

Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Biotechnology

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Mr. S. G. Kulkarni.

Programme: M. Sc. Biotechnology

Semester: I

Subject: Biotechnology

Course Title: **DSC21MBT11 Biological chemistry**

Month – July- Aug			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Chemical Basis of Life	Chemical Basis of Life- Urey-Miller Experiment, abiotic formation of amino acids, oligomers, Water- Properties of Water
09	02	11		
Month – Aug- Sept			Module/Unit: I and II	Sub-units planned
Lectures	Practicals	Total	Chemical Basis of Life Carbohydrates	Biological importance of water. Solvation properties of water. Hydrophobic attraction of water, Concept of Biomolecules. Stereochemical relations of aldoses and ketoses. Ring formation Biological importance of Carbohydrates,
09	02	11		
Month – Oct- Nov			Module/Unit: II	Sub-units planned
10	02	12	Metabolism of Carbohydrates	Glycolysis, TCA cycle, Gluconeogenesis, Glycogenesis, Glycolgenolysis (reactions, energetics, Significance regulation at Enzymatic

Name and Signature of Teacher



Name and Signature of HOD

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Department of Biotechnology

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Mrs. S. B. Mulla.

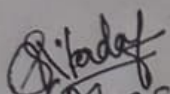
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Semester: I

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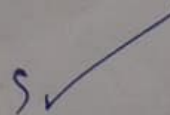
Course Title: DSC21MBT11 Biological chemistry

Month – July- Aug			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Amino acids	Introduction Biological importance, classification based in R group with examples, essential and non- essential amino acids
06	02	08		
Month – Aug- Sept			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Proteins	Biological significance of Proteins, Protein classification based on composition (Simple, Conjugate, Derived with examples),
06	02	08		
Month – Oct- Nov			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Proteins	Structural level organization of Proteins- Primary, Ramchandran Plot, Secondary(Types- α -helix and β -pleated sheet), super secondary motifs
06	02	08		


(Mrs. S. B. Mulla)

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Annual Teaching Plan

Name of the teacher: Miss. V. B. Kankekar.

Programme: M. Sc. Biotechnology

Semester: I

Subject:

Course Title: **DSC21MBT11 Biological chemistry**

Month – July- Aug			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Lipids-	Biological importance of Lipids chemical properties of lipids- Saponification value, Iodine value, Acid Value
05	-	05		
Month – Aug- Sept			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Classification of Lipids	Simple, compound, derived, Types of fatty acids, saturated unsaturated at least 4 examples, types of waxes, Cholesterol
05	-	05		
Month – Oct- Nov			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Metabolism of Lipids	:- β - oxidation of fatty acid- palmitic acid, Biosynthesis of fatty acid – palmitic acid , regulation of fatty acid metabolism
04	-	04		

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(Miss v. B. Kankekar)
Name and Signature of Teacher



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Annual Teaching Plan

Name of the teacher: Miss. J. J. Gavandi.

Programme: M. Sc. Biotechnology

Semester: I

Subject:

Course Title: DSC21MBT12 Microbiology

Month – July- Aug			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Beginning of Microbiology	milestones in the development of microbiology, spontaneous generation
05	-	05		
Month – Aug- Sept			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Beginning of Microbiology Microbial evolution and Taxonomy	Microbial Ecosystem, Microbial world, Branches of Microbiology, Application systematics and taxonomy: Evolution of earth's earliest life forms, primitive organisms,
05	-	05		
Month – Oct- Nov			Module/Unit: I	Sub-units planned
05	-	05	Microbial evolution and Taxonomy	New approaches to bacterial taxonomy, nomenclature, Bergey's manual, Ribotyping, Modern

J. J. Gavandi

MS. J. J. Gavandi

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S. S.

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Name of the teacher: Miss. V. N. Arekar.

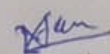
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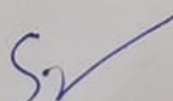
Subject:

Course Title: **DSC21MBT12 Microbiology**

Month – July- Aug			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Characteristics and Salient features of major groups of Bacteria	Occurrence, shape and arrangement of bacterial cells, structure of bacterial cell – cell wall (Gram positive or Gram negative), capsule, plasma membrane, cytoplasm, ribosome, nucleoid, mesosomes,
05	-	05		
Month – Aug- Sept			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Characteristics and Salient features of major groups of Bacteria	Characteristics of major groups of bacteria, Archaeobacteria – general characteristics and classification; Eubacteria, Actinomycetes – general characteristics and classification.
05	-	05		
Month – Oct- Nov			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Characteristics and Salient features of major groups of Bacteria	Cyanobacteria – general characteristics and classification – ultra-structure, reproduction and economic importance.
05	-	05		


(Miss. V. N. Arekar)
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Name of the teacher: Miss. V. N. More.

Programme: M. Sc. Biotechnology

Semester: I

Subject:

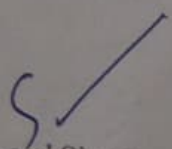
Course Title: **DSC21MBT12 Microbiology**

Month – July- Aug			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Microbial Growth	Reproductive strategies, Bacterial Cell Cycle, Influence of environmental factors on growth,
05	02	07		
Month – Aug- Sept			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Microbial Growth	Microbial growth in Natural environmental, Laboratory culture of cellular Microbes,
05	02	07		
Month – Oct- Nov			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Microbial Growth	Growth curve, Measurement of Microbial population, Continuous culture of microorganism
05	02	07		

V. N. More

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Name of the teacher: Mr. A. L. Upadhye.


Programme: M. Sc. Biotechnology

Semester: I

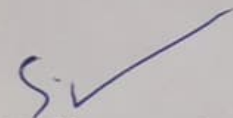
Subject: Biotechnology

Course Title: DSE21MBT11 Environmental Biotechnology and Ecology

Month – July- Aug			Module/Unit: I and II	Sub-units planned
Lectures	Practicals	Total	pollution and its types Ozone hole Environmental Toxicology Bioremediation Techniques	Air pollution: Primary and secondary pollutant, Global Warming . Water pollution: Introduction, causes, Hardness and its types Pesticide Toxicity & Classification.
20	04	24		
Month – Aug- Sept			Module/Unit: II and III	Sub-units planned
Lectures	Practicals	Total	Solid Waste Treatment [Agricultural Bioremediation Ecosystem	Plastics and Aromatics], Slurry Phase Treatment. Microbial Composting, Biogas, Land Farming and pest Control. structure, function of ecosystem.
20	04	24		
Month – Oct- Nov			Module/Unit: III and IV	Sub-units planned
Lectures	Practicals	Total	Productivity Energy flow in ecosystem Population Ecology Evolution	Kinds of productivity, concept of energy, unit of energy, Natality, Mortality, survivor ship curves, age structure, age pyramid Theories of evolution
20	04	24		


(Mr. A. L. Upadhye)
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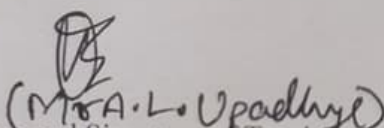
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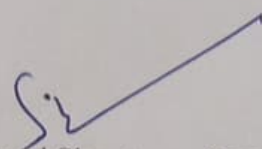
Subject: Biotechnology

Course Title: RMD14CHE11: Research Methodology in Biotechnology

Month – July- Aug			Module/Unit: I and II	Sub-units planned
Lectures	Practicals	Total	Fundamentals of Research Methodology	Meaning, Objective, Motivation and Types of Research, Approach Literature Survey, Source of information, Review
20	-	20	Interpretation and Report Writing	
Month – Aug- Sept			Module/Unit: II and III	Sub-units planned
Lectures	Practicals	Total	Interpretation and Report Writing	Meaning of Interpretation, Why Interpretation, Technique of interpretation, Precaution in Interpretation. Ultraviolet-visible absorption spectroscopy Fluorescence spectrophotometry
20	-	20	Research Methodology in Biotechnology	
Month – Oct- Nov			Module/Unit: III and IV	Sub-units planned
20	-	20	Electrophoretic techniques Radioisotope techniques:	General principles, support media, electrophoresis of proteins (SDS-PAGE, native gels, gradient gels. Nature of radioactivity, isotopes in biochemistry


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