Name of the Program: M.Sc. Marine Microbiology
Course Code: MMI-513
Title of the Course: Microbial Genetics - Practical
Number of Credits: 01
Effective from AY : 2022 - 23

Prerequisites for the course:	Basic knowledge about nucleic acids and replication	
Objective:	This course provides hands-on experience with DNA extraction, purification and electrophoretic techniques.	
Content:	1. Isolation of genomic DNA of bacterial cells, estimation of quantity and purity of DNA by spectrophotometry, and agarose gel electrophoresis. (10 hrs, refs. 1 and 2) 2. Isolation of genomic DNA from environmental sample (sediment/water). (4 hrs, refs. 1 and 2) 3. PCR / RT-PCR amplification of a specific gene using genomic DNA as a template and agarose gel analysis of PCR product to determine amplicon size. (10 hrs, refs. 1 and 2) 4. UV mutagenesis and screening of pigment deficient mutants of *Serratia marcescens*. (6 hrs, refs. 1 and 2)	30 hrs
Pedagogy:	Experiments in the laboratory.	
References/ Readings:	1. Davis L.G., Dibner M.D. & Battey J. F. (1986). Basic Methods in Molecular Biology, Elsevier. Netherlands. 2. Kamlage B. (1996). Methods for General and Molecular Bacteriology. Edited by P. Gerhardt, R. G. E. Murray, W. A. Wood and N. R. Krieg. American Society for Microbiology, Washington, D.C.	
Course Outcomes:	1. Perform genomic/total DNA extraction and PCR amplification in molecular research. 2. Compare various DNA extraction protocols and interpret the importance of each step. 3. Determine of amplicon size. 4. Plan and perform mutagenesis to study induced genetic manipulation.	