

Undergraduate Programme in Biology

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MODULE HANDBOOK

Module Name	Microbial Biotechnology
Module level, if applicable	Bachelor
Code, if applicable	BIO425099
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	5 th (fifth)
Person responsible for the module	Dr. Arifah Khusnuryani
Lecturer(s)	Lela Susilawati, PhD
Language	Indonesia
Relation to curriculum	Elective course in the third year (5 th semester) Bachelor Degree
Type of teaching, contact hours	100 minutes lectures, 120 minutes structured activities, 120 minutes self-learning and 170 minutes practical lab per week.
Workload	Total workload = 136 hours/semester (total for 16 weeks/semester, including mid-term and final term) Lectures = 100 minutes/week Structured activities. = 120 minutes/week Self-learning. = 120 minutes/week Practical lab. = 170 minutes/week
Credit points	3 credits (4,5 ECTS)
Requirements according to the examination regulations	Minimal attendance 75%; fulfil all the task
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students should be: CO1: able to understand the basic principle of microbial biotechnology CO2: able to analyze the microbial cell cultivation CO3: able to analyze the application of microbial biotechnology in a particular field
Content	1. <i>Fundamental of microbial biotechnology</i> 2. <i>Microbial cell culture cultivation systems</i> 3. <i>Methods in Microbial Biotechnology: Recombinant gene expression and Protein engineering</i> 4. <i>Microbial Biotechnology for pharmaceutical needs: recombinant vaccine, insulin, microbial based-cancer therapies</i> 5. <i>Industrial Microbial Biotechnology: Biopolymers, biosurfactants, biosensors, biofertilizer, biopesticide</i> 6. <i>Microbial biotechnology in food processing: fermentation end-product (alcohol etc), Genetically modified of microbial fermentation</i> 7. <i>Microbial biotechnology in agriculture: GMO plant, Plant Growth Promoting Microorganisms (PGPMs)</i> 8. <i>Microbial biotechnology in the environment: bioremediation, mining, waste and wastewater management</i>

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