

LESSON PLAN FOR EVEN SEM

SESSION 2017-18

NAME OF ASSISTANT /ASSOCIATE PROFESSOR : MS. JYOTI

CLASS/SECTION

: B.SC-1ST YEAR

SUBJECT

: BIOTECHNOLOGY

UNIT/PART I	TOPIC	
	THEORY	PRACTICAL
DAY1 DATE 1-1-18	Chapter Introduction And Scope Of Microbiology	Protein estimation by lowry method
DAY2 DATE 2-1-18	Definition And History Of Microbiology	Protein estimation by lowry method – continued
DAY3 DATE 3-1-18	Contributions Of Antony Van Leeuwenhoek	-----
DAY4 DATE 4-1-18	Louis Pasteur, Robert Koch	-----
DAY5 DATE 5-1-18	Importance And Scope Of Microbiology As A Modern Science Branches Of Microbiology-1	-----
DAY6 DATE 6-1-18	Importance And Scope Of Microbiology As A Modern Science Branches Of Microbiology-2	Protein estimation by lowry method- continued
DAY7 DATE 8-1-18	Microscope Construction And Working Principles Of Different Types Of Microscopes	Analysis of urine for urea
DAY8 DATE 9-1-18	Compound Dark Field	Analysis of urine for urea – continued
DAY9 DATE 10-1-18	Phase Contrast	-----
DAY10 DATE 11-1-18	Fluorescence And Electron (Scanning And Transmission)	-----
DAY11 DATE 12-1-18	Microbial Techniques Sterilization: Principles And Applications Of A. Physical Methods.	-----
DAY12 DATE 13-1-18	Autoclave, hot air oven	Analysis of urine for urea, glucose, uric acid and chloride – continued
DAY13 DATE 15-1-18	Laminar airflow	Estimation of vit. C.
DAY 14 DATE 16-1-18	Seitz filter	Estimation of vit. C. – continued
DAY15 DATE 17-1-18	Sintered glass filter, and membrane filter	-----
DAY16 DATE 18-1-18	Chemical methods: alcohol, aldehydes ,phenols	-----
DAY17 DATE 19-1-18	Halogens and gaseous agents	-----
DAY18 DATE 20-1-18	Radiation methods: uv rays and gamma stains	ESTIMATION OF VIT. C – CONTINUED
DAY19 DATE 22-1-18	HOLIDAY	HOLIDAY
DAY20	Sports day	Sports day

DATE 23-1-18		
DAY21 DATE 24-1-18	HOLIDAY	HOLIDAY
DAY22 DATE 25-1-18	Stains and staining techniques: principles of staining	-----
DAY23 DATE 26-1-18	HOLIDAY	HOLIDAY
DAY 24 DATE 27-1-18	Types Of Stains Simple Stains, Structural Stains And Differential Stains.	Separation of lipids by tlc method
UNIT/PART II	TOPIC	
	THEORY	PRACTICAL
DAY1 DATE 29-1-18	Microbial taxonomy	Separation of lipids by tlc method – continued
DAY2 DATE 30-1-18	Concept of microbial species and strains	Separation of lipids by tlc method – continued
DAY3 DATE 31-1-18	HOLIDAY	HOLIDAY
DAY4 DATE 1-2-18	Classification of bacteria based on – morphology (shape and flagella)	-----
DAY5 DATE 2-2-18	Staining reaction	-----
DAY6 DATE 3-2-18	Nutrition and extreme environment	Polyacrylamide gel electrophoresis of a biological sample
DAY7 DATE 5-2-18	General account of viruses	Gel filtration chromatography/
DAY8 DATE 6-2-18	General account of bacteria	Ion exchange chromatography
DAY9 DATE 7-2-18	Bacteria – ultra structure of bacteria cell (both gram positive and gram negative)	-----
DAY10 DATE 8-2-18	Endospore and capsule	-----
DAY11 DATE 9-2-18	ASSIGNMENT 1	Media preparation: nutrients agar, mrba and nutrient broth isolation of bacteria and fungi from soil, air, and water – dilution and pourplate methods
DAY12 DATE 10-2-18	HOLIDAY	HOLIDAY
DAY13 DATE 12-2-18	Viruses – Structure And Classification Plant Viruses – Camv	Media Preparation: Nutrients Agar, Mrba And Nutrient Broth Isolation Of Bacteria And Fungi From Soil, Air, And Water – Dilution And Pourplate Methods – Continued
DAY14 DATE 13-2-18	HOLIDAY	HOLIDAY
DAY15 DATE 14-2-18	Animal Viruses – Hepatitis B Bacterial Virus – Lamba Phage	-----

DAY16 DATE 15-2-18	Pathogenic Microorganisms	-----
DAY17 DATE 16-2-18	Bacterial Diseases Of Man – Tetanus, Tuberculosis	-----
DAY18 DATE 17-2-18	Pneumonia And Cholera	Media Preparation: Nutrients Agar, Mrba And Nutrient Broth Isolation Of Bacteria And Fungi From Soil, Air, And Water – Dilution And Pourplate Methods – Continued
DAY19 DATE 19-2-18	Viral Diseases: Aids (Hiv) Microbial Growth And Metabolism	Isolation Of Bacteria From Soil, Air And Water
DAY20 DATE 20-2-18	Kinetics Of Microbial Growth, Growth Curve, Synchronous Growth, Factors Affecting Bacterial Growth	Isolation Of Bacteria From Soil, Air And Water – Continued
DAY21 DATE 21-2-18	Respiration: Emp,Hmp Oxidative Phosphorylation Ed Pathways	-----
DAY22 DATE 22-2-18	Krebs’s Cycle Bacterial Photosynthesis: Photosynthetic Apparatus In Prokaryotes	-----
DAY23 DATE 23-2-18	Photophosphorylation & Dark Reaction.	-----
UNIT/PART III	TOPIC	
	THEORY	THEORY
DAY1 DATE 24-2-18	Enzymes; Introduction, Active Site, Energy Of Activation	Isolation Of Bacteria From Soil, Air And Water
DAY2 DATE 26-2-18	Transition State Hypothesis, Lock And Key Hypothesis	Isolation Of Fungi From Soil, Air And Water – Continued
DAY3 DATE 27-2-18	Induced Fit Hypothesis	Isolation Of Fungi From Soil, Air And Water – Continued
DAY4 DATE 28-2-18	HOLIDAY	HOLIDAY
DAY5 DATE 1-3-18	HOLIDAY	HOLIDAY
DAY6 DATE 2-3-18	HOLIDAY	HOLIDAY
DAY7 DATE 3-3-18	HOLIDAY	HOLIDAY
DAY8 DATE 5-3-18	Enzymes Classification(Major Class Only)	Isolation Of Fungi From Soil, Air And Water – Continued
DAY9	Enzymes Kinetics Substrate Concentration	To Study The Dilution And Pour Plate Technique Of Bacteria From

DATE 6-3-18		Soil
DAY10 DATE 7-3-18	Km, Vmax, Mmequation	-----
DAY11 DATE 8-3-18	Line Weave Burk Plot/Double Reciprocal Plot	-----
DAY12 DATE 9-3-18	Effect Ofph , Temperature On Enzymes Activity	-----
DAY13 DATE 10-3-18	ASSIGNMENT 2	To Study The Dilution And Pour Plate Technique Of Bacteria From Soil – Continued
DAY 14 DATE 12-3-18	Allosteric Enzymes(A Brief Account) Enzymes Inhibition-Competitive, Non-Competitive And Uncompetitive Inhibition	To Study The Dilution And Pour Plate Technique Of Bacteria From Soil – Continued
DAY15 DATE 13-3-18	Vitamins And Hormones: Introduction ,Types Of Vitamins	To Study The Dilution And Pour Plate Technique Of Bacteria From Water
DAY16 DATE 14-3-18	Structure Of Water Soluble Vitamins	-----
DAY17 DATE 15-3-18	Coenzymes Derivatives	-----
DAY18 DATE 16-3-18	Fat Soluble Vitamins	-----
DAY19 DATE 17-3-18	Deficiency Symptoms And Dietary Sources	To Study The Dilution And Pour Plate Technique Of Bacteria From Water – Continued
DAY20 DATE 19-3-18	Steroids Hormones, Structure And Importance Of Steroids Hormones	To Study The Dilution And Pour Plate Technique Of Bacteria From Water – Continued
DAY21 DATE 20-3-18	Peptide Hormones Structure Of Peptide Hormones	Staining Techniques: Simple, Negative Staining
DAY22 DATE 21-3-18	CONDITIONAL TEST	-----
DAY23 DATE 22-3-18	CONDITIONAL TEST	-----
DAY 24 DATE 23-3-18	HOLIDAY	HOLIDAY
DAY 25 DATE 24-3-18	Function Of Peptides Hormones Importance Of Peptide Hormones	-----
UNIT/PART IV	TOPIC	
	THEORY	THEORY
DAY1 DATE 26-3-18	Metabolism: General Introduction	Staining Techniques: Simple, Negative Staining – Continued
DAY2	Catabolism	Staining Techniques: Simple,

DATE 27-3-18		Negative Staining - Continued
DAY3 DATE 28-3-18	Anabolism	
DAY4 DATE 29-3-18	HOLIDAY	HOLIDAY
DAY5 DATE 30-3-18	Carbohydrate Metabolism: Glycolysis	-----
DAY6 DATE 31-3-18	Ta Cycle	Staining Techniques: Gram Staining
DAY7 DATE 2-4-18	Gluconeogenesis,	Staining Techniques: Gram Staining – Continued
DAY8 DATE 3-4-18	Glycogenolysis	Staining Techniques: Gram Staining – Continued
DAY9 DATE 4-4-18	Glycogen Synthesis	-----
DAY10 DATE 5-4-18	Glycogen Regulation	-----
DAY11 DATE 6-4-18	Lipid Metabolism: Beta Oxidation Of Fatty Acids	-----
DAY12 DATE 7-4-18	Degradation Of Triacylglycerol	Staining Techniques :Endospore Staining - Continued
DAY13 DATE 9-4-18	Synthesis Of Fatty Acids	Staining Techniques :Endospore Staining – Continued
DAY14 DATE 10-4-18	Amino Acid Metabolism:Transamination	Staining Techniques : Fungal Staining
DAY15 DATE 11-4-18	Oxidative Deamination	-----
DAY16 DATE 12-4-18	Decarboxylation	-----
DAY17 DATE 13-4-18	Urea Cycle	-----
DAY18 DATE 14-4-18	HOLIDAY	HOLIDAY
DAY19 DATE 16-4-18	Different Classes Of Oxidation	Staining Techniques : Fungal Staining – Continued
DAY20 DATE 17-4-18	Synthesis Of Amino Acids	Staining Techniques : Fungal Staining – Continued
DAY21 DATE 18-4-18	HOLIDAY	HOLIDAY
DAY22 DATE 19-4-18	Glycogenic Amino Acids Ketogenic Amino Acids	-----
DAY23 DATE 20-4-18	Revision	-----

NAME OF ASSISTANT /ASSOCIATE PROFESSOR : MS. JYOTI

CLASS/SECTION

: B.SC-2ND YEAR

SUBJECT

: BIOTECHNOLOGY

UNIT/PART I	TOPIC
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	THEORY	PRACTICAL
DAY4 DATE 4-1-18	Recombinant Dna Technology And Genetic Engineering: Introduction, History, Scope And Application Of Dna Technology	
DAY5 DATE 5-1-18	Tools Of Recombinant Dna Technology: Steps In Gene Cloning.	
DAY10 DATE 11-1-18	Ligases, Polymerases, Alkaline Phosphatases, Kinases Gene Cloning Tools - Restriction Enzymes- Class I, II And Class III Restriction Enzymes	
DAY11 DATE 12-1-18	Transferases And Other Dna Engineering Enzymes. Gene Cloning Vectors: Introduction, Nomenclature Of Vectors	
DAY16 DATE 18-1-18	Properties Of A Suitable Vector. Plasmid Vectors, Bacteriophage	
DAY17 DATE 19-1-18	Cosmids And Phagemids. Properties Of Host. M13 Vectors. Expression Vectors	
DAY19 DATE 22-1-18	HOLIDAY	HOLIDAY
DAY20 DATE 23-1-18	SPORTS DAY	SPORTS DAY
DAY21 DATE 24-1-18	HOLIDAY	HOLIDAY
DAY22 DATE 25-1-18	Shuttle Vectors. Vectors For Cloning In Eukaryotic Cells, Yacs And Bacs.	
DAY23 DATE 26-1-18	HOLIDAY	HOLIDAY
UNIT/PART II	TOPIC	
	THEORY	PRACTICAL
DAY3 DATE 31-1-18	HOLIDAY	HOLIDAY
DAY4 DATE 1-2-18	In Vitro Construction Of R-Dna Molecules: Isolation Of Gene Of Interest And Vector	
DAY5 DATE 2-2-18	Cohesive And Blunt Ends, Modification Of Cut Ends, Linkers And Adaptors	
DAY10 DATE 8-2-18	Integration Of Dna Inserts Into The Vectors. Transformation: Techniques Of Introducing R-Dna Into The Desired Host	
DAY11 DATE 9-2-18	ASSIGNMENT 1	
DAY12 DATE 10-2-18	HOLIDAY	HOLIDAY
DAY14 DATE 13-2-18	HOLIDAY	HOLIDAY
DAY16 DATE 15-2-18	Competent Cells, Electroporation And Microinjection.	
DAY17 DATE 16-2-18	Screening And Selection Of Transformants And Their Characterization	
DAY22 DATE 22-2-18	Selection Of Clone Having The Specific Dna Insert - Immunological Screening	
DAY23	Colony Hybridization And Marker Genes-	

DATE 23-2-18	Selectable And Scorable Markers	
UNIT/PART III	TOPIC	
	THEORY	THEORY
DAY4 DATE 28-2-18	HOLIDAY	HOLIDAY
DAY5 DATE 1-3-18	HOLIDAY	HOLIDAY
DAY6 DATE 2-3-18	HOLIDAY	HOLIDAY
DAY7 DATE 3-3-18	HOLIDAY	HOLIDAY
DAY11 DATE 8-3-18	Gene Libraries: Construction Of Genomic And Cdna Library Advantages And Limitations, Screening Of Gene Libraries.	
DAY12 DATE 9-3-18	Dna Amplification Through Pcr: Basic Features And Applications Of Pcr Types And Modifications. Site Directed Mutagenesis.	
DAY13 DATE 15-3-18	ASSIGNMENT 2	
DAY18 DATE 16-3-18	Dna Sequencing Techniques: Maxam – Gilbert’s Method Sanger’s Dideoxy Chain Termination Method, Automated Dna Sequencing.	
DAY22 DATE 21-3-18	CONDITIONAL TEST	
DAY23 DATE 22-3-18	CONDITIONAL TEST	
DAY 24 DATE 23-3-18	HOLIDAY	HOLIDAY
UNIT/PART IV	TOPIC	
	THEORY	THEORY
DAY4 DATE 29-3-18	HOLIDAY	HOLIDAY
DAY5 DATE 30-3-18	Genome Mapping: Concept And Applications	
DAY10 DATE 5-4-18	Restriction Enzyme Digestion And Restriction Mapping.	
DAY11 DATE 6-4-18	Southern And Northern Analysis. Dna Finger Printing. Page, Western Blotting	
DAY16 DATE 12-4-18	Dot Blots And Slot Blots. Rflp, Rapd (Brief Only), Microarrays. Gene Expression In Prokaryotes: Expression Cassette. Promoters	
DAY17 DATE 13-4-18	Tissue Specific Promoters, Wound Inducible Promoters, Strong And Regulated Promoters. Increasing Protein Yield-Factors Affecting Level Of Recombinant Protein Production.	
DAY18 DATE 14-4-18	HOLIDAY	HOLIDAY
DAY21 DATE 18-4-18	HOLIDAY	HOLIDAY
Day22 Date 19-4-18	Production Of Recombinant Proteins In E. Coli, Translational And Transcriptional Fusion-Advantages And Disadvantages Applications Of	

	Recombinant Dna Technology: Production Of Recombinant Proteins Of Pharmaceutical Importance	
DAY23 DATE 20-4-18	Insulin, Human Growth Hormone, Recombinant Vaccines (Hepatitis B) Etc. Transgenic Plants And Animals.	

NAME OF ASSISTANT /ASSOCIATE PROFESSOR : MS. JYOTI
CLASS/SECTION : B.SC-3RD YEAR
SUBJECT : BIOTECHNOLOGY

UNIT/PART I	TOPIC	
	THEORY	PRACTICAL
DAY5 DATE 5-1-18	Biotechnology: Historical Landmarks, General Concept	
DAY11 DATE 12-1-18	Screening And Isolation Of Micro Organisms: Industrially Important Microbes	
DAY17 DATE 19-1-18	Screening And Isolation, Enrichment Culture.	
DAY19 DATE 22-1-18	HOLIDAY	HOLIDAY
DAY20 DATE 23-1-18	SPORTS DAY	SPORTS DAY
DAY21 DATE 24-1-18	HOLIDAY	HOLIDAY
DAY23 DATE 26-1-18	HOLIDAY	HOLIDAY
UNIT/PART II	TOPIC	
	THEORY	PRACTICAL
DAY3 DATE 31-1-18	HOLIDAY	HOLIDAY
DAY5 DATE 2-2-18	Strain Improvement- Bacterial Genetics, Mutant Selection, Recombination, Recombinant DNA Technology	
DAY11 DATE 9-2-18	ASSIGNMENT 1	
DAY12 DATE 10-2-18	HOLIDAY	HOLIDAY
DAY14 DATE 13-2-18	HOLIDAY	HOLIDAY
DAY17 DATE 16-2-18	Strain Preservation And Maintenance. 18 Nutrition And Cultivation Of Microorganisms: Basic Nutrition And Metabolism Natural And Synthetic Media, Sterilization Techniques, Microbial Growth Kinetics.	
DAY23 DATE 23-2-18	Fermentation Types – Continuous, Batch Fed Culture, Solid State And Submerged.	
UNIT/PART III	TOPIC	

	THEORY	PRACTICAL
DAY4 DATE 28-2-18	HOLIDAY	HOLIDAY
DAY5 DATE 1-3-18	HOLIDAY	HOLIDAY
DAY6 DATE 2-3-18	HOLIDAY	HOLIDAY
DAY7 DATE 3-3-18	HOLIDAY	HOLIDAY
DAY12 DATE 9-3-18	Quantification Of Growth, Thermodynamics Of Growth, Effect Of Different Factors On Growth. Fermentation Concepts And Types	
DAY13 DATE 10-3-18	ASSIGNMENT 2	
DAY18 DATE 16-3-18	Microbial Fermenters/Bioreactors: Basic Design Of Fermenters	
DAY22 DATE 21-3-18	CONDITIONAL TEST	
DAY23 DATE 22-3-18	CONDITIONAL TEST	
DAY 24 DATE 23-3-18	HOLIDAY	HOLIDAY
UNIT/PART IV	TOPIC	
	THEORY	THEORY
DAY4 DATE 29-3-18	HOLIDAY	HOLIDAY
DAY5 DATE 30-3-18	Physico-Chemical Standards Used In Bioreactors (Agitation, Aeration, Ph, Temp., Dissolved Oxygen Etc.).	
DAY11 DATE 6-4-18	Types Of Fermentersstirred Tank, Bubble Column, Airlift Etc.	
DAY17 DATE 13-4-18	Process Development And Downstream Processing: Shake Flask Fermentation, Scale Up Of The Process.	
DAY18 DATE 14-4-18	HOLIDAY	HOLIDAY
DAY21 DATE 18-4-18	HOLIDAY	HOLIDAY
DAY23 DATE 20-4-18	Downstream Processing – Separation Of Particles, Disintegration Of Cells Extraction, Concentration, Purification And Drying Of The Products.	

(JYOTI)

NAME OF TEACHER