

**Name of the Programme:** M. Sc.Marine Sciences  
**Course Code:** MSC 534  
**Title of the Course:** Marine Microbial Ecology Practical  
**Number of Credits:** 01  
**Effective from AY:** 2022-23

<b>Prerequisites for the course:</b>	Core courses offered in the Semester I	
<b>Objective:</b>	To elucidate basic concepts and techniques applied in marine microbiology.	
<b>Content:</b>	<p>Sterilization techniques, preparation of bacterial media - nutrient agar plates, nutrient broth &amp; agar slants (6 hours; Reference 1).</p> <p>Method of sample collection (water) from marine environment (3 hours; Reference 2).</p> <p>Enumeration and isolation of heterotrophic bacteria, pathogenic organisms and/or fungal population from water and sediments with reference to physico-chemical conditions (6 hours; References 3, 4, 5).</p> <p>Isolation of pure cultures for microscopy: wet mounts (3 hours; Reference 4).</p> <p>Separation of mixed culture, isolation, maintenance and preservation of pure culture (4 hours; Reference 3).</p> <p>Staining of bacteria and cell morphology (2 hours; Reference 1).</p> <p>Characterization, biochemical tests and identification of marine bacteria (6 hours; Reference 1).</p>	30 hrs.
<b>Pedagogy:</b>	Laboratory techniques/ practical/ demonstrations/ field studies.	
<b>References/ Readings:</b>	<p>1.Bergey, D. H., Krieg N. R., &amp; Holt, J. G. (1984). <i>Bergey's manual of systematic bacteriology (Vol. I)</i>. William &amp; Wilkins, Baltimore.</p> <p>2.Colwell, R. R. (1975). <i>Marine and estuarine microbiology laboratory manual</i>. University Park Press.</p> <p>3.Zobell, C. E. (1946). <i>Marine microbiology, a monograph on hydrobacteriology</i>. Chronica Botanica Company, Waltham, Mass.</p> <p>4.Harigan, W. F., &amp; McCance, M. E. (1966). <i>Laboratory methods in microbiology</i>. Academic Press, London, New York.</p> <p>5.Hurst, G. J., &amp; Knudsen, G. R. (1997) <i>Manual of environmental microbiology</i>. ASM Press, Washington, D.C.</p>	
<b>Course Outcome:</b>	1. The student will get acquainted with some of the basic methods and techniques to study microbiology of the marine environment.	