 September 2022	Sunday
05 September to 10 September 2022	Bacteria – Recombination (transformation and transduction); Economic importance of bacteria.
11 September 2022	Sunday
12 September to 17 September 2022	General characteristics; Range of thallus organization and reproduction Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Classification of algae upto classes (Lee, 1980); Morphology and life-cycles of the following: <i>Nostoc</i> Class Assignment
23 September 2022	Holiday
24 September 2022	Morphology : <i>Volvox</i>
25 September 2022	Sunday
26 September 2022	Holidays

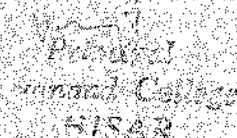
  
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27 September-01 October	Morphology and life-cycles of the following: <i>Volvox</i> , <i>Oedogonium</i> and <i>Ectocarpus</i>
02 October 2022	Sunday
03 October- 04 October 2022	Morphology and life-cycles of the following: <i>Polysiphonia</i>
05 October 2022	Holiday
06 October-07 October 2022	Economic importance of algae.
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Introduction- General characteristics, economic importance, reproduction and classification upto Classes (Ainsworth, 1966) Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Morphology and life cycles of <i>Rhizopus</i>
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Lichens: General account and significance.
01 November	Holiday
02 November -05 November 2022	Morphology and life cycles of <i>Penicillium</i>
06 November 2022	Sunday
07 November 2022	Morphology and life cycles of <i>Colletotrichum</i> .
08 November 2022	Holiday
09 November-12 November 2022	Morphology and life cycles of <i>Puccinia</i> , <i>Agaricus</i>
13 November 2022	Sunday
14 November-19 November 2022	Causal organism, symptoms and control of following plant diseases; Rust of wheat, white rust of crucifers
20 November 2022	Sunday
21 November-26 November 2022	Causal organism, symptoms and control of following plant diseases : late blight of potato, and red rot of sugarcane
27 November 2022	Sunday
28 November -30 November 2022	Revision.

  
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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Priti

Designation :- Assistant Professor

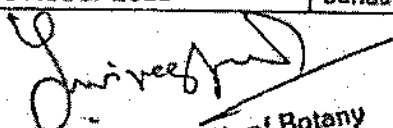
Class :- B.Sc .First year


Section :- B Biotech

Subject :- Botany

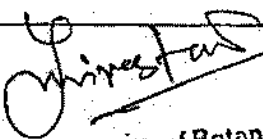
Paper Name and Paper Code :- Biodiversity of Archegoniate (BOT 102 L)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus Unifying features of archegoniates
18 August 2022	Holiday
19 August to 20 August 2022	Transition to land habit, Alternation of generations
21 August 2022	Sunday
22 August 2022 to 27 August 2022	General account of Paleobotany; Types of fossils and process of fossilization
28 August 2022	Sunday
29 August to 03 September 2022	Study of fossil plants: <i>Rhynia</i> and <i>Lyginopteris</i>
04 September 2022	Sunday
05 September to 10 September 2022	Bryophytes : General characteristics, Range of habitat and thallus organization. Classification up to classes (Smith), morphology, anatomy and reproduction of <i>Marchantia</i>
11 September 2022	Sunday
12 September to 17 September 2022	Morphology, anatomy and reproduction of <i>Anthoceros</i> and <i>Funaria</i> . Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Ecology and Economic importance of Bryophytes Class Assignment
23 September 2022	Holiday
24 September 2022	Pteridophytes : General characteristics
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Classification up to Classes (Smith), Morphology, anatomy and reproduction of <i>Selaginella</i>
02 October 2022	Sunday

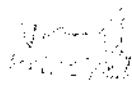
  
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03 October-04 October 2022	Morphology, anatomy and reproduction of <i>Selaginella</i>
05 October 2022	Holiday
06 October-07 October 2022	Morphology, anatomy and reproduction of <i>Equisetum</i> and <i>Pteris</i> .
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Morphology, anatomy and reproduction of <i>Pteris</i> . Heterospory and seed habit. Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Economic importance of Pteridophytes Gymnosperms : General characteristics Classification up to Classes (Pilger and Melchior, 1954)
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Morphology of <i>Cycas</i>
01 November	Holiday
02 November -05 November 2022	Morphology, anatomy and reproduction of <i>Cycas</i> , <i>Pinus</i> .
06 November 2022	Sunday
07 November 2022	Reproduction of <i>Pinus</i> .
08 November 2022.	Holiday
09 November-12 November 2022	Ecological importance of Gymnosperms.
13 November 2022	Sunday
14 November-19 November 2022	Economic of Gymnosperms.
20 November 2022	Sunday
21 November-26 November 2022	Group Discussion
27 November 2022	Sunday
28 November -30 November 2022	Revision.

  
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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Aditya Kumar

Designation :- Assistant Professor

Class :- B.Sc. First year

Section :- Medical A1

Subject :- Botany

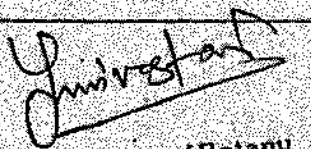
Paper Name and Paper Code :- B.Sc. University of Microbes, Algae and Fungi (22221011)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus Viruses – Discovery, general characteristics
18 August 2022	Holiday
19 August to 20 August 2022	Viruses – replication (general account), DNA virus (T-phage);
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Lytic and lysogenic cycle RNA virus (TMV) Economic Importance of Viruses.
28 August 2022	Sunday
29 August to 03 September 2022	Bacteria – Discovery, General characteristics and cell structure; Reproduction – vegetative, asexual and recombination (conjugation).
04 September 2022	Sunday
05 September to 10 September 2022	Bacteria – Recombination (transformation and transduction); Economic importance of bacteria.
11 September 2022	Sunday
12 September to 17 September 2022	General characteristics; Range of thallus organization and reproduction Class test.
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Classification of algae upto classes (Lee, 1980); Morphology and life-cycles of the following: <i>Nostoc</i> Class Assignment
23 September 2022	Holiday
24 September 2022	Morphology: <i>Volvox</i>
25 September 2022	Sunday
26 September 2022	Holidays


  
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27 September-01 October	Morphology and life-cycles of the following: <i>Volvox</i> , <i>Oedogonium</i> and <i>Ectocarpus</i>
02 October 2022	Sunday
03 October- 04 October 2022	Morphology and life-cycles of the following: <i>Polysiphonia</i>
05 October 2022	Holiday
06 October-07 October 2022	Economic importance of algae.
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Introduction- General characteristics, economic importance, reproduction and classification upto Classes (Ainsworth, 1966) Power point presentation Group discussion.
16 October 2022	Sunday
17 October -22 October 2022	Morphology and life cycles of <i>Rhizopus</i>
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Lichens: General account and significance.
01 November	Holiday
02 November -05 November 2022	Morphology and life cycles of <i>Penicillium</i>
06 November 2022	Sunday
07 November 2022	Morphology and life cycles of <i>Colletotrichum</i> .
08 November 2022	Holiday
09 November-12 November 2022	Morphology and life cycles of <i>Puccinia</i> , <i>Agaricus</i>
13 November 2022	Sunday
14 November-19 November 2022	Causal organism, symptoms and control of following plant diseases; Rust of wheat, white rust of crucifers
20 November 2022	Sunday
21 November-26 November 2022	Causal organism, symptoms and control of following plant diseases : late blight of potato, and red rot of sugarcane
27 November 2022	Sunday
28 November -30 November 2022	Revision.

  
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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Dr. Aditya Kumar

Designation :- Assistant Professor

Class :- B.Sc. First year

Section :- Medical A1

Subject :- Botany

Paper Name and Paper Code :- Biodiversity of Archegoniate (BSC 1621)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus Unifying features of archegoniate
18 August 2022	Holiday
19 August to 20 August 2022	Transition to land habit, Alternation of generations
21 August 2022	Sunday
22 August 2022 to 27 August 2022	General account of Paleobotany; Types of Fossils and process of fossilization
28 August 2022	Sunday
29 August to 03 September 2022	Study of fossil plants: <i>Rhynia</i> and <i>Lyginopteris</i>
04 September 2022	Sunday
05 September to 10 September 2022	Bryophytes : General characteristics, Range of habitat and thallus organization. Classification up to classes (Smith), morphology, anatomy and reproduction of <i>Marchantia</i>
11 September 2022	Sunday
12 September to 17 September 2022	Morphology, anatomy and reproduction of <i>Anthoceros</i> and <i>Funaria</i> . Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Ecology and Economic importance of Bryophytes Class Assignment
23 September 2022	Holiday
24 September 2022	Pteridophytes : General characteristics
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Classification up to Classes (Smith), Morphology, anatomy and reproduction of <i>Selaginella</i>
02 October 2022	Sunday

  
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03 October-04 October 2022	Morphology, anatomy and reproduction of <i>Selaginella</i>
05 October 2022	Holiday
06 October-07 October 2022	Morphology, anatomy and reproduction of <i>Equisetum</i> and <i>Pteris</i> .
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Morphology, anatomy and reproduction of <i>Pteris</i> . Heterospory and seed habit. Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Economic importance of Pteridophytes Gymnosperms : General characteristics Classification up to Classes (Pilger and Melchior, 1954)
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Morphology of <i>Cycas</i>
01 November	Holiday
02 November -05 November 2022	Morphology, anatomy and reproduction of <i>Cycas</i> , <i>Pinus</i> .
06 November 2022	Sunday
07 November 2022	Reproduction of <i>Pinus</i> .
08 November 2022	Holiday
09 November-12 November 2022	Ecological importance of Gymnosperms.
13 November 2022	Sunday
14 November-19 November 2022	Economic of Gymnosperms.
20 November 2022	Sunday
21 November-26 November 2022	Group Discussion
27 November 2022	Sunday
28 November -30 November 2022	Revision.

*Y. Jaiswal*  
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*Vijay*  
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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Anju

Designation :- Assistant Professor

Class :- B.Sc. Final year

Section :- Medical A1

Subject :- Botany

Paper Name and Paper Code :- Molecular Biology (40313)

Tentative Dates	Topics
16 August to 17 August 2022	General Introduction of syllabus DNA: Miescher to Watson and Crick historic perspective
18 August 2022	Holiday
19 August to 20 August 2022	Griffith's and Avery's transformation experiments
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Hershey-Chase bacteriophage experiment, DNA structure
28 August 2022	Sunday
29 August to 03 September 2022	Types of DNA, types of genetic material. DNA replication : Prokaryotes
04 September 2022	Sunday
05 September to 10 September 2022	DNA replication (Prokaryotes and eukaryotes): bidirectional replication, semi-conservative, semidiscontinuous RNA priming, replication of linear dsDNA
11 September 2022	Sunday
12 September to 17 September 2022	Replicating the 5' end of linear chromosome including replication enzymes. RNA structure and types of RNA Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Transcription in prokaryotes Prokaryotic RNA polymerase, role of sigma factor Class Assignment
23 September 2022	Holiday
24 September 2022	Transcription in prokaryotes promoter, initiation
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Transcription in prokaryotes : elongation and termination of RNA chains. Transcription in eukaryotes: Eukaryotic RNA polymerases
02 October 2022	Sunday

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03 October-04 October 2022	Genetic code and its characteristics
05 October 2022	Holiday
06 October-07 October 2022	Prokaryotic and eukaryotic translation: ribosome structure and assembly, charging of tRNA
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Aminoacyl Trna synthetase, mechanism of initiation, elongation and termination of polypeptides Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Regulation of gene expression in prokaryotes: Operon concept (inducible and repressible system).
23 October -30 October 2022	Diwali Holiday
31 October 2022	Introduction to electrophoresis
01 November	Holiday
02 November -05 November 2022	A garose gel electrophoresis, Acrylamide gel electrophoresis
06 November 2022	Sunday
07 November 2022	Immuno-electrophoresis
08 November 2022	Holiday
09 November-12 November 2022	PCR and its variants, application of PCR, Principles of microscopy;
13 November 2022	Sunday
14 November-19 November 2022	Electron microscopy (EM)- Scanning EM and Scanning Transmission EM (STEM).
20 November 2022	Sunday
21 November-26 November 2022	Light and Phase contrast microscopy
27 November 2022	Sunday
28 November -30 November 2022	Revision.

*Y. Jaiswal*

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Principal  
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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Anju

Designation :- Assistant Professor

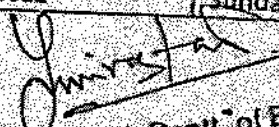
Class :- B.Sc. Final year


Section :- Medical A2

Subject :- Botany

Paper Name and Paper Code :- Molecular Biology (B3) 502 L

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus DNA: Miescher to Watson and Crick historic perspective
18 August 2022	Holiday
19 August to 20 August 2022	Griffith's and Avery's transformation experiments
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Hershey-Chase bacteriophage experiment, DNA structure
28 August 2022	Sunday
29 August to 03 September 2022	Types of DNA, types of genetic material. DNA replication : Prokaryotes
04 September 2022	Sunday
05 September to 10 September 2022	DNA replication (Prokaryotes and eukaryotes): bidirectional replication, semi-conservative, semidiscontinuous RNA priming, replication of linear dsDNA
11 September 2022	Sunday
12 September to 17 September 2022	Replicating the 5' end of linear chromosome including replication enzymes. RNA structure and types of RNA Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Transcription in prokaryotes Prokaryotic RNA polymerase, role of sigma factor Class Assignment
23 September 2022	Holiday
24 September 2022	Transcription in prokaryotes promoter, initiation
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Transcription in prokaryotes : elongation and termination of RNA chains. Transcription in eukaryotes: Eukaryotic RNA polymerases
02 October 2022	Sunday

  
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03 October-04 October 2022	Genetic code and its characteristics
05 October 2022	Holiday
06 October-07 October 2022	Prokaryotic and eukaryotic translation: ribosome structure and assembly, charging of tRNA
08 October 2022	Holiday
09 October 2022	Sunday
10 October to 15 October 2022	Aminoacyl Trna synthetase, mechanism of initiation, elongation and termination of polypeptides Power point presentation Group discussion
16 October 2022	Sunday
17 October -22 October 2022	Regulation of gene expression in prokaryotes: Operon concept (inducible and repressible system).
23 October - 30 October 2022	Diwali Holiday
31 October 2022	Introduction to electrophoresis
01 November	Holiday
02 November -05 November 2022	Agarose gel electrophoresis, Acrylamide gel electrophoresis
06 November 2022	Sunday
07 November 2022	Immuno-electrophoresis
08 November 2022	Holiday
09 November-12 November 2022	PCR and its variants, application of PCR, Principles of microscopy,
13 November 2022	Sunday
14 November-19 November 2022	Electron microscopy (EM)- Scanning EM and Scanning Transmission EM (STEM).
20 November 2022	Sunday
21 November-26 November 2022	Light and Phase contrast microscopy
27 November 2022	Sunday
28 November -30 November 2022	Revision.

*Y. Praveen*

Head, Deptt. of Botany  
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*Y. Praveen*  
Head, Deptt. of Botany  
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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :-Priti

Designation :- Assistant Professor

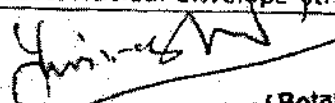
Class :- B.Sc. Final year

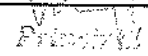
Section :-B Biotech

Subject :-Botany

Paper Name and Paper Code :- Cell Biology (BOT 501 13)

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus The Cell Theory
18 August 2022	Holiday
19 August to 20 August 2022	Prokaryotic and eukaryotic cells; Cell size and shape
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Eukaryotic Cell components. Cell Cycle: Overview of Cell cycle,
28 August 2022	Sunday
29 August to 03 September 2022	Mitosis and Meiosis; Molecular controls
04 September 2022	Sunday
05 September to 10 September 2022	, Mitochondria: Structure, marker enzymes, composition; Semiautonomous nature; Symbiont hypothesis; Proteins synthesized within mitochondria; mitochondrial DNA.
11 September 2022	Sunday
12 September to 17 September 2022	Chloroplast Structure, marker enzymes, composition; semiautonomous nature, chloroplast DNA. Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	ER, Golgi body Structures and roles. Class Assignment
23 September 2022	Holiday
24 September 2022	Lysosomes structure and roles.
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Peroxisomes and Glyoxisomes: Structures, composition, functions in animals and plants and biogenesis.
02 October 2022	Sunday
03 October- 04 October	Nucleus: Nuclear Envelope-structure of nuclear pore complex

  
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2022 .	
05 October 2022	Holiday
06 October-07 October 2022	chromatin; molecular organization, DNA packaging in eukaryotes, euchromatin and heterochromatin
08 October 2022	
09 October 2022	Sunday
10 October to 15 October 2022	Power point presentation Group discussion.
16 October 2022	Sunday
17 October -22 October 2022	nucleolus and ribosome structure (brief).
23 October - 30 October 2022	Diwali Holiday
31 October 2022	The functions of membranes
01 November	Holiday
02 November -05 November 2022	Models of membrane structure
06 November 2022	Sunday
07 November 2022	The fluidity of membranes
08 November 2022	Holiday
09 November-12 November 2022	Membrane proteins and their functions;
13 November 2022	Sunday
14 November-19 November 2022	Carbohydrates in the membrane
20 November 2022	Sunday
21 November-26 November 2022	Faces of the membranes; Selective permeability of the membranes;
27 November 2022	Sunday
28 November -30 November 2022	Cell wall.

*[Handwritten Signature]*

Teacher's Signature

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## Department of Botany

Botany lesson plan: August 2022 to November 2022

Name of teacher :- Priti

Designation :- Assistant Professor

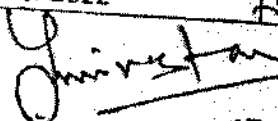
Class :- B.Sc .Final year

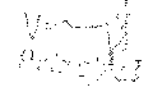
Section :- B Biotech

Subject :- Botany

Paper Name and Paper Code :- Molecular Biology

Tentative Dates	Topics
16 August to 17 August 2022	General introduction of syllabus DNA: Miescher to Watson and Crick historic perspective
18 August 2022	Holiday
19 August to 20 August 2022	Griffith's and Avery's transformation experiments
21 August 2022	Sunday
22 August 2022 to 27 August 2022	Hershey-Chase bacteriophage experiment, DNA structure
28 August 2022	Sunday
29 August to 03 September 2022	Types of DNA, types of genetic material. DNA replication : Prokaryotes
04 September 2022	Sunday
05 September to 10 September 2022	DNA replication (Prokaryotes and eukaryotes): bidirectional replication, semi-conservative, semidiscontinuous RNA priming, replication of linear dsDNA
11 September 2022	Sunday
12 September to 17 September 2022	Replicating the 5' end of linear chromosome including replication enzymes. RNA structure and types of RNA Class test
18 September 2022	Sunday
19 September 2022 To 22 September 2022	Transcription in prokaryotes Prokaryotic RNA polymerase, role of sigma factor Class Assignment
23 September 2022	Holiday
24 September 2022	Transcription in prokaryotes promoter, initiation
25 September 2022	Sunday
26 September 2022	Holidays
27 September-01 October	Transcription in prokaryotes : elongation and termination of RNA chains. Transcription in eukaryotes: Eukaryotic RNA polymerases
02 October 2022	Sunday

  
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Priti  
Botany