Name of the Program: M.Sc. Marine Microbiology
Course Code: MMI-607
Title of the Course: Genetic Engineering Practical
Number of Credits: 01
Effective from AY: 2022 - 23

Prerequisites for the course:	Students should have undergone M.Sc. Marine Microbiology/Marine Biotechnology Part I Courses.	
Objective:	To have a hand on experience on plasmid DNA isolation, restriction mapping, ligation and transformation.	
Content:	**Module I** 1. Plasmid extraction (6 hrs, Ref. 1). 2. Restriction mapping of bacterial plasmid (6 hrs, Ref. 1). 3. Assessment of DNA ligation activity of T4 DNA ligase (6 hrs, Ref. 1). 4. Preparation of competent cells and transformation of *E. coli* host with plasmid DNA using heat shock method/electroporator (6 hrs, Ref. 2). 5. Screening of positive transformants (6 hrs, Ref. 2).	30 hrs.
Pedagogy:	Experiments in the laboratory.	
References/Readings:	1. Green, M. R., & Sambrook, J. (2001). *Molecular cloning: A laboratory manual*. New York: Cold Spring Harbor Laboratory. 2. Davis, L. G., Dibner, M. D., & Battey, J. F. (1986). *Basic methods in molecular biology*. Elsevier.	
Course Outcomes:	1. Perform isolation of bacterial plasmid DNA by gel electrophoresis and Restriction mapping. 2. Assess the DNA ligation activity using enzymes. 3. Develop competent cells using heat shock/ electroporator. 4. Perform and analyze the transformation of *E. coli* host using a plasmid.	