



Shiv Chhatrapati Shikshan Sanstha's
Rajarshi Shahu Mahavidyalaya, Latur
(Autonomous)

Department of Biotechnology
Structured Work Plan for Teaching
Academic Year 2019-20 (Term-I)

1. Details of Classes to be taught

Sr. No.	Class	Name of Asst.Prof.	Subject	Paper
1	B.Sc. BT SY III Sem	Ms. Shilpa R. Surwase	Biotechnology	Course Title: Immunology and Virology Course Code : U-IMV-399 Course Title: Lab Course X Course Code: U-LAC-403

2. Summary of Lesson Plan

Name of Teacher: Shilpa R. Surwase

Class: B.Sc. BT. II (Third Semester)

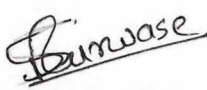
Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Immunology and Virology	UNIT I Overview of Immunology 1. Historical perspective 2. Innate and Adaptive Immune response. 3. Hematopoiesis, 4. Cells of Immune system and their biological role. 5. Humoral and cell mediated Immunity. 6. The Primary and secondary lymphoid organs.	24-06-19 To 18-07-19	01 05 02 02 02 01 03	Classroom Group Discussion	Unit - I 22/07/19


	UNIT II Basics of Immunology 1. Antigen: Antigens- General properties, types, 2. Factors that influence antigenicity, 3. Epitopes, Paratopes, Haptens, adjuvant and its types. 4. Antibody: General Structure of antibody molecule, 5. Antibodies- variation in structure of antibody and their biological significance. 6. Antibody Antigen interactions: Strength of Antigen-Antibody Interactions, K_a and K_d with its importance, Affinity and avidity 7. Immunological reactions: Precipitation and Agglutination reactions, ELISA.	18-07-19 To 16-08-19	01 02 02 02 02 03 04		Unit – II 19/08/19
	UNIT III Introduction to viruses 1. Viruses and their importance. 2. Discovery of viruses. 3. Structure of virus: viral nucleic acid, nucleocapsid, envelope. 4. Variation in structure of viruses. 5. Viroids and Prions. 6. Nomenclature and Classification of viruses	16-08-19 To 05-09-19	01 01 03 01 01 04		Unit – III 09/09/19
	UNIT IV 1. Structure of animal virus(HIV) 2. Structure of plant virus (TMV). 3. Life cycle and replication of DNA virus,	05-09-19	03 02 02		

		4.RNA virus-Retrovirus, 5.Bacteriophages (lytic and lysogenic) 5.Vaccines 6.Antiviral drugs.	To 15-10- 19	02 02 02 02		Unit IV 21/10/19
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Sr. No.	Subject	Practicals	Date	No. of Practical
1	Immunology and Virology	Agglutination reaction.	01/07/19 To 24/10/19 Batch A,B,C,D	04
2		Immunoprecipitation.		04
3		Immunodiffusion.		04
4		Blood film preparation and identification of cells.		04
5		Differential leucocyte count		04
6		Microscopic observation of lymphoid organs.		04
7		Widal, VDRL		04
8		Demonstration of ELISA.		04
9		Isolation of Bacteriophages from sewage.		04
10		Titration of phage, Isolation of plant virus.		04
11		Demonstration of one step growth curve of Bacteriophages.		04
12		Cultivation of virus in embryonated eggs.		04

Date: 24/06/2019


Course Teacher


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Department of Biotechnology
Structured Work Plan for Teaching
Academic Year 2019-20 (Term-I)

1. Details of Classes to be taught

Sr. No.	Class	Name of Asstt. Prof.	Subject	Paper
1.	M.Sc. BT FY I SEM	Ms. Shilpa R. Surwase	Biotechnology	Course Title: Bioinstrumentation and Biostatistics Course Code: P-BIB-137

2. Summary of Lesson Plan

Name of Teacher: Shilpa R. Surwase

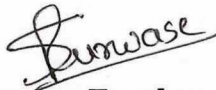
Class: M.Sc. BT. I (First Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Bioinstrumentation and Biostatistics	UNIT I: Microscopy: Light microscope, Fluorescence microscope Phase contrast microscope, Electron microscope, confocal microscopy. Centrifugation: Principle of centrifugation, Small bench top centrifuges, large capacity refrigerated centrifuges, High speed refrigerated centrifuges, preparative and analytical ultra centrifuge. Electrochemical techniques: Principles of electrochemical techniques, redox reactions,	27-06-19 To 20-07-19	04 04 05	Classroom Group Discussion	Unit - I 23/07/ 19

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		Electron spin resonance spectroscopy, Nuclear magnetic resonance spectroscopy, Circular dichroism spectroscopy, Atomic spectroscopy. Lasers, Spectrofluorimetry, Luminometry, turbidometry and nephelometry.	11-09-19	01 02 02 03		
		UNIT IV: Radio isotope techniques: The nature of radioactivity, detection and measurement of radioactivity: Detection based on gas ionization- Geiger Muller counter- principles and applications. Detection based on excitation- Liquid Scintillation counter- principle and applications. Supply, storage and purity of radiolabelled compounds, specific activity, inherent advantages and restrictions of radiotracer experiments, safety aspects, applications- of radio isotopes in biological sciences. Flow cytometry, ELISA, Immunoblotting	11-09-19 To 05-10-19	01 04 02 02 03		Unit-IV 10/10/ 19

Date: 27/06/2019


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Department of Food Processing & Technology
Structured Work Plan for Teaching
Academic Year 2019-20 (Term-I)

1. Details of Classes to be taught

Sr. No.	Class	Name of Asstt. Prof.	Subject	Paper
1.	B. Voc FY I Sem	Ms. Shilpa R. Surwase	Biotechnology	Course Title: Introductory Dairy Technology Course Code : U-IDT-213

2. Summary of Lesson Plan

Name of Teacher: Shilpa R. Surwase

Class: B.Voc I (First Semester)

Sr. No.	Subject	Practicals	Date	No. of Practicals
1	Introductory Dairy Technology	Physical examination of milk	01/07/19 To 24/10/19 Batch A	01
2		Estimation of Specific Gravity of milk		01
3		To perform platform tests in milk. (Acidity and COB).		01
4		To estimate moisture content in milk.		01
5		To estimate skim milk protein by titration method.		01
6		To estimate milk fat by Gerber method, SNF and specific gravity of milk.		01
7		To check the efficiency of sterilization of milk by Turbidity test.		01
8		To prepare casein and calculate its yield		01
9		Preparation of flavoured milk		01
10		Visit to a milk industry		01

Date: 27/06/2019

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Structured Work Plan for Teaching
Academic Year 2019-20 (Term-II)

1. Details of Classes to be taught

Sr. No.	Class	Name of Asst. Prof.	Subject	Paper
1	B.Sc. BT SY IV Sem	Ms.S.R.Surwase	Biotechnology	Course Title: Fundamentals of Molecular Biology Course Code : U-FMB-500 Course Title: Lab Course XVI Course Code: U-LAC-504

1. Summary of Lesson Plan

Name of Teacher: Ms.S.R.Surwase

Class : B.Sc. BT. II (Fourth Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Fundamentals of Molecular Biology	UNIT I: The beginnings of molecular biology Introduction Historical perspective The structure of DNA-Primary structure: the components of nucleic acids, Secondary structure of DNA, Tertiary structure of DNA Genome organization: from nucleotides to chromatin 1.Introduction 2.Eukaryotic genome 3. Bacterial genome The versatility of RNA 1. Introduction 2. Secondary structure of RNA 3. Tertiary structure of RNA Roles -RNA is involved in a wide range of cellular processes Unique function: The discovery of RNA catalysis and	11-12-19 To 03-01-20	01 02 02 01 02 02 01 01 02	Classroom Group Discussion	Unit - I 04/01/20

		Ribozymes catalyze a variety Of chemical reactions				
		UNIT II: From gene to protein 1.Introduction 2.The central dogma 3.The genetic code Protein structure, Protein function Prokaryotic Transcription and Translation Eukaryotic Transcription and Translation Post Transcriptional and Post Translational Modifications in Eukaryotes	06-01- 20 To 30-01- 20	02 02 02 03 03 04	Classroom Group Discussion	Unit – II 31/01/20
		UNIT III: DNA replication and Telomere maintenance 1. Introduction 2. DNA polymerases are the enzymes that catalyze DNA synthesis Historical Perspective 3. Semidiscontinuous DNA replication- In prokaryotes and eukaryotes 4. Telomere maintenance: the role of telomerase in DNA replication, aging, and cancer	 01-02- 20 To 20-02- 20	02 02 01 05 02	Classroom Group Discussion	Unit – III 21/02/20
		UNIT IV: DNA repair, recombination and gene expression 1. Introduction	24-02- 20	01	Classroom	Unit – III

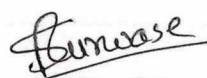
	<p>2.Types of mutations and their phenotypic consequences</p> <p>3. General classes of DNA damage</p> <p>4. Repair of single Base excision repair</p> <p>-Mismatch repair</p> <p>- Nucleotide excision repair</p> <p>Disease - Hereditary nonpolyposis colorectal cancer: a defect in mismatch repair Base changes and structural distortions by removal of DNA damage</p> <p>5. Double-strand break repair by removal of DNA damage</p> <p>-Homologous recombination</p> <p>-Nonhomologous end-joining</p> <p>Disease - Xerodermapigmentosum and related disorders: defects in nucleotide excision repair</p> <p>Disease - Hereditary breast cancer syndromes: mutations in BRCA1 and BRCA2</p> <p>6. SOS repair</p> <p>7. Prokaryotic gene expression and regulation</p> <p>-Operon concept-Lac operon, Tryptophan operon, Arabinose operon</p> <p>8. Eukaryotic gene expression and regulation (in brief)</p>	<p>To</p> <p>30-03-</p> <p>20</p>	<p>03</p> <p>02</p> <p>02</p> <p>01</p> <p>02</p> <p>01</p> <p>02</p> <p>04</p> <p>02</p>	<p>Group Discussion</p>	<p>31/03/20</p>
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Name of Teacher: Ms.S.R.Surwase


Class : B.Sc. BT. II (Fourth Semester)

Sr. No.	Subject	Practicals	Date	No. of Practicals
1	Fundamentals of Molecular Biology	Isolation of DNA from Bacterial cells	16/12/19 To 31/03/20 Batch A, B,C,D & E	05
2		Isolation of DNA from Animal and plant cells.		05
3		To resolve the given DNA sample by using agarose gel electrophoresis.		05
4		Spectroscopic determination of nucleic acid purity and concentration.		05
5		Isolation of total RNA from yeast cells and plant tissues.		05
6		Quantification of DNA by using Diphenylamine (DPA) method.		05
7		To estimate RNA quantitatively using orcinol reagent.		05
8		To estimate protein in the plant and animal sources by using Folin-Lowry's method.		05
9		To carry out ammonium sulphate precipitation of amylase enzyme present in the crude Protein extract.		05
10		To carry out dialysis for desalting ammonium sulphate precipitated enzyme.		05
11		To determine the molecular weight of the given protein by SDS-PAGE.		05
12		To Prepare a survival curve for the given bacterial culture using germicidal ultraviolet Radiation as a mutagen.		05

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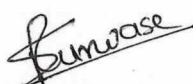
Sr. No.	Class	Name of Asst. Prof.	Subject	Paper
1.	B.Sc. BT TY IV Sem	Ms.S.R.Surwase	Biotechnology	Course Title: Biofertilizer II Course Code:U-SEC-335 Course Title: Lab Course Course Code: U-SEC-640B


Name of Teacher: Ms.S.R.Surwase

Class: B.Sc. BT. III (Sixth Semester)

Sr. No.	Subject	Practicals	Date	No. of Practicals
1	Biofertilizer II	Survey of Biofertilizer products in market	16/12/19 To 31/03/20 Batch	02
2		Introduction to GMO and Indigenous Technology		02
3		Production of compost from various resources		02
4		C, N, P and K analysis of organic manure		02
5		Effect of storage on efficacy of Biofertilizer		02
6		QC tests of Biofertilizers		02
7		Designing of pot experiments for efficacy study of Biofertilizers		02
8		Designing of field experiment to efficacy study of Biofertilizers		02

Date: 11/12/2019


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