



THE MODULE HANDBOOK
DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Algae Engineering

Course code	BIDB203137
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Dr. Eko Agus Suyono,M.App.Sc
Lecture(s)	Dr. Eko Agus Suyono,M.App.Sc
Language	Indonesian/English
Classification within the Curriculum	Compulsory Specialization Courses
Teaching format/ class hours per week during the semester	This course is planned to have 14 teaching weeks and 2 weeks of examination.
Workload	1,125 hours/day 5 days/week 5,625 hours/week 16 Weeks/Semester total workload : 90 hours/3,6 ECTS
Credits	3.6 ECTS
Requirements	-
Program Learning Outcome	CPL 1.1. Upon completing this program, the graduates demonstrate an attitude of being able to contribute to improving the quality of life in society, nation and state, and the progress of civilization based on Pancasila CPL 1.2. Upon completing this program, the graduates demonstrate an attitude of being able to demonstrate honesty, responsibility, self-confidence, emotional maturity, ethics, and awareness of being a lifelong learner CPL 1.3. Upon completing this program, the graduates demonstrate an attitude of being able to internalize academic values, norms and ethics. CPL 3.4. After completing this program, the graduates will be able to communicate research results through reputable media and scientific publications to the academic community and/or directly to the wider community



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	CPL 3.5. After completing this program, the graduates will be able to demonstrate academic leadership and increase independent learning capacity
Course Learning Outcome	BIDB203137.1 By the end of this course, students will be able to discover or develop new theories, concepts, or scientific ideas in the field of algae engineering BIDB203137.2 By the end of this course, students are able to contribute to the development and application of biology through scientific research based on scientific principles and ethics, using interdisciplinary, multidisciplinary, or transdisciplinary approaches to solve problems in the field of algae engineering. BIDB203137.3 By the end of this course, students will be able to manage and formulate valid research data in the field of algal engineering with full academic integrity and a strong commitment to anti-plagiarism.
Course Description	This course covers specialized topics related to dissertation research in the field of microalgae engineering. It includes discussions on microalgae diversity, habitats and distribution, nutrition and cultivation media, sampling and isolation techniques, laboratory-, pilot-, and mass-scale cultivation methods, harvesting and cryopreservation techniques, as well as biorefinery and bioprospecting approaches.
Assessments	The assessment for Selected Topic for Dissertations (Algae Engineering) is based on three components, with the respective criteria and weights: • Structured Assignment/Task (30%) • Mid-term Exam (30%) • Final-term Exam (30%) • Presentation (10%)
Study Media and Literature	Main: 1. Andersen, R.A. 2005. Algal Culturing Technique. Elsevier Academic Press. UK. 2. Suyono, et al. 2024. The Effect of Various Photoperiodic Conditions and Zn²⁺ Concentrations on Growth Rate and Metabolite Content in <i>Euglena</i> sp. Journal of Tropical Life Science, Vol. 14, No. 2, 237 – 252 http://dx.doi.org/10.11594/jtls.14.02.04 3. Suyono, et al. 2024. Metabolite Compounds of <i>Euglena</i> sp. on Mass Cultivation System under MgCl₂ and CaCl₂ Salt Stress. International Journal on Advanced Science, Engineering and Information Technology, vol. 14, no. 3, pp. 1057-63, doi:10.18517/ijaseit.14.3.19820. Additional 1. Tia Erfiantia, Istini Nurafifaha, Brilian Ryan Sadewob, Budi Setiadi Daryono, Eko Agus Suyonoa, and Arief Budiman. 2024. Comparison



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DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM
FACULTY OF BIOLOGY

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| | <p>of CO₂ absorption via terrestrial plants and microalgae: A review. Asia Pacific Journal of Molecular Biology and Biotechnology. Vol. 32 (2) : 15-26</p> <p>2. Erik Lawijaya, Dwi Umi Siswanti and Eko Agus Suyono. 2023. Optimisation of Bioflocculation Using <i>Anabaena</i> sp. and <i>Navicula</i> sp. for Harvesting of Glagah Microalgae Consortium. <i>Pertanika Journal of Tropical Agriculture Science</i>. 46 (4): 1083 - 1096</p> |
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