

**Yashwantrao Chavan Centre for invention, Innovation and Incubation (YC- CIII)**

**Biosafety Consultant**

**Class: M.Sc. I**

**Department of Microbiology**

1. Title: Biosafety Consultant
2. Subject: Microbiology
3. Year of implementation: 2022

Structure of Skill Development Course

Level	Theory Hours	Practical Hours	Total Hours	Credits	No. of students in a batch
7	20	30	50	03	30

**Syllabus**

**Course Objectives:**

Students should be able to understand

1. Biosafety Concerns guidelines.
2. Lab and personal safety.
3. Role of National Accreditation Board

**Theory Syllabus (20 Hrs)**

**Unit I**

**a. Microbiological risk assessment (5)**

Specimens for which there is limited information

Risk assessment and genetically modified microorganisms

**b. Basic laboratories Biosafety (5)**

Laboratory design and facilities

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Laboratory equipment

Waste handling

Chemical, fire, electrical, radiation, and equipment safety

**Unit II**

**Biosafety Guidelines (10)**

1. Biosafety guidelines and regulations ((National and International)
2. Living modified organisms (LMOs)- Concerns and Challenges
3. Environmental release of GMOs-Risk Analysis, Assessment, management and communication
4. Introduction of the National Accreditation Board for Testing & Calibration Laboratories (NABL)

**Practical Syllabus (24 Hrs)**

**List of Experiments**

1. Study of Microbiology Good Laboratory Practices
2. Study of Personal Protection in the lab
3. Study of Stock Culture maintained in the lab
4. Study of the efficacy of Dettol
5. Study of bio-safety concerns at the level of institutions
6. Study of Principles and functions of Microbiology Safety Cabinets
7. Study of decontamination of microorganisms
8. Study of bio-safety concerns at the level of institutions and society with special emphasis on Indian concerns

**Project/ Field Visits/ Industrial Visit (06 hr)**

**Recommended Books:**

1. Fleming, D.A., Hunt, D.L., (2000). Biotechnology and Safety Assessment (3rd Ed) Academic press.ISBN-1555811804,9781555811808.
2. Thomas, J.A., Fuch, R.L. (1999). Biotechnology and safety assessment (3rd Ed). CRC press, Washington. ISBN: 1560327219, 9781560327219

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3. Guidelines for Biosafety in Teaching Laboratories (2019) AMERICAN SOCIETY FOR MICROBIOLOGY
4. Rajmohan Joshi (Ed.). 2006. Biosafety and Bioethics. Isha Books, Delhi.
5. Goel D & Prashar S (2013). IPR, Biosafety and Bioethics. Pearson

**Course Outcomes:**

Upon completion of the course, student should be able to

1. Aware of the inherent risks of using microorganisms in the laboratory
2. Best practices to minimize the risk to students and the community
3. Basic laboratories biosafety

**BOS Sub Committee:**

<b>Sr. No</b>	<b>Name of Member</b>	<b>Designation</b>	<b>Address</b>
1	Dr. P. S. Patil	Chairman	YCIS, Satara
2	Ms. P. B. Zambre	Member	YCIS, Satara
3	Dr. A. R. Jadhav	Academic Expert	K.R.P Mahavidyalaya, Islampur, Sangli
4	Mr. Sandip Babar	Industrial Expert	Pharmaceutical Company, Pune