LESSON PLAN FOR EVEN SEM
SESSION 2017-18

NAME OF ASSISTANT /ASSOCIATE PROFESSOR: DR. SHIVANI SOOD
CLASS/SECTION : B.SC IIIRDYEAR
SUBJECT : BIOTECHNOLOGY

UNIT/PART I	TOPIC	
	THEORY	PRACTICAL
DAY1 DATE 1-1-18	Introduction to certain Industrial Products.	----------
DAY2 DATE 2-1-18	Fermentation, Chemistry & Types of Fermentation.	----------
DAY3 DATE 3-1-18	Production of alcohol: Biochemical Pathway & Raw Materials.	----------
DAY4 DATE 4-1-18	Picking, Handling and Crushing of Fruits.	----------
DAY5 DATE 5-1-18	----------	Autoclaving and Incubation of Glasswares.
DAY6 DATE 6-1-18	Pre treatment of Picking, Handling and Crushing of Fruits in bioreactors.	Autoclaving and Incubation of Glasswares.
DAY7 DATE 8-1-18	Fermentation process.	----------
DAY8 DATE 9-1-18	Post Fermentation.	----------
DAY9 DATE 10-1-18	Racking, Storage and Ageing.	----------
DAY10 DATE 11-1-18	Clarification and Packing.	----------
DAY11 DATE 12-1-18	----------	Preparation of synthetic seeds.
DAY12 DATE 13-1-18	Applications and Biochemical characterization of fermented alcohol.	Preparation of synthetic seeds.
DAY13 DATE 15-1-18	Production of Beer and Wine: Biochemical Pathway & Raw Materials.	----------
DAY 14 DATE 16-1-18	Picking, Handling and Crushing of grapes.	----------
DAY15 DATE 17-1-18	Pretreatment of Picking, Handling and Crushing of grapes in Bioreactors.	----------
DAY16 DATE 18-1-18	Post Fermentation.	----------
DAY17 DATE 19-1-18	----------	Study of Bacterial and Yeast growth Curve.

DAY18 DATE 20-1-18	Racking, Storage and Ageing.	Study of Bacterial and Yeast growth Curve.
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	Clarification and Packing.	----------
DAY23 DATE 26-1-18	**HOLIDAY**	**HOLIDAY**
DAY 24 DATE 27-1-18	Applications and Biochemical characterization of fermented alcohol.	Study of Bacterial and Yeast growth Curve.
UNIT/PART II	**TOPIC**	
	THEORY	**PRACTICAL**
DAY1 DATE 29-1-18	Production of *Pencillin:* Introduction, Production and upstream &downstream processing.	----------
DAY2 DATE 30-1-18	Fermentation process, Isolation of *pencillin*, Processing and Applications.	----------
DAY3 DATE 31-1-18	**HOLIDAY**	**HOLIDAY**
DAY4 DATE 1-2-18	Production of Citric Acid: Introduction and Biochemical Pathway.	----------
DAY5 DATE 2-2-18	----------	Production of alcohol.
DAY6 DATE 3-2-18	Raw materials and Fermentation.	Production of alcohol.
DAY7 DATE 5-2-18	Biomass removal and liquid liquid extraction.	----------
DAY8 DATE 6-2-18	Crystallization, Drying and Applications.	----------
DAY9 DATE 7-2-18	Production of Vitamin B12: Introduction, Structure and Raw materials.	----------
DAY10 DATE 8-2-18	Microbial Production, Sterilization and Fermentation	----------
DAY11 DATE 9-2-18	**ASSIGNMENT 1**	Production of wine and pH of alcohol.
DAY12 DATE 10-2-18	**HOLIDAY**	**HOLIDAY**
DAY13 DATE 12-2-18	Recovery and Applications.	----------
DAY14 DATE 13-2-18	**HOLIDAY**	----------
DAY15 DATE 14-2-18	Production of Glutamic acid: Introduction, Structure and Raw materials.	----------

DAY16 DATE 15-2-18	Crystallization, Separation and Neutralization	----------
DAY17 DATE 16-2-18	----------	Estimation of Lactic acid by titration method & pH of alcohol & wine.
DAY18 DATE 17-2-18	Production of Protease: Introduction, Classification and Fermentation.	Estimation of Citric acid by titration method & pH of alcohol & wine.
DAY19 DATE 19-2-18	Screening and Applications.	----------
DAY20 DATE 20-2-18	Production of Amylase: Introduction, Classification and Raw materials.	----------
DAY21 DATE 21-2-18	Fermentation and Applications.	----------
DAY22 DATE 22-2-18	Biotransformation of Steriods : Introduction, Classification and Commercial Development.	----------
DAY23 DATE 23-2-18	----------	Presence of sugar and estimation of alcohol by specific gravity method.
UNIT/PART III	**TOPIC**	
	THEORY	**PRACTICAL**
DAY1 DATE 24-2-18	Fermentation and Applications.	Presence of sugar & estimation of alcohol by specific gravity method.
DAY2 DATE 26-2-18	Single cell Protein: Introduction, Production and Applications.	----------
DAY3 DATE 27-2-18	Single cell Protein: Introduction, Production andApplications.	----------
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	Sewage waste water treatment technique.	----------
DAY9 DATE 6-3-18	Sewage waste water treatment plants.	----------
DAY10 DATE 7-3-18	Biodegradation of xenobiotic compounds.	----------
DAY11 DATE 8-3-18	Biodegradation of xenobiotic compounds.	----------
DAY12	----------	Preparation of Callus culture.

DATE 9-3-18		
DAY13 DATE 10-3-18	**ASSIGNMENT 2**	Preparation of Callus culture.
DAY 14 DATE 12-3-18	Biomining of microorganisms.	----------
DAY15 DATE 13-3-18	Bioleaching of microorganisms.	----------
DAY16 DATE 14-3-18	Production of Biogas.	----------
DAY17 DATE 15-3-18	Production of Biogas.	----------
DAY18 DATE 16-3-18	----------	Biomass production *Agaricus, Aspergillus*
DAY19 DATE 17-3-18	Production of Xanthan Gum: Introduction,Fermentation and Applications.	Preparation of Suspension culture.
DAY20 DATE 19-3-18	Production of Xanthan Gum: Introduction,Fermentation and Applications.	----------
DAY21 DATE 20-3-18	Production of polyhydroxyalkanoides: Introduction,Fermentation and Applications.	----------
DAY22 DATE 21-3-18	Production of polyhydroxyalkanoides: Introduction,Fermentation and Applications.	----------
DAY23 DATE 22-3-18	**CONDITIONAL TEST**	----------
DAY 24 DATE 23-3-18	**HOLIDAY**	**HOLIDAY**
DAY 25 DATE 24-3-18	Production of polyhydroxyalkanoides: Introduction,Fermentation and Applications.	Preparation of suspension culture and Micropropagation from Suspension Culture
UNIT/PART IV	**TOPIC**	
	THEORY	**PRACTICAL**
DAY1 DATE 26-3-18	Biocontrol agents for disease control: Bioinsecticides.	----------
DAY2 DATE 27-3-18	Biocontrol agents for disease control: Bioherbicides.	----------
DAY3 DATE 28-3-18	Biofertilizers and its advantages over chemical methods.	----------
DAY4 DATE 29-3-18	**HOLIDAY**	**HOLIDAY**
DAY5 DATE 30-3-18	Genetically engineered microbes: Introduction, concept and techniques.	Production of Primary Metabolite.
DAY6 DATE 31-3-18	Genetically engineered microbes: Introduction, concept and techniques.	Production of Primary Metabolite.
DAY7 DATE 2-4-18	Role of GEM in Agriculture.	----------
DAY8	Role of GEM in Agriculture.	----------

DATE 3-4-18		
DAY9 DATE 4-4-18	Role of GEM in Agriculture.	----------
DAY10 DATE 5-4-18	----------	----------
DAY11 DATE 6-4-18	Role of GEM in Medicines.	Production of secondary Metabolite.
DAY12 DATE 7-4-18	Role of GEM in Medicines.	Production of secondary Metabolite.
DAY13 DATE 9-4-18	Role of GEM in Medicines.	----------
DAY14 DATE 10-4-18	Role of GEM in Industry.	----------
DAY15 DATE 11-4-18	Role of GEM in Industry.	----------
DAY16 DATE 12-4-18	----------	----------
DAY17 DATE 13-4-18	Role of GEM in Industry.	Revision and file checking.
DAY18 DATE 14-4-18	**HOLIDAY**	**HOLIDAY**
DAY19 DATE 16-4-18	Revision	----------
DAY20 DATE 17-4-18	Revision	----------
DAY21 DATE 18-4-18	**HOLIDAY**	
DAY22 DATE 19-4-18	----------	----------
DAY23 DATE 20-4-18	Revision	Revision and file checking

CLASS/SECTION : B.SC IIND YEAR
SUBJECT : BIOTECHNOLOGY

UNIT/PART I	**TOPIC**	
	THEORY	**PRACTICAL**
DAY1 DATE 1-1-18	Definition of Bioinformatics, Scope and its Importance.	Isolation and quantification of genomic DNA from Bacteria.
DAY2 DATE 2-1-18	Applications of Bioinformatics.	Isolation and quantification of genomic DNA from Bacteria.
DAY3 DATE 3-1-18	Applications of Bioinformatics.	Isolation and quantification of genomic DNA from Bacteria.

DAY4 DATE 4-1-18	----------	Isolation and quantification of genomic DNA from Bacteria.
DAY5 DATE 5-1-18	----------	----------
DAY6 DATE 6-1-18	Applications of Bioinformatics.	----------
DAY7 DATE 8-1-18	Internet basics: Web browsers, WWW, Email.	Isolation and quantification of genomic DNA from Leaves.
DAY8 DATE 9-1-18	Internet basics: HTML, HTTP, URL.	Isolation and quantification of genomic DNA from Leaves.
DAY9 DATE 10-1-18	Information flow in Biology	Isolation and quantification of genomic DNA from Leaves.
DAY10 DATE 11-1-18	----------	Isolation and quantification of genomic DNA from Leaves.
DAY11 DATE 12-1-18	----------	----------
DAY12 DATE 13-1-18	Information flow in Biology	----------
DAY13 DATE 15-1-18	Introduction to Databases: OOPS databases, RDMS & Biological databases.	Separation of DNA by Agarose Gel Electrophoresis.
DAY 14 DATE 16-1-18	Primary and Secondary Databases.	Separation of DNA by Agarose Gel Electrophoresis.
DAY15 DATE 17-1-18	Genome information resources and its Experimental Approach.	Separation of DNA by Agarose Gel Electrophoresis.
DAY16 DATE 18-1-18	----------	Separation of DNA by Agarose Gel Electrophoresis.
DAY17 DATE 19-1-18	----------	----------
DAY18 DATE 20-1-18	DNA sequence data: GenBank, EMBL	----------
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	----------	Autoclaving of Glasswares.
DAY23 DATE 26-1-18	**HOLIDAY**	**HOLIDAY**
DAY 24 DATE 27-1-18	DDBJ **,** Website Visit.	----------
UNIT/PART II	**TOPIC**	
	THEORY	**PRACTICAL**
DAY1 DATE 29-1-18	ExPasy and Structural database, WebsiteVisit.	Ligation of DNA fragment

DAY2 DATE 30-1-18	ExPasy database with and without accession Numbers and Website Visit.	Ligation of DNA fragment
DAY3 DATE 31-1-18	**HOLIDAY**	**HOLIDAY**
DAY4 DATE 1-2-18	----------	Ligation of DNA fragment
DAY5 DATE 2-2-18	----------	----------
DAY6 DATE 3-2-18	ExPasy database with protein, Gene, Authors Name and Website Visit.	----------
DAY7 DATE 5-2-18	NCBI model: Introduction, Mission, applications.	DNA fingerprinting.
DAY8 DATE 6-2-18	NCBI model: GeneBank, PubMed , PubMed Central, OMIM, EST, SNP.	DNA fingerprinting.
DAY9 DATE 7-2-18	NCBI model: Website visit.	Ligation of DNA fragment
DAY10 DATE 8-2-18	----------	DNA fingerprinting.
DAY11 DATE 9-2-18	**ASSIGNMENT 1**	----------
DAY12 DATE 10-2-18	**HOLIDAY**	**HOLIDAY**
DAY13 DATE 12-2-18	Biological data analysis and applications.	Extraction and estimation of proteins from plant.
DAY14 DATE 13-2-18	**HOLIDAY**	**HOLIDAY**
DAY15 DATE 14-2-18	Biological data analysis and applications.	Estimation of RNA by orcinol method.
DAY16 DATE 15-2-18	----------	Extraction and estimation of proteins from plant.
DAY17 DATE 16-2-18	----------	----------
DAY18 DATE 17-2-18	File Formats.	----------
DAY19 DATE 19-2-18	Small Molecules Databases: Carbohydrate Structure Databases.	Extraction & estimation of proteins from plant and Internet Basics.
DAY20 DATE 20-2-18	Pharmaceutical Product and Signal Transduction Pathway Databases**.**	Internet Basics.
DAY21 DATE 21-2-18	DrugBank – A Resource for Drug Discovery and Disease Treatment.	Internet Basics.
DAY22 DATE 22-2-18	----------	Internet Basics.
DAY23 DATE 23-2-18	----------	----------
UNIT/PART III	**TOPIC**	

	THEORY	PRACTICAL
DAY1 DATE 24-2-18	Website visit.	----------
DAY2 DATE 26-2-18	Website visit.	Study of NCBI Model.
DAY3 DATE 27-2-18	Website visit.	Study of NCBI Model.
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	Protein Information Resources	Retrieving GenBank, PuBMed entry with different keywords from NCBI.
DAY9 DATE 6-3-18	Protein Information Resources and Website visit.	Retrieving FASTA Format from NCBI.
DAY10 DATE 7-3-18	PDB database with and without accession Numbers and Website Visit.	Study of NCBI Model.
DAY11 DATE 8-3-18	----------	Study of NCBI Model.
DAY12 DATE 9-3-18	----------	----------
DAY13 DATE 10-3-18	**ASSIGNMENT 2**	----------
DAY 14 DATE 12-3-18	PDB database with Protein and Authors Name and Website Visit.	Retrieving protein entry with different keywords from ExPASY.
DAY15 DATE 13-3-18	BLAST: Introduction**,** Algorithm, Graphic Display & the Results.	Retrieving FASTA Format from ExPASY.
DAY16 DATE 14-3-18	Types of BLAST & Website Visit.	Retrieving GenBank, PuBMed entry with different keywords from NCBI.
DAY17 DATE 15-3-18	----------	Retrieving FASTA Format from NCBI.
DAY18 DATE 16-3-18	----------	----------
DAY19 DATE 17-3-18	Phi and Psi BLAST Algorithm, Graphic Display & the Results.	----------
DAY20 DATE 19-3-18	Dot Matrix alignment: Algorithm, Graphic Display & the Results.	Retrieving Protein Structure from PDB.
DAY21 DATE 20-3-18	Website visit.	Retrieving Protein Structure from PDB.

DAY22 DATE 21-3-18	**CONDITIONAL TEST**	Retrieving protein entry with different keywords from ExPASY.
DAY23 DATE 22-3-18	**CONDITIONAL TEST**	Retrieving protein entry with different keywords from ExPASY.
DAY 24 DATE 23-3-18	**HOLIDAY**	**HOLIDAY**
DAY 25 DATE 24-3-18	Multiple Sequence Alignment: Algorithm, Graphic Display & the Results.	----------
UNIT/PART IV	**TOPIC**	
	THEORY	**PRACTICAL**
DAY1 DATE 26-3-18	Tools for MSA: CLUSTAL W & X: Algorithm, Graphic Display, Results.	Study of Open Reading Frames of Nucleotide Sequences.
DAY2 DATE 27-3-18	Tools for MSA: T COFFEE : Algorithm, Graphic Display & the Results.	Sequence alignment of Nucleotide and Protein through BLAST.
DAY3 DATE 28-3-18	Website visit.	Retrieving FASTA Format from ExPASY.
DAY4 DATE 29-3-18	**HOLIDAY**	**HOLIDAY**
DAY5 DATE 30-3-18	----------	----------
DAY6 DATE 31-3-18	Homology Modelling Tools**:** Algorithm, Graphic Display & the Results.	----------
DAY7 DATE 2-4-18	Predictive Methods For Nucleotide Sequences: Online tools & WebsiteVisit.	Multiple alignment of Nucleotide and Protein Sequences.
DAY8 DATE 3-4-18	Online tools: Genomatix, ORF finder, Genscan, Promoter Analysis & Website Visit.	Study of Physiochemical properties of Proteins.
DAY9 DATE 4-4-18	Online tools**:** Detecting Functional Sites in the DNA and Website Visit.	Retrieving Protein Structure from PDB.
DAY10 DATE 5-4-18	----------	Study of Open Reading Frames of Nucleotide Sequences.
DAY11 DATE 6-4-18	----------	----------
DAY12 DATE 7-4-18	Online tools : Visualization and Integration Tools and Website Visit.	----------
DAY13 DATE 9-4-18	Predictive Methods For Protein Sequences: Online tools and Website Visit.	Sequence alignment of Nucleotide and Protein BLAST.
DAY14 DATE 10-4-18	Predicting Structure and Features of protein sequences and Website Visit.	Multiple alignment of Nucleotide and Protein
DAY15 DATE 11-4-18	Predicting Structure and Features of protein Sequences and Website Visit.	Study of Physiochemical properties of Proteins.
DAY16	----------	Phyre Software for structure

DATE 12-4-18		prediction
DAY17 DATE 13-4-18	----------	----------
DAY18 DATE 14-4-18	**HOLIDAY**	**HOLIDAY**
DAY19 DATE 16-4-18	Human Genome Project.	Phyre Software for structure prediction.
DAY20 DATE 17-4-18	Human Genome Project.	Bioinformatics word problem.
DAY21 DATE 18-4-18	**HOLIDAY**	**HOLIDAY**
DAY22 DATE 19-4-18	----------	Bioinformatics word problem.
DAY23 DATE 20-4-18	----------	----------

CLASS/SECTION : B.SC IST YEAR

SUBJECT : BIOTECHNOLOGY

UNIT/PART I	**TOPIC**	
	THEORY	**PRACTICAL**
DAY5 DATE 5-1-18	----------	Protein estimation by Lowry Method.
DAY11 DATE 12-1-18	----------	Analysis of urine for urea, glucose, uric acid and chloride.
DAY17 DATE 19-1-18	----------	Estimation of Vit. C.
DAY23 DATE 26-1-18	**HOLIDAY**	**HOLIDAY**
UNIT/PART II	**TOPIC**	
	THEORY	**PRACTICAL**
DAY5 DATE 2-2-18	----------	Separation of Lipids by TLC method.
DAY11 DATE 9-2-18	----------	PAGE.
DAY17 DATE 16-2-18	----------	Gel Filteration.
DAY23 DATE 23-2-18	----------	Ion Exchange Chromatography.
UNIT/PART III	**TOPIC**	
	THEORY	**PRACTICAL**
DAY6 DATE 2-3-18	**HOLIDAY**	**HOLIDAY**

DAY12 DATE 9-3-18	----------	Preparation of Different Types of Media.
DAY18 DATE 16-3-18	----------	Study of Different Streaking Techniques**.**
DAY 24 DATE 23-3-18	**HOLIDAY**	**HOLIDAY**
UNIT/PART IV	**TOPIC**	
	THEORY	**PRACTICAL**
DAY5 DATE 30-3-18	----------	Isolation of Bacteria and Fungi from Soil, Air and Water.
DAY11 DATE 6-4-18	----------	Study of Dilution and Pour plate Technique from Soil and Water.
DAY17 DATE 13-4-18	----------	Staining of Bacteria and Fungi.
DAY23 DATE 20-4-18	----------	Staining of Bacteria and Fungi.

NAME OF TEACHER