

Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. I Semester I

Department: Microbiology (PG)

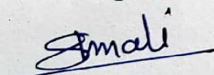
Subject: Microbiology

Course Title: Paper II Immunology DSC20MIC12

Name of the teacher: Dr. S. D. Mali

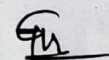
Month: July			Module/Unit:	Sub-units planned-theory	Sub-units planned-practicals
Lectures	Practicals	Total	Unit I	1. MHC complex 2. Signal transduction 3. T-cell sensitization	Practicals of Immunology
12	4	16			
Month: August			Module/Unit:	Sub-units planned-theory	Sub-units planned-practicals
Lectures	Practicals	Total	Unit II	1. Complement System 2. Genetics of Ab synthesis 3. Antibody diversity 4. Immunomodulation, 5. Vaccines	Practicals of Immunology
12	4	16			
Month: September			Module/Unit:	Sub-units planned-theory	Sub-units planned-practicals
12	4	16	Unit III	1. Transplantation immunology 2. Tumour immunology	Practicals of Immunology
Month: October			Module/Unit:	Sub-units planned-theory	Sub-units planned-practicals
12	4	16	Unit IV	1. Serodiagnosis of diseases 2. Immunochemical techniques 3. PCR based diagnostic tests	Practicals of Immunology

Name and Signature of Teacher



Dr. S. D. Mali

Name and Signature of HOD



Dr. G. K. Sontakke

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DEPARTMENT OF MICROBIOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)



Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. II Semester III

Department: Microbiology (PG)

Subject: Microbiology

Course Title: Paper X Enzymology & Enzyme Technology CC-2413


Name of the teacher: Dr. S. D. Mali

Month: July			Module/Unit:	Sub-units planned	
				Theory	Practicals
Lectures	Practicals	Total	Unit I	1. History and properties of enzymes 2. Nomenclature and classification of enzymes 3. Specificity of enzymes: 4. Structure of enzymes 5. Methods employed to identify functional groups in the active site 6. Catabolism of amino acids 7. Co-factors in enzyme action	Practicals of enzymology
12	4	16			
Month: August			Module/Unit:	Theory	Practicals
Lectures	Practicals	Total	Unit II	1. Kinetics of single-substrate enzyme catalysed reactions 2. Kinetics of multisubstrate reactions 3. Haldane's relationship for reversible reactions 4. Sigmoid kinetics – Hill & Adair equations 5. Enzyme inhibition	Practicals of enzymology
12	4	16			
Month: September			Module/Unit:	Theory	Practicals
Lectures	Practicals	Total	Unit III	1. Covalent modification of enzyme structure 2. Ligand induced changes 3. Multienzyme systems 4. Membrane bound enzymes in metabolic regulation 5. Isoenzymes	Practicals of enzymology
12	4	16			




Month: October			Module/Unit:	Theory	Practicals
12	4	16	Unit IV	1. Applications of enzymes in medicine 2. Industrial applications of enzymes 3. Enzymes as analytical tools 4. Immobilisation of enzymes 5. Newer approaches to the 6. application of enzymes	Practicals of enzymology

Name and Signature of Teacher


Dr. S. D. Mali

Name and Signature of HOD


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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. I Semester II

Department: Microbiology (PG)

Subject: Microbiology

Course Title: Paper V Microbial Physiology, Biochemistry & Metabolism DSC20MIC15

Name of the teacher: Dr. S. D. Mali

Month: January			Module/ Unit:	Sub-units planned-Theory	Sub-units planned- Practicals
Lectures	Practicals	Total	Unit I	1. Carbohydrate metabolism 2. Oxidation of hydrocarbons 3. Oxidation of fatty acids and phospholipids 4. Catabolism of amino acids 5. Pasteur and Crabtree effect 6. Autotrophy	Practicals of Microbial Physiology, Biochemistry & Metabolism
12	4	16			
Month: February			Module/ Unit:	Sub-units planned - Theory	Sub-units planned- Practicals
Lectures	Practicals	Total	Unit II	1. Respiratory metabolism 2. Photo-phosphorylation 3. Drug metabolism in the body 4. Fermentation of bacteria	Practicals of Microbial Physiology, Biochemistry & Metabolism
12	4	16			
Month: March			Module/ Unit:	Sub-units planned - Theory	Sub-units planned- Practicals
12	4	16	Unit III	1. Protein chemistry 2. Biosynthesis of amino acids 3. Lipid metabolism 4. Phospholipid biosynthesis 5. Purine and pyrimidine biosys.	Practicals of Microbial Physiology, Biochemistry & Metabolism
Month: April			Module/ Unit:	Sub-units planned- Theory	Sub-units planned- Practicals
12	4	16	Unit IV	1. Osmosis 2. Permeation 3. Biosignaling 4. Microbial hormones and quorum sensing	Practicals of Microbial Physiology, Biochemistry & Metabolism

Name and Signature of Teacher

S. D. Mali

Dr. S. D. Mali

Name and Signature of HOD

G. K. Sontakke

Dr. G. K. Sontakke

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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. II Semester IV

Department: Microbiology (PG)

Subject: Microbiology

Course Title: Paper XIII Food and Dairy Technology CC-2418

Name of the teacher: Dr. S. D. Mali

Month: January			Module/Unit:	Sub-units planned	Practicals
Lectures	Practicals	Total	Unit I	Theory	Practicals of Food and Dairy Technology
12	4	16		<ol style="list-style-type: none"> 1. Food as a substrate for Microorganisms 2. General principles underlying microbial spoilage of food 3. Microbial spoilage of meat, fruits and vegetables 4. Microbial spoilage of heated canned food 5. General principles of Preservation of food 6. Methods of food preservation 	
Month: February			Module/Unit:	Theory	Practicals
Lectures	Practicals	Total	Unit II	<ol style="list-style-type: none"> 1. Milk: Definition, composition, Factors affecting composition, Nutritive value of milk 2. Spoilage of milk and milk products 3. Fermented food 	Practicals of Food and Dairy Technology
12	4	16			
Month: March			Module/Unit:	Theory	Practicals
12	4	16	Unit III	<ol style="list-style-type: none"> 1. Food born diseases 2. Prevention and control of food borne diseases 3. Fermented dairy products and their role in controlling food borne diseases 	Practicals of Food and Dairy Technology
Month: April					
12	4	16	Unit IV	<ol style="list-style-type: none"> 1. Probiotics 2. Enzymes in food processing 3. Applications of enzymes 4. Food safety and standards 	Practicals of Food and Dairy Technology

Name and Signature of Teacher

S. D. Mali
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Name and Signature of HOD

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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. I Semester I

Department: Microbiology (PG)

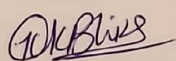
Subject: Microbiology

Course Title: Paper IV-RMD20MIC11 - Research Methodology

Name of the teacher: Dr. K. K. Bhise

Month: July			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
-	-	-	-	-	-
Month: August			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total	Unit I	Fundamentals of Research methodology	Practicals of Taxonomy and Microbial Diversity
12	12	24	Unit II	Interpretation and Report Writing	
Month: September			Module/Unit:	Sub-units planned	
12	12	24	Unit II	Report Writing	Practicals of Taxonomy and Microbial Diversity
			Unit III	Bioinformatics	
Month: October			Module/Unit:	Sub-units planned	
12	12	24	Unit IV	Biostatistics	Practicals of Taxonomy and Microbial Diversity

Name and Signature of Teacher



Dr. K. K. Bhise

Name and Signature of HOD



Dr. G. K. Sontakke

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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. II Semester III

Department: Microbiology (PG)

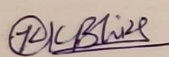
Subject: Microbiology

Course Title: Paper IX -CC-2412-Biostatistics, Bioinformatics And Scientific Writing


Name of the teacher: Dr. K. K. Bhise

Month: July			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
-	-	-			
Month: August			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
12	12	24	Unit I	1. Biostatistics, Basic concepts, 2. Collection and presentation of data 3. Descriptive statistics 4. Probability 5. Sampling methods	Practicals of Biostatistics, Bioinformatics And Scientific Writing
			Unit II		
Month: September			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
12	12	24	Unit II	3. Analysis of Variance 4. Correlation & Regression 1. Bioinformatics, databases 2. Applications of Bioinformatics 3. Data visualization 4. Pattern matching and sequence alignment 5. Modeling and Simulation 6. Phylogenetic analysis	Practicals of Biostatistics, Bioinformatics And Scientific Writing
			Unit III		
Month: October			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
12	12	24	Unit IV	1. Scientific Writing 2. Basic concepts of Scientific writing 3. Scientific Document 4. Compilation of record and programme of writing 5. Structure of a scientific paper 6. Presenting and publishing research	Practicals of Biostatistics, Bioinformatics And Scientific Writing

Name and Signature of Teacher


Dr. K. K. Bhise

Name and Signature of HOD


Dr. G. K. Sontakke



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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. II Semester IV

Department: Microbiology (PG)

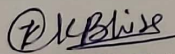
Subject: Microbiology

Course Title: Paper XII-CC-2415-Quality Control Microbiology – I


Name of the teacher: Dr. K. K. Bhise

Month: July			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
-	-	-	-	-	-
Month: August			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total	Unit I	Theory	Practicals
12	12	24	Unit II	1. Design of Basic laboratories 2. Biosafety Levels 1 and Biosafety Levels 2 3. The containment laboratory – Biosafety Level 3 4. The maximum containment laboratory – Biosafety Level 4 1. Good microbiological techniques- 2. Handling of specimen 3. Use of pipette, BSC	Practicals of quality control microbiology-I
Month: September			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total	Unit II	Theory	Practicals
12	12	24	Unit III	4. Opening of ampoules and storage, Standard precautions with blood and body fluids 5. Contingency grants and emergency procedures 1. Sterilization and methods 2. Sterility assurance tests	Practicals of quality control microbiology-I
Month: October			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total	Unit IV	Theory	Practicals
12	12	24		1. Biosafety Guidelines 2. BSC-Class I, II, III 3. Safety equipments	Practicals of quality control microbiology-I

Name and Signature of Teacher


Dr. K. K. Bhise

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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. I Semester II

Department: Microbiology (PG)

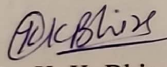
Subject: Microbiology

Course Title: Paper VII-DSE20MIC21- Medical Microbiology


Name of the teacher: Dr. K. K. Bhise

Month: January			Module/Unit:	Sub-units planned	
				Theory	Practicals
Lectures	Practicals	Total	Unit I	1. Virulence 2. Attributes of microorganisms that enable them to cause disease 3. Pathogen survival mechanisms 4. Collection and transport of clinical specimens	Practicals of medical microbiology
12	12	24			
Month: February			Module/Unit:	Sub-units planned	
				Theory	Practicals
Lectures	Practicals	Total	Unit II	1. Bacterial Diseases 2. Fungal Diseases	Practicals of medical microbiology
12	12	24			
Month: March			Module/Unit:	Sub-units planned	
				Theory	Practicals
12	12	24	Unit III	1. Prevention and control of diseases caused by viruses 2. Diseases by Protozoa 3. Pathology of AIDS and prevalence of Tuberculosis, Mycoplasma and Cryptococcus infections 4. Special microbial metabolites and their applications in health care	Practicals of medical microbiology
Month: April			Module/Unit:	Sub-units planned	
				Theory	Practicals
12	12	24	Unit IV	1. B and T cell immune deficiency disorders 2. Complement disorders: complement component deficiency 3. Rheumatic disease 4. Atopic disease	Practicals of medical microbiology

Name and Signature of Teacher


Dr. K. K. Bhise

Name and Signature of HOD


Dr. G. K. Sontakke



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VIVEKANAND COLLEGE, KOLHAPUR
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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. II Semester IV

Department: Microbiology (PG)

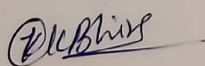
Subject: Microbiology

Course Title: Paper XV-CC2420-Recombinant DNA Technology

Name of the teacher: Dr. K. K. Bhise

Month: January			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
			Unit I	1. Enzymes 2. Linkers and adapters 3. Cloning vectors 4. Gene probes	Practicals of recombinant DNA technology
12	12	24			
Month: February			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
			Unit II	1. Basic Cloning Strategies- General principals 2. Cloning in <i>Escherichia coli</i> and other bacteria 3. Screening of gene libraries 4. Sigmoid kinetics – Hill and Adair equations 5. for co operativity 6. Expression of foreign DNA in transformed 7. Bacteria	Practicals of recombinant DNA technology
12	12	24			
Month: March			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
			Unit III	1. Cloning in yeast and fungi 2. Cloning in animals 3. Cloning in plant	Practicals of recombinant DNA technology
12	12	24			
Month: April			Module/Unit:	Sub-units planned	
Lectures	Practicals	Total		Theory	Practicals
			Unit IV	1. Applications of rDNA Technology	Practicals of recombinant DNA technology
12	12	24			

Name and Signature of Teacher



Dr. K. K. Bhise



Name and Signature of HOD



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Annual Teaching Plan

Academic Year: 2023-2024

Semester: M. Sc. II Semester IV

Department: Microbiology (PG)

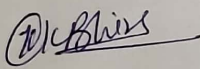
Subject: Microbiology

Course Title: Paper XVI-CC2421- Quality control Microbiology-II


Name of the teacher: Dr. K. K. Bhise

Month: January			Module/Unit:	Sub-units planned	
				Theory	Practicals
Lectures	Practicals	Total	Unit I	Pharmaceutical Drug Regulatory Affairs	Practicals of Quality control Microbiology-II
12	12	24			
Month: February			Module/Unit:	Sub-units planned	
				Theory	Practicals
Lectures	Practicals	Total	Unit II	Cleanrooms and environmental monitoring	Practicals of Quality control Microbiology-II
12	12	24			
Month: March			Module/Unit:	Sub-units planned	
				Theory	Practicals
12	12	24	Unit III	1. Bioburden determination 2. Endotoxin and pyrogen testing	Practicals of Quality control Microbiology-II
Month: April			Module/Unit:	Sub-units planned	
				Theory	Practicals
12	12	24	Unit IV	1. Quality Management Systems in Pharmaceutical Manufacturing 2. Auditing the microbiology laboratory	Practicals of Quality control Microbiology-II

Name and Signature of Teacher


Dr. K. K. Bhise

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