

Plant Biotechnology

Module name		Plant Biotechnology				
Module level		3 rd year of Bachelor program				
Abbreviation, if applicable						
Sub-heading, if applicable						
Courses included in the module, if applicable		BI3002 Plant Biotechnology				
Semester/term		4th and 5th Semester				
Module coordinator(s)		Dr. Erly Marwani				
Lecturer(s)		Dr. Erly Marwani				
Language		Indonesian				
Classification within the Curriculum		Elective courses for Bachelor Program in Biology				
Teaching format/ class hours per week during the semester						
Workload	Total Workload	120 hours; 2 CU				
		Face to face teaching	Assignment/ homework	Independent study	Exam	Total
	Lecture	28	32	32	4	96
Credit points		<i>Plant Biotechnology (2 CU)</i>				
Requirements		<i>Fundamental Biology; Basic sciences (Math, Physics, Chemistry), Plant Anatomy & Physiology</i>				
Content		<ol style="list-style-type: none"> 1. introduction and theoretical background in plant biotechnology 2. principles of plant tissue culture techniques 3. plant micropropagation 4. plant cell and tissue engineering 5. plant metabolic pathway (bioprocess) engineering 6. plant biomolecular and genetic engineering 7. molecular markers 8. genomics and gene transfer technologies 9. bioethical and biosafety regulations 10. the applications of plant biotechnology in bioscience, agriculture, pharmaceutical and bioproduct industry 				
Learning goals/ competencies		<p><i>After completion of this module, students are expected to be able to:</i></p> <p>Knowledge :</p> <ul style="list-style-type: none"> • Explain about the theoretical background and principles of plant biotechnology • Explain the current development and application of plant biotechnology in sciences, agriculture, industry and pharmacy <p>Skill:</p> <ul style="list-style-type: none"> • Deliver oral presentation efficiently and develop writing ability <p>Competences :</p> <ul style="list-style-type: none"> • Relate the bioethics and biosecurity principles and regulations with products of plant biotechnology engineering 				
Study/ exam achiev	Mid Term Exam	Final Exam	Assignments and Presentation	Quizzes	Attendance	
	30%	30%	25%	10%	5%	
Forms of media	<i>Classical laboratory teaching tools:</i>		<i>white board/ chalk and talk, animation, flashcard, dissection, movie, power point</i>			
	<i>Integrated teaching tools:</i>		-			
	<i>Digital teaching tools:</i>		-			
	<i>Problem based teaching tools:</i>		-			

Literature	<ol style="list-style-type: none">1. Stewart, C.N. (Ed.). 2008. Stewart, C.N. (Ed.). 2008. Plant Biotechnology and Genetics: Principles, Techniques and Applications. John Wiley & Sons, Inc. Hoboken NJ, US.2. Davey, M.R. & P. Anthony. 2010. Plant Cell Culture: Essential Methods. John Wiley & Sons Ltd.3. Stewart, C.N., A. Touraev, V. Citovsky, T. Tzfira (Eds.) 2011. Plant Transformation Technologies. Blackwell Publishing Ltd, London, UK.4. Henry, R.J. (Ed.). 2013. Molecular Markers in Plants. First Ed. John Wiley & Sons, Inc.
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