


MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN FACULTY OF MATHEMATICS AND NATURAL SCIENCES BACHELOR OF BIOLOGY PROGRAMME	COURSE CODE : D10D-506010
Module designation	Industrial and Applied Microbiology	
Semester in which the module is taught	5	
Persons responsible for the module	1. Prof. Dr. Ratu safitri 2. Asri Peni Wulandari Ph.D 3. Yolani Ph.D	
Medium of instruction	Indonesian	
Relation to curriculum	Compulsory course	
Teaching methods	Lectures, discussions, collaborative learning, and project base learning	
Workload	Total workload : 10880 minutes = 181.33 hours Lecture, discussion, collaborative learning, and project base learning : 4 x 50 minutes x 16 weeks = 3200 minutes = 53.33 hours Exercises : 4 x 60 minutes x 16 weeks = 3840 minutes = 64 hours Self-study : 4 x 60 minutes x 16 weeks = 3840 minutes = 64 hours	
Credit points	4.00 (7.24 ECTS)	
Required and recommended prerequisites for joining the module	Basic microbiology	
Module objectives/intended learning outcomes	1. Students are able to explain (C2) the basic principles of the process of fermentation for microbiological applications 2. Students are able to explore (C3) the potential in the field of microbiology in various applied fields by using the principle of fermentation 3. Able to provide alternative solutions to solve and formulate (C4) problems in the context of SDH problems with the concept of fermentation as a solution step 4. The Students are able to design (C6) and manufacture (P2) products through fermentation 5. Able to utilize microorganisms in industrial processes such as enzyme production fermentation or waste bioconversion as an effort to manage biological resources efficiently and sustainably.	
Contents	The Applied Microbiology course is a compulsory specialization course for 5th-semester students (OBE-Based 2020 Curriculum). After studying the basic concepts of fermentation and its analysis process, as well as its application in various fields. The problem-based learning method will direct students to gain new knowledge by analyzing various knowledge and learning experiences they have, and connecting them with learning problems given in the form of cases. Students will learn the steps to find a solution to the given case. The recommendations proposed then with scientific stages students will design and manufacture fermentation-based products. At the end of the lecture, the achievement is tested in the form of output in the form of fermentation products.	

Examination forms	Quiz, Midterm exam, Project, Assignment, and Final exam
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)
Reading lists	<ol style="list-style-type: none">1. Waites, Michael J. Industrial Microbiology: An introduction. Blackweel Science. 1st publ. 2001 T.J. International Ltd, Padstow, Cornwall2. Sanjai Saxena. Applied Microbiology (e-book). Springer. India. 2015