

**Title of Skill Course: Entrepreneurship Skill in Industrial Microbiology**

1. Department: Department of Microbiology
2. Title: Entrepreneurship Skill in Industrial Microbiology
3. Sector: Life Science
4. Year of implementation: 2022

**Structure of Skill Development Course**

Level	Theory Hours	Practical Hours	Total Hours	Credits	No. of students in batch
5	20	30	45	03	30

**Syllabus****Learning Objectives:**

The students should understand,

1. Types of Biopesticides
2. Biological production of biopesticides.
3. Opportunities for entrepreneurship
4. Sources of finance

**Unit I.**

- Definition of Bio-pesticide
- scope and importance of Biological control (Microbial control)
- Production of bio pesticide based on Fungi and bacteria.
- Mechanism of action of bio pesticide.
- industries producing bio pesticides

**Unit. II**

- Barriers of Entrepreneurship and how they reduce.
- Identification of opportunities for entrepreneurship, ideas to start new business, criteria for selection of new product or service,
- Sources of finance, Role of various funding agencies, government and commercial Role of various funding corporations
- Marketing strategy,
- Essentials of Accounting and basic concept & need for auditing

**Practical Syllabus (30 Hrs)**

**List of Experiments: -----** **24 hr**

1. Mass production technique of *Trichoderma* spp
2. Mass production and standardization of *Bacillus thuringiensis*
3. Enrichment and isolation of pesticide resistance bacteria
4. Compilation and comparison of the auditing processes of two small scale industries.
5. Demonstration of mock documentation for an industry
6. To study the legal aspects of a service unit and submit report.
7. Mass production technique of *Verticillium lecanii*
8. Packaging and Labelling of Bio pesticide.

Project/ Field Visits/ Industrial Visit to nearby wine industries/pharma/food Industries 06 hr

**Learning Outcomes:**

On completion of the course, students are able to understand.

1. Design of fermenter.
2. How to improve industrially important strain.
3. Opportunities for entrepreneurship
4. Sources of finance.

**Recommended Books:**

1. A .H .Patel: Industrial Microbiology, McMillan (India) Ltd. BOMBAY.
2. Casida L. E.: Industrial Microbiology, Willey Estern Ltd., NEW DELHI.
3. Prescott & Dumn: Industrial Microbiology, MacGrow HillCo .Ltd.
4. Dynamics of Entrepreneurial Development and Management – Shri. Vasant Desai.(Latest edition)

**BOS Sub Committee:**

**Academic Expert**

Mrs.M.S.Shinde

Mr. B. S. Pawar

**Industrial expert:**

Mr. Abhijeet Nikam

Mr. A.R. Jadhav