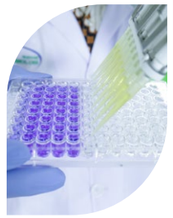

Graduate Competencies

- Able to master the latest development in Biotechnology and their application to solving problems in science and technology that are relevant to specific environmental conditions.
- Able to master the latest issues related to Biotechnology product policies and their implementation.
- Able to grab and initiate business and industrial opportunities from innovative Biotechnology products or services.
- Have ethics and leadership character as a responsible person.
- Have critical thinking, creative thinking, and networking competence.

Learning Facilities

- Greenhouse for learning and research
- Microorganism Biotechnology laboratory
- Plant Biotechnology laboratory
- Teaching laboratory
- Purification and Molecular Biology laboratory
- Comfortable library with excellent internet facilities
- Comfortable lecture room with adequate multimedia equipment
- Learning website (e-learning)

Specialization

FOOD BIOTECHNOLOGY

Focuses on building the competence of Biotechnology innovators in the innovation of biotechnological food processing products and processes.

PLANT BIOTECHNOLOGY

Focuses on building the competence of Biotechnology innovators in plant propagation and quality improvement as well as the production of valuable and high-economic value compounds with biotechnology.

HEALTH & FORENSIC BIOTECHNOLOGY

Focuses on building the competence of Biotechnology innovators in the health sector (e.g., development of molecular disease diagnostic methods and biopharmaceuticals) and forensics.

ENVIRONMENTAL BIOTECHNOLOGY & RENEWABLE ENERGY

Focuses on building the competence of Biotechnology innovators in the utilization, improvement, and preservation of the environment and the application of green technology and renewable energy technology.

INFORMATION

Postgraduate Study Program
Faculty of Biotechnology
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UBAYA
UNIVERSITAS SURABAYA

Master of Biotechnology

Postgraduate Study Program
Faculty of Biotechnology, University of Surabaya

Introduction

The Faculty of Biotechnology, University of Surabaya (FTb Ubaya) was established in 2005 to meet the needs of the industrial community for human resources in biotechnology. In its current age, the faculty has achieved various achievements and received quality recognition from DIKTI through “A” accreditation for the Bachelor of Biology (Biotechnology) study program and the ASEAN University Network (AUN) certification. Public response to the FTb Ubaya is very positive. This can be seen from the increasing data trend on students coming from various leading high schools in Indonesia.

As the oldest Faculty of Biotechnology in East Java and the surrounding area, the faculty is committed to maintaining and improving Biotechnology's scientific development and application. Following recent advances in engineering technology of living things for industrial purposes, competent biotechnology experts are needed to act as actors and innovators of Biotechnology, especially in an industry in Indonesia. The business world and industry in Indonesia and ASEAN urgently need human resources who can explore the development, application, and innovation in Biotechnology based on Indonesian biological resources. To meet this need and the desire of the community to study Biotechnology at the Master's level, both from Ubaya and non-Ubaya Bachelor of Biology graduates, then Ubaya opened the Master of Biotechnology study program.

Vision

Faculty of Biotechnology
University of Surabaya

To become a leading and recognized faculty (benchmark) in the development, application, and innovation of Indonesian biological resources-based Biotechnology.

Mission

Master of Biotechnology
Study Program

To produce graduates who can apply Biotechnology innovations based on the diversity of Indonesia's local biological resources to improve the quality of human life by implementing study programs that constantly innovate learning, research, and community service.

Career Opportunities

The Master of Biotechnology study program is delivered to produce graduates with the knowledge, skills, ethics, and broad insights related to scientific applications and biotechnology products in particular and can work interdisciplinary with other related scientific fields. There are several career opportunities for the Master of Biotechnology graduates:

- Production Supervisor/Manager, QC and PPIC in Bioindustry
- R&D Staff in Bioindustry
- Consultant in Bioindustry
- Entrepreneur in Biotechnology
- Technical Marketing
- Educator/Researcher in Biotechnology
- Policymakers in Biotechnology in the government

Features

- At the Master's level, Biotechnology content is deepened and focused on industrial applications with a choice of relevant fields of interest so that graduates have the understanding, analysis, and ability to innovate to produce quality products for industry actively. In addition, the focus is also given to scientific writing as an adequate provision for those who will continue their studies to the doctoral level.

- Activities in the industrial / service sector that Master of Biotechnology graduates can pursue are many, ranging from simple biological processes to sophisticated levels. The faculty provides four areas of specialization in the Master of Biotechnology Program: Food Biotechnology, Plant Biotechnology, Health & Forensic Biotechnology, and Environmental Biotechnology & Renewable Energy.

- The Master of Biotechnology study program also provides students with various soft skills competencies and supporting subjects, including Introduction to Industry, Business Management & Innovation, and English as prerequisites of advanced subjects, as well as other subjects designed to prepare students to evaluate the production process and design product launch to the market and design development efforts, while preparing for the industrial revolution 4.0 era.

Teaching Methods

Teaching in the Master of Biotechnology study program applies the Student-Centered Learning (SCL) principle, where students actively participate in learning and lecturers act as learning facilitators. Therefore, to achieve the expected competencies, various Learning methods with SCL techniques are used, such as discussions, paper assignments, assignment presentations, practicum, and project assignments, taking into account the following factors:

- The number of students, lecturers, and/or assistants per practicum module for laboratory activities and discussion groups.
- Availability of adequate access (reference books, journals, etc.).
- Excellent internet access.
- E-learning facilities that are accessible from anywhere.

The academic atmosphere and intelligent behavior are also built with scientific activities that are regularly scheduled in implementing the study program, such as:

- Internal scientific seminars.
- Guest lecturers from industry practitioners to enrich industry insights for students.
- Students' involvement in research and community service activities from lecturers who partner with industry or other external parties.
- Dissemination activities of research results at scientific seminars, scientific presentations in national and international forums, and publications in accredited national journals and/or reputable international journals.

SUBJECT STRUCTURE

per semester and the weight of Semester Credit Units

SEMESTER I

No.	Subject Name	Credit Units
1.	Biotechnology Research Methods	2
2.	Analysis of Biomolecules (p)	3
3.	Innovative Biotechnology	3
4.	Protein Engineering and Purification (p)	2
	Total	**10**

SEMESTER II

No.	Subject Name	Credit Units
1.	Bioprocess (p)	3
2.	Applicable Bioinformatics	3
3.	Seminar	2
4.	Specialization's Compulsory Subject 1	2
	Total	**10**

SEMESTER III

No.	Subject Name	Credit Units
1.	Regulation of Biotechnology Products	2
2.	Business Management	2
3.	Specialization's Compulsory Subject 2	2
4.	Elective Subject	2
	Total	**8**

SEMESTER IV

No.	Subject Name	Credit Units
1.	Scientific Work	2
2.	Thesis	8
	Total	**10**

(p): there is a practicum load

SPECIALIZATION'S COMPULSORY SUBJECTS

No.	Food Biotechnology Specialization	Credit Units
1.	Food Industry Biotechnology	2
2.	Modern Food Analysis	2
	Total	**4**

No.	Plant Biotechnology Specialization	Credit Units
1.	Applicable Tissue Culture	2
2.	Comparative Plant Physiology	2
	Total	**4**

No.	Health & Forensic Biotechnology Specialization	Credit Units
1.	Forensic Science	2
2.	Gene Expression in Disease	2
	Total	**4**

No.	Environmental & Energy Biotechnology Specialization	Credit Units
1.	Renewable Energy Technology	2
2.	Water and Bioenvironmental Science	2
	Total	**4**

ELECTIVE SUBJECTS

No.	Subject Name	Credit Units
1.	Population Genetics	2
2.	Horticulture & Seed Technology	2
3.	Introduction to Biosensors	2
4.	Plant Transformation Techniques	2
5.	Nutrigenomics and Nutrigenetics	2
6.	Sustainable Energy Systems	2
7.	Environmental Regulation & Management System	2
8.	Plant Molecular Analysis Techniques	2
9.	Biorefinary and Biomaterial Science	2
10.	Specialization's compulsory subjects outside the chosen interests	2

MATRICULATION SUBJECTS

No.	Subject Name	Credit Units
1.	Basic Molecular Biology	2
2.	Basic Microbiology	2
3.	Basic Biochemistry	2
	Total	**6**