



## Hand-on workshop on Basic Techniques of Microbiology

(17- 23 December)

*Jointly organized by*

**Department of Microbiology, Ram Lal Anand College  
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)  
Delhi School for Skill Enhancement & Entrepreneurship Development (DSSEED)  
University of Delhi**

### **Purpose of the Workshop:**

Microbiology is an ever growing field and expertise in basic microbiological techniques provides an edge to the student. Hence this workshop is designed to provide an extensive hands on training in basic techniques used in Microbiology such as media preparation, isolation of micro-organisms, handling and purification of microbial cultures, use of different kinds of media in a Microbiology laboratory, various bacterial staining methods and differentiation of bacteria based on morphological and cultural characteristics. This training will not only generate interest to study Microbiology in a student, but also impart skill and confidence to handle various microorganism. All the participants in small groups of 4-5 students will be learning and performing all the experiments. Each participant will perform each experiment and record his/her observations. Participants will be able to repeat any experiments if required.

The student on the completion of the training will be able to isolate microorganisms from soil, water and air, ensure the purity of the cultures they will be handling at various stages in professions like quality control in food and pharmaceutical industry, research and development in breweries, pharmaceutical industry, dairy products and food processing units, probiotics preparations, petroleum industry, sustainable environmental technologies, microbial inoculants, diagnostic laboratories, infection control in health care facilities and waste management. Training in these techniques will also provide an edge to the students aiming to go for research and teaching in life sciences.

**Who should attend:** BSc, MSc and PhD students from all life sciences streams other than Microbiology.

### **Workshop Schedule:**

	<b>Morning (10 am-1pm)</b>	<b>Afternoon (2pm-5pm)</b>
<b>Day 1</b>	<ul style="list-style-type: none"><li>• Inauguration</li><li>• Introduction of faculty &amp; participants</li><li>• Introduction to the Microbiology Laboratory, good laboratory practices and biosafety.</li></ul>	<ul style="list-style-type: none"><li>• Principle and working of instruments used in a Microbiology lab.</li><li>• Practice of Pipetting using Micropipettes</li><li>• Sterilizations</li></ul>
<b>Day 2</b>	<p><b>Techniques for culturing Microorganism</b></p> <ul style="list-style-type: none"><li>• Microbiological media (general purpose complex media, differential, selective, enriched, enrichment and minimal media). Solid, semi-solid and broth media.</li></ul>	<ul style="list-style-type: none"><li>• Inoculation</li><li>• Streaking on petri plates</li><li>• Broth inoculation</li><li>• Stab inoculation</li><li>• Slant inoculation</li></ul>

	<ul style="list-style-type: none"> <li>• Liquid and solid Media preparation and sterilization.</li> <li>• Making slants and petri-plates</li> </ul>	<ul style="list-style-type: none"> <li>• Point inoculation of a mold culture onto a plate of potato dextrose agar.</li> </ul> <p><b>Techniques for isolation of microorganisms</b></p> <ul style="list-style-type: none"> <li>• Preparation of a dilution series</li> <li>• Spread plating</li> </ul>
<b>Day 3</b>	<ul style="list-style-type: none"> <li>• Use of colony counter for the observation of results of spread plating.</li> <li>• CFU count</li> <li>• Observations of inoculations performed on the previous day.</li> </ul>	<p><b>Identification of Microorganism</b></p> <ul style="list-style-type: none"> <li>• Morphological identification process where the microorganisms with the naked eye based on colony texture, shape, and size.</li> <li>• Simple staining of molds and microscopic algae to view their morphology and arrangement</li> </ul>
<b>Day 4</b>	<p><b>Visualization of different types of microbes through microscopy</b></p> <ul style="list-style-type: none"> <li>• Simple staining of bacteria to view their, shape, size and arrangement.</li> <li>• Bacterial motility using the hanging drop technique</li> </ul>	<ul style="list-style-type: none"> <li>• The Gram staining technique as an example of differential staining</li> <li>• Repetition of the experiment if any required by the participants</li> </ul>
<b>Day 5</b>	<ul style="list-style-type: none"> <li>• Staining of bacterial endospores using the Schaeffer-Fulton method,</li> <li>• Repetition of the experiment if any required by the participants.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration of GasPak jar to create an oxygen-free atmosphere for culturing anaerobic bacteria.</li> <li>• Compilation of all lab work and result</li> </ul>
<b>Day 6</b>	<p><b>Assessment and Reporting</b></p> <ul style="list-style-type: none"> <li>• MCQ Questionnaire based on the workshop experiments.</li> <li>• Submission of workshop report.</li> </ul>	<ul style="list-style-type: none"> <li>• Feed Back from the participants and Valedictory session</li> </ul>



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Presents

**Hands-on workshop on  
Basic Techniques in Microbiology**

*17<sup>th</sup> - 23<sup>rd</sup> December 2022*

*(10am-5pm)*

Limited to 20  
participants  
only

REGISTRATION  
DEADLINE  
10 Dec 2022

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Entry Fee: 2000/-

Register Now:

<https://forms.gle/xohbZLnV427wpJbr6>

*Venue: Microbiology  
Department, RLAC*

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