

MODULE HANDBOOK

Module Name	Biotechnology
Module level	Bachelor
Abbreviation, if applicable	3074112078
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	8 th / Fourth Year
Module coordinator(s)	Dr. Nuniek Herdyastuti, M.Si
Lecturer(s)	Dr. Nuniek Herdyastuti, M.Si Mirwa A. Anggarani, M.Si
Language	Indonesian
Classification within the curriculum	Elective Course
Teaching format/class hours per week during the semester:	2 hours lecturers
Workload:	2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 79.33 total hours per semester ~ 3.18 ECTS**
Credit points:	2 CU x 1.59 = 3.18 ECTS
Prerequisites course(s):	-
Targeted learning outcomes:	<p>CLO 1 Students can understand about treatment techniques for microorganisms and their metabolic products</p> <p>CLO 2 Students can understand about concept of several types of metabolic regulation in microorganisms</p> <p>CLO 3 Students have basic concepts of genetic engineering/gene cloning, cloning vectors and restriction enzymes</p> <p>CLO 4 Students have good morals, ethics and personality in biotechnology independently or in groups and are responsible for communicating the results</p> <p>CLO 5 Students can understand about gene cloning strategy using plasmid vectors, especially pBR322 and pUC8 and identification of recombinant clones</p> <p>CLO 6 Students understand about fermentation process</p>
Content:	This course studies basic principles of biotechnology, modern and conventional technique of biotechnology, metabolic regulation, cloning and bioinformatics. This course is presented in theory, practice, and simple engineering through literacy, discussion, and assignments.
Study / exam achievements:	Students are considered to complete the course and pass if they

	<p>obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:</p> <table border="1"> <thead> <tr> <th>Assessment Components</th> <th>Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td>20%</td> </tr> <tr> <td>Assignment</td> <td>30%</td> </tr> <tr> <td>Mid-semester test</td> <td>20%</td> </tr> <tr> <td>Final semester test</td> <td>30%</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Final semester test	30%										
Media:	Computer, LCD, White board										
Learning Methods	Individuals assignment, group assignment, discussion, presentation, and practicum										
Literature:	<ol style="list-style-type: none"> 1. Glick, B.R., and Pasternak, J.J., 1994, Molecular Biotechnology: Principles and Application of Recombinant DNA, Washington, D.C : ASM Press 2. Mousdale, D.M. 2008. Biofuels Biotechnology, Chemistry and Sustainable Development, Taylor & Francis Group, LLC 3. Judoamidjojo, Darwis dan Said, 1992, Teknologi Fermentasi, Jakarta : C.V. RajawaliPers. 4. Aehle W, 2007, Enzyme in industry : Production and Application, 3rd edition, Wiley- VCH Verlag GMBH & Co. KgaA Netherland 5. Stanlury and Whitaker, 1984, Principles of Fermentation Technology, New York : Pergamon Press Ltd. 										
Notes:	<p>*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</p> <p>**1 CU = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/Hk/Ak/2019</p>										