

Title of the Course: MICROBIAL TAXONOMY AND SYSTEMATICS [P]**Course Code: MIC-509****Number of Credits: 1, Practical****Contact hours: 30****Effective from Academic Year: 2022-23**

Prerequisites	It is assumed that students should have a basic understanding of binomial nomenclature, the basis of classification systems and be familiar with the distinguishing features of different groups of microorganisms.	
Objective:	To understand the tools and techniques of taxonomy and systematics of the microbial world.	
Content:		(30)
1.	Morphological, physiological and biochemical characterization of bacteria.	
2.	Chemotaxonomic analysis of cell wall amino acids.	
3.	Characterization of actinomycetes (<i>Streptomyces</i> sp.).	
4.	Characterization of yeast (<i>Saccharomyces cerevisiae</i> , <i>Schizosaccharomyces pombe</i>).	
5.	Characterization of cyanobacteria.	
6.	Phylogenetic analysis of bacterial 16S rRNA sequences – retrieval of sequences from standard databases, BLAST analysis, construction of phylogenetic tree using bioinformatics tools.	
Pedagogy:	Hands-on experiments in the laboratory, video, online data	
References/ Readings	Barlow, A., The prokaryotes: A Handbook on the Biology of Bacteria: Ecophysiology, Isolation, Identification, Applications, Volume 1, Springer-Verlag. (1992)	
	Goodfellow, M. and Minnikin, D. E., Chemical Methods in Bacterial Systematics, The Society for Applied Bacteriology. Technical Series No. 20, Academic Press. (1985)	
	Goodfellow, M., Mordarski, M. and Williams, S. T., The biology of the actinomycetes, Academic Press. (1983)	
	Kurtzman, C. P., Fell, J. W. and Boekhout, T., The Yeasts - A Taxonomic Study, Elsevier. (2011)	
	Norris, J. R. and Ribbons, D. W., Methods in Microbiology, Vol. 18 & 19, Academic Press. (1971)	
	Prescott, L. M., Harley, J. P. and Klein, D.A., Microbiology. McGraw Hill, New York. (2020)	
	Reddy, C. A., Methods for General and Molecular Microbiology, ASM Press. (2007)	
	Sneath, A. H. P., Mair, S. N. and Sharpe, E. M., Bergey's Manual of Systematic Bacteriology Vol. 2. Williams & Wilkins Bacteriology Symposium, Series No 2, Academic Press, London/New York. (2004)	
Course Outcomes	◆ Associate the standard rules of classification systems to categorize microorganisms.	

	<ul style="list-style-type: none">◆ Classify the microorganisms on the basis of their characters.◆ Appraise the applications of taxonomic tools.◆ Identify the microorganisms.	
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