MINISTRY OF EDUCATION, CULTURE, RESEARCH AND TECHNOLOGY
UNIVERSITAS NEGERI MAKASSAR
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF BIOLOGY
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Module Handbook for Tissue Culture

Module designation	Tissue Culture
Module level, if applicable	Bachelor of science
Code, if applicable	22A42C601
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	Even Semester (6)
Person responsible for the module	Dr. Alimuddin Ali, S.Si., M.Si
Lecturer	Dr. Alimuddin Ali, S.Si., M.Si
Language	Indonesia
Relation to curriculum	Compulsory course, 6th semester
Type of teaching, contact hours	Learning methods: lectures, project based learning,discussions, assignments. CSU : 2 2 x 50 minutes lecture = 100 minutes 2 x 60 minutes scheduled task = 120 minutes 2 x 60 minutes independent task = 120 minutes Total teaching format = 340 minutes = 5,7 hours
Workload	Total workload = (Total Teaching format x 16) = 5,7 x 16 = 91,2 hours
Credit points	2 CSU (3 ECTS) ETCS = Total workload : 30 hours = 91,2 : 30 = 3
Requirements according to the examination regulations	Student must have attended at least 80% of the lectures to sit in the exams
Recommended prerequisites	Basic Biology, Microbiology
Module objectives/intended learning outcomes	1. Able to describes the concepts of plant tissue culture and its development 2. Able to explain the development history of plant tissue culture 3. Able to explain the concept of totipotency, de-differentiation, competency theories 4. Able to explain the importances of plant tissue culture 5. Able to explain the culture media of plant tissue culture and different type of media 6. Able to explain the type of plant tissue culture 7. Able to describes the callus, embryogenesis, protoplast 8. Able to explain the production of secondary metabolites 9. Able to explain the application of plant tissue culture in agriculture
Content	In the Tissue Culture course, students will study and understand which includes the concepts of plant tissue culture and its development, the development history of plant tissue culture, the concept of totipotency, de-differentiation, competency theories, the importances of plant tissue culture, the culture media of plant tissue culture and different type of media, the type of plant tissue culture, the callus, embryogenesis, protoplast development, the production of secondary metabolites, the application of plant tissue culture in agriculture

Study and examination requirements and forms of examination	Midterm and final exam, assignments
Media employed	LMS-SYAM OK, Power Point Presentation, Textbook, Journal Article, Handout
Reading list	1. Zulkarnain, 2009. Kultur Jaringan Tumbuhan. Bumi Aksara 2. Gunawan, L.W. 1987. Teknik Kultur Jaringan. Pusat Antar Universitas. IPB, Bogor. 3. Thorpe, T. A., 1981, Plant Tissue Culture, methods & applications in agriculture