



<b>Subject</b>	<b>Microbiology</b>
<b>Paper No.and Title</b>	<b>XV: Environmental Microbiology</b>
<b>Module No.andTitle</b>	<b>2: Safety in Microbiological laboratory</b>
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**PAPER No. : XV (Enviromental Microbiology)**

	<b>MODULE No. 2 ( Safety in microbiological laboratory)</b>

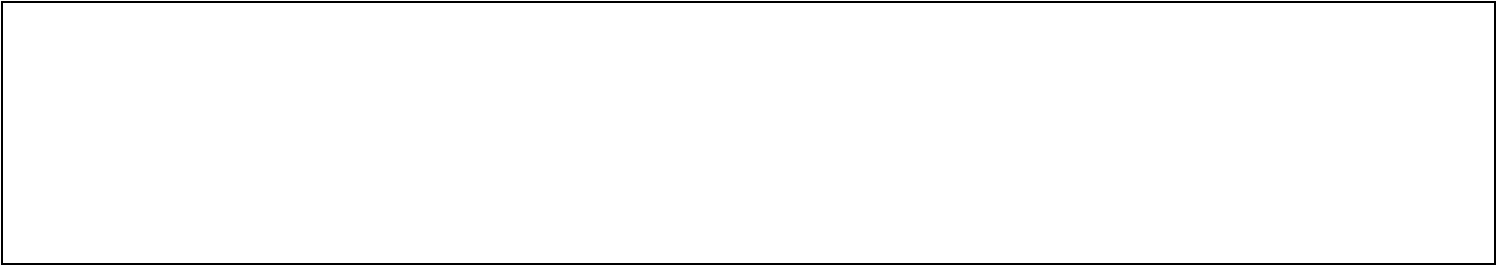
# TABLE OF CONTENTS

**1. Learning Outcomes**

**2. Introduction: Biological safety**

**3. General rules to behave while working in microbiology laboratory**

	<b>PAPER No. : XV (Environmental Microbiology)</b>
	<b>MODULE No. 2 ( Safety in microbiology laboratory)</b>



## 1. Learning Outcomes

In this module,

1. You shall learn about the information what general precautions you should take while working in microbiology lab.
2. You shall learn about how to handle various instruments.
3. You shall learn about the safety precautions you should know.
4. How to handle small accidents and precautions about avoidance of accident.

## 2. Introduction:

A microbiology laboratory is a unique environment that requires special practices and containment facilities in order to properly protect persons working with microorganisms.

Safety in the laboratory is the primary concern.

The three main elements of safe containment of microorganisms are

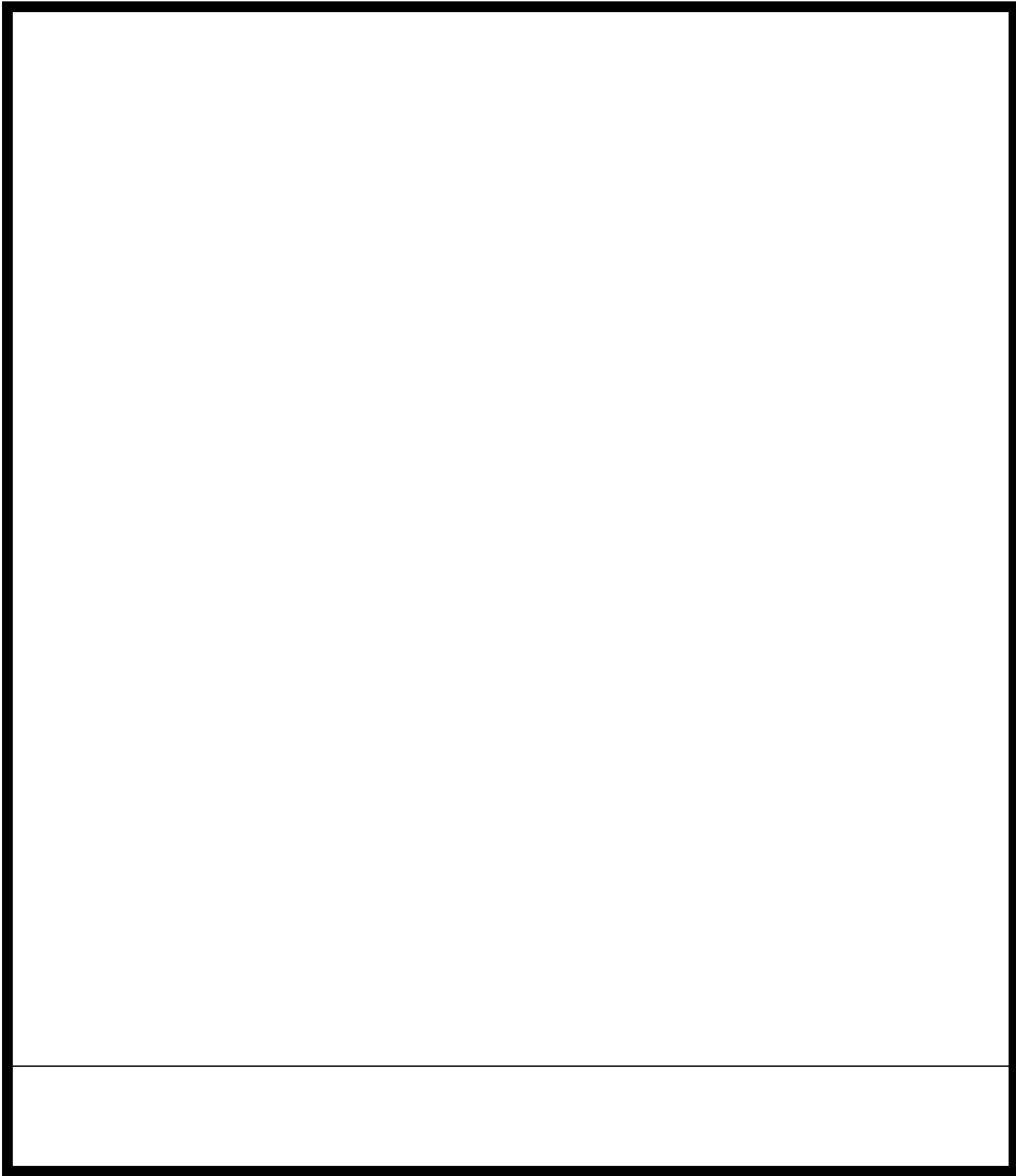
(1) good laboratory practices and technique, (2) safety equipment, and (3) facility design.

## 3. General rules to behave while working in microbiological laboratory:

1. Wash your hands with disinfectant soap when you arrive at the lab and again before you leave.
2. Absolutely no food, drinks, chewing gum, or smoking is allowed in the laboratory. Do not put anything in your mouth such as pencils, pens, labels, or fingers. Do not store food in areas where microorganisms are stored.
3. Purchase a lab coat and safety glasses, bring them to class, and use them. Alternatively, a long sleeved shirt that buttons or snaps closed is acceptable protective clothing. This garment must cover your arms and be able to be removed without pulling it over your head. Leave protective clothing in the lab and do not wear it to other non-lab areas.
4. Avoid loose fitting items of clothing. Wear appropriate shoes (sandals are not allowed) in the laboratory.
5. Keep your workspace free of all unnecessary materials. Backpacks, purses, and coats should be placed in the

cubbyholes by the front door of the lab. Place needed items on the floor near your feet, but not in the aisle.

6. Disinfect work areas before and after use with 70% ethanol or fresh 10% bleach. Laboratory equipment and work surfaces should be decontaminated with an appropriate disinfectant on a routine basis, and especially after spills, splashes, or other contamination.
7. Label everything clearly.
8. Replace caps on reagents, solution bottles, and bacterial cultures. Do not open Petri dishes in the lab unless absolutely necessary.
9. Inoculating loops and needles should be flame sterilized in a Bunsen burner before you lay them down.
10. Turn off Bunsen burners when not in use. Long hair must be restrained if Bunsen burners are in use.
11. When you flame sterilize with alcohol, be sure that you do not have any papers under you.
12. Treat all microorganisms as potential pathogens. Use appropriate care and do not take cultures out of the laboratory.
13. Wear disposable gloves when working with potentially infectious microbes or samples (e.g., sewage). If you are working with a sample that may contain a pathogen, then be extremely careful to use good bacteriological technique.
14. Sterilize equipment and materials.
15. Never pipette by mouth. Use a pipetting aid or adjustable volume pipettors. [In the distant past, some lab personnel were taught to mouth pipette. This practice has been known to result in many laboratory-acquired infections. With the availability of mechanical pipetting devices, mouth pipetting is strictly prohibited.]
16. Consider everything a biohazard. Do not pour anything down the sink. Autoclave liquids and broth cultures to sterilize them before discarding.
17. Dispose of all solid waste material in a biohazard bag and autoclave it before discarding in the regular trash.
18. Familiarize yourself with the location of safety equipment in the lab (e.g., eye-wash station, shower, sinks, fire extinguisher, biological safety cabinet, first aid kit, emergency gas valve).
19. Dispose of broken glass in the broken glass container.
20. Dispose of razor blades, syringe needles, and sharp metal objects in the “sharps” container.
21. Report spills and accidents immediately to your instructor. Clean small spills with care (see instructions below). Seek help for large spills.
22. Report all injuries or accidents immediately to the instructor, no matter how small they seem.



Resources Needed –

**PPT** –Safety in Microbiological laboratory

[https://drive.google.com/file/d/1pdbiBxNUoHOvq6A6RoZpk\\_Ae13KzLqE1/view?usp=sharing](https://drive.google.com/file/d/1pdbiBxNUoHOvq6A6RoZpk_Ae13KzLqE1/view?usp=sharing)

**Lecture recording-**

<https://drive.google.com/file/d/1rSb8rosd-mbVsKxxXDSDP0MT8If8VLLw/view?usp=sharing>

**Assessment:**

<https://testmoz.com/q/8886374>

**Know more:**

Suggested readings. Text book of Microbiology - Anantnarayan and Panikar



