C. U. SHAH UNIVERSITY, WADHWAN CITY.

Faculty of: **Sciences & Life Sciences**
Course: **Bachelor of Science (Physics)**
Semester**: I**
Subject Code**:MIE201-1C**
Subject Name:**General Microbiology I**

Sr. No	Category	Subject Code	Subject Name	Teaching hours/ Week			Credit hours	Credit Points	Evaluation Scheme/ Semester								
									Theory				Tutorial / Practical				Total
									Continuous and Comprehensive Evaluation		End Semester Exams		Internal Assessment		End Semester Exams		
				Th	Tu	Pr			Marks	Marks	Marks	Duration	Marks	Duration	Marks	Duration	
3	Minor	MIE 201-1C	**General Microbiology I**	3	-	2	5	4	10 10 05	Assignment MCQ Attendance	50	2	25	1	-	-	100

AIM:

- Aware students of the history of microbiology
- Acquaint the basic concept of microbiology as a subject.
- Basic concepts of microbial metabolism.
- Learn basic laboratory skills for handling glassware

COURSE CONTENTS

Course Outline for Theory

UNIT	COURSE CONTENT	TEACHING HOURS
I	**History Of Development of Microbiology**: • Contribution Of Great Scientists in The Field of Microbiology, Scope of Microbiology and Its Applications	**08**
II	**Microscope And Culture Media:** • Microscope And Various Types of Microscopes • Culture Media and Culture Methods	**10**
III	**ClassificationAnd Taxonomy:** • Bacteria, Actinomycetes, Spirochetes, Rickettsia and Viruses Morphology and Physiology of Bacteria – Structure of Bacteria, Nutrition, Cultivation, Isolation, Identification of Bacteria, Reproduction and Growth of Bacteria	**12**
IV	**Fermentation Techniques:** • General Requirements-Culture-Strain Development Media-Equipment Sterilization-Fermentation Process-Controls-Extraction, Etc. Detailed Production of Selected Antibiotics Such as Penicillin, Streptomycin and Vitamins Such as Cyanocobalamin, Riboflavin.	**15**

Course Outline for Practical

SR. NO	COURSE CONTENT	HOURS
1	Experiments Devised to Prepare Various Types of Culture Media	30
2	Isolation of Aerobic Bacteria, Fungus, And Yeast.	
3	Various Staining Methods, Various Methods of Isolation and Identification of Microbes	
4	Microbial Assay of Antibiotics and Vitamins Etc.	

TEACHING METHODOLOGY:

- Conventional method (classroom blackboard teaching)
- ICT Techniques
- Teaching through the classroom, laboratory work
- Variety of learning styles and tools (PowerPoint presentations, audio-visual resources, e-resources, seminars, workshops, models)
- Teaching through laboratory work

LEARNING OUTCOME:

- Expand the microbiology knowledge using various fundamental aspects of different branches of sciences.
- To gain knowledge about contribution of scientist in microbiology filed
- Obtain significant knowledge about sterilization methods.
- Understanding the importance of laboratory work and laboratory safety.
- To gain a knowledge about an application of microorganism in different field.
- Acquire knowledge about types of glassware and their calibration.
- To understand the working system of various microscope.

Arrangement of lectures duration and practical session as per defined credit numbers:

Units	Lecture Duration (In Hrs.)		Calculation of Credits (In Numbers)		Total Lecture Duration	Credit Calculation
	Theory	Practical	Theory	Practical	Theory+ Practical	Theory+ Practical
Unit – 1	15	30	3	1	45+30	4
Unit – 2	15					
Unit – 3	15					
TOTAL	**45**	**30**	**3**	**1**	**75**	**4**

Evaluation:

Theory Marks	Practical Marks	Total Marks
75	**25**	**100**

REFERENCE BOOKS:

1. .**Hardin J, Bertoni G and Kleinsmith LJ. (**2010). Becker's World of the Cell. 8th edition. Pearson.
2. **Karp G. (2010) Cell and Molecular Biology**: Concepts and Experiments. 6th edition. John Wiley & Sons. Inc
3. **De Robertis, EDP and De Robertis EMF.** (2006). Cell and Molecular Biology. 8th edition. Lipincott Williams and Wilkins, Philadelphia
4. **Cooper, G.M. and Hausman, R.E.** (2009). The Cell: A Molecular Approach. 5 th Edition. ASM Press & Sunderland, Washington, D.C.; Sinauer Associates, MA.