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>Applied Microbiology</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td>Even</td></tr>
<tr><td>Person responsible for the module</td><td>Dr. Dra. Bernadetta Octavia M.Si</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 91 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.</td></tr>
<tr><td>Credit points</td><td>2 SKS (3,2 ECTS)</td></tr>
<tr><td>Required and recommended prerequisites for joining the module</td><td>Microbiology</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td>PLO 6, PLO 7, PLO 8</td></tr>
<tr><td>Content</td><td>This course examines the principles of applied microbiology and explores the roles of microorganisms in environmental processes and daily life. It aims to equip students with the knowledge and skills necessary to advance the application of microbiology across diverse fields.</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	10	
	Task	5	
	Quiz	10	
	Mid-semester exams	15	
	Final Semester Exam	15	
2	Participatory	50	Maximum assessment weight accumulation 50%
	Case study	25	
	Team Base Project	25	
	Total	**100**	

Reading list

A. Black, J.G. & Black, L.J. 2015. Microbiology: principles and explorations. John Wiley & Sons, Inc. USA.
B. Levinson, W. 2016. Review of Medical Microbiology and Immunology. McGraw-Hill Companies, Inc
C. Paul, E.A (editor). 2017. Soil microbiology, ecology, and biochemistry. Elsevier Inc. Amsterdam
D. Saxena, S. 2015. Applied Microbiology. Springer. New Delhi. India
E. Li et al. 2020. Toward fine-tuned metabolic networks in industrial microorganisms. Synthetic and Systems Biotechnology 5: 81-91
F. Rakhmawati A, Wahyuni ET, Yuwono T. 2021. Lead uptake capacity of thermophilic bacteria *Aerobacillus pallidus* strains isolated from Merapi volcano, Indonesia. Korean J Microbiol. 57(2):91–8
G. Rohaeti, E. & Rakhmawati, A. 2018. Application of Silver Nanoparticles Synthesized by Using Ipomoea batatas L Waste to Improve Antibacterial Properties and Hydrophobicity of Polyester Clothes. Chiang Mai Journal of Science Vol: 45 No.: 7