Module Descriptions

A **module** is a self-contained **learning unit** within a higher education program that includes thematically related courses and is assigned a **fixed number of credits**. It follows specific **learning objectives**, includes an **assessment component**, and contributes to achieving the qualifications of a degree program. In some countries, “modules” are also named “courses”.

Please provide a module description for each module. In addition to the compulsory and elective modules, this also includes credited internships and the final thesis.

Please summarize all module descriptions in one document (Module Handbook) and create a table of contents so that the modules can be found easily.

<table>
<tr><td>Module designation</td><td>Industrial Microbiology</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td>Odd</td></tr>
<tr><td>Person responsible for the module</td><td>Dr. Anna Rakhmawati, M.Sc.</td></tr>
<tr><td>Language</td><td>Indonesian language</td></tr>
<tr><td>Relation to curriculum</td><td>Elective subject</td></tr>
<tr><td>Teaching methods</td><td>lecture, project, case study, seminar, examination</td></tr>
<tr><td>Workload (incl. contact hours, self-study hours)</td><td>Total workload is 45 hours per semester which consists of 50 minutes lectures, 60 minutes structured activities, and 60 minutes individual study per week for 8 weeks.</td></tr>
<tr><td>Credit points</td><td>1 SKS (1,6 ECTS)</td></tr>
<tr><td>Required and recommended prerequisites for joining the module</td><td>Biochemistry, Microbiology, and Mycology</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td>PLO 6, PLO 7, PLO 8, PLO 9</td></tr>
<tr><td>Content</td><td>This course discusses the concept of industrial microbiology, the history and development of industrial microbiology, and the functions of microorganisms related to industrial processes especially in fermentation.</td></tr>
<tr><td>Examination forms</td><td>Test, rubrics, and presentation</td></tr>
<tr><td>Study and examination requirements</td><td>Requirements for successfully passing the module
The final mark will be weight as follow:
<table><tr><td>NO</td><td>Assessment Techniques</td><td>Percentage Weight</td><td>Information</td></tr></table></td></tr>
</table>

		Assessment (%)	
1	Cognitive	50	Maximum assessment weight accumulation 50%
	Presence	5	
	Task	10	
	Quiz	10	
	Mid-semester exams	10	
	Final Semester Exam	15	
2	Participatory	50	Maximum assessment weight accumulation 50%
	Case study	25	
	Team Base Project	25	
	Total	**100**	

Reading list

A. Adams MR, dan Moss MO, 2008. Food Microbiology . Cambridge: RSC Publishing.
B. Ali NS, et al. 2023. A high throughput screening process and quick isolation of novel lignin-degrading microbes from large numbers of natural biomasses. *Biotechnology Reports* 39: e00809
C. Okafor, Nduka. 2007. *Modern Industrial Microbiology and Biotechnology*. USA: Science Publisher.
D. Tortora, G.J., Funke, B.R. and Case, C. L. 2007.*Microbiology an introduction*, 9th ed. USA:Benjamin Cummings.
E. Waites, M.J., Morgan, N. L., Rockey, J.S., andHigton, G. 2001. *Industrial Microbiology: an introduction*, UK: Blackwell Science.
F. Ratledge, C., and Kristiansen, B. 2001. *Basic Biotechnology*. USA: Cambridge University Press.
G. Madigan, M.T., J.M. Martinko, and J. Parker. 1997. *Brock Biology of Microorganisms, 8th ed*, Prentice Hall International Inc., USA
H. Stanbury P. F., Whitaker, A., and Hall, S. J. 1995.*Principles of fermentation technology*. USA: Elsevier Science ltd.
I. Rakhmawati A, Wahyuni ET, Yuwono T. 2021. Thermophilic bacteria isolated from mount Merapi, Java, Indonesia as a potential lead bioremediation agent. *Biodiversitas*. 22(6):3101–3110.