

Course Code	Course Name	Credits
26BT951	BIOTECHNOLOGY SKILLS & ANALYTICAL TECHNIQUES	02

Course Description

This course provides an overview of biotechnology industry practices along with essential professional, interpersonal, digital, and analytical skills required for workplace readiness. It integrates theoretical understanding with practical applications in industrial settings, laboratory communication, data handling, and basic solution chemistry. The course is designed to enhance employability and prepare learners for roles in biotechnology and related sectors..

Course Objectives

- To introduce learners to the structure and functioning of the biotechnology industry.
- To develop professional skills such as planning, decision-making, and problem-solving for industrial settings.
- To enhance interpersonal and communication skills required in workplace environments.
- To train learners in basic digital tools and professional documentation skills.
- To build foundational analytical skills required for laboratory work and solution preparation.

Skill Enhancement Outcomes

After completing the course, learners will be able to:

- Understand the structure and organization of biotechnology industries across different scales.
- Apply planning, analytical, and problem-solving skills in professional contexts.
- Demonstrate effective communication, writing, and conflict-resolution skills in workplace situations.
- Use basic computer applications such as MS Office, Excel, PowerPoint, and email for professional tasks.
- Prepare and interpret basic laboratory solutions and concentration units such as molarity, molality, and ppm.
- Read reagent labels and follow laboratory safety precautions correctly..

Course Content and Practical Training

- Overview of biotechnology industry in Indian and global context.
- Organization of biotechnology enterprises (large, medium, small scale)
- Industrial structure and benefits of biotechnology sector
- Planning, organizing, and decision-making skills in industry
- Problem-solving, analytical thinking, and risk assessment techniques
- Team management and workplace coordination skills
- Writing, reading, and oral communication skills
- Conflict resolution and workplace communication strategies
- Interpretation of research data and troubleshooting techniques
- Basic computer skills: MS Office, Excel, PowerPoint, and internet usage
- Professional email writing and presentation skills
- Introduction to laboratory calculations and solution chemistry
- Molarity, molality, normality, percent concentration, ppm, and ppb
- Preparation of standard and stock solutions
- Dilution techniques and acid solution preparation
- Reagent bottle labeling and laboratory safety precautions

Learning Outcome

At the end of the course, learners will be able to apply biotechnology industry knowledge, demonstrate essential professional and communication skills, effectively use digital tools, and perform basic analytical laboratory calculations required for entry-level industrial and laboratory roles.