

	<p style="text-align: center;"><b>UNIVERSITAS PADJADJARAN</b>  <b>FACULTY OF MATHEMATICS AND</b>  <b>NATURAL SCIENCES</b></p> <p style="text-align: center;"><b>MASTER OF SCIENCE IN BIOLOGY</b></p>	<p><b>COURSE</b>  <b>CODE:</b>  <b>D20D2109</b></p>
<p>Module designation</p>	<p>Cultivation Technology-In vitro REEPs</p>	
<p>Semester(s) in which the module is taught</p>	<p>2</p>	
<p>Person(s) responsible for the module</p>	<p>Dr. Kartiawati Alipin, M.S.  Dr. Desak Made Malini, M.Si.  Dr. Mohamad Nurzaman, M.Si.  Dr. Tia Setiawati, M.Si.</p>	
<p>Medium of instruction</p>	<p>English and Indonesian</p>	
<p>Relation to curriculum</p>	<p>Compulsory  Master of Science in Biology</p>	
<p>Teaching methods</p>	<p>Lecture, Discussion, Cooperative Learning and Problem Based Learning</p>	
<p>Workload</p>	<p>Total workload: 8160 minutes (90,67 hours)</p> <p><b>CLASS</b></p> <p>Lecture, Discussion, Cooperative Learning and Problem Based Learning: 2 x 50'x 16 weeks = 1600 minutes (26.67 hours)</p> <p>Exercise : 2 x 60'x 16 weeks = 1920 minutes (32 hours)</p> <p>Private study : 2 x 60'x 16 weeks = 1920 minutes (32 hours)</p>	
<p>Credit points</p>	<p>2.00 SKS (3.62 ECTS)</p>	

Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> <li>1. After completing this course, the student will be able to understand the concepts and techniques of in vitro culture in plants in propagation / propagation efforts, especially for the purpose of conservation and preservation of plants with REEPs status.</li> <li>2. After completing this course, the student will be able to explain the basic principles of animal cell culture, the basic composition and mechanism of cell culture, make primary cell culture and cell line, cell cryopreservation and cell cloning, and explain the use of cell culture in research and biotechnology</li> </ol>
Contents	<p>The course covers the concepts and principles of in vitro culture techniques in both animals and plants. In vitro culture, plants are studied the concept and application as an alternative method that can be used in plant propagation efforts, especially those with the status of REEPs. Students are introduced to various kinds of cultures that can be used according to plant characteristics and the purpose of culture, in vitro plant propagation stages which include the selection of plants as explant materials, explant sterilization to the culture stage, namely acclimatization, various basic mediums and growth regulators and their physiological functions. In addition, students are given an understanding of the application of in vitro culture in relation to plant genetic manipulation. In vitro culture material of animal cells, methods are studied to multiply tissues / cells derived from the original animal tissue after first undergoing mechanical separation (disaggregation), or chemical (enzymatic) in vitro (in a glass tube).</p>
Examination forms	Essay and written examination
Study and examination requirements	Minimum attendance at lectures is 80%. Final score is evaluated based on assignment and group case study reports (20%), Assignment (20%), mid semester exam (30%), and end semester exam (30%).

Reading lists	<ol style="list-style-type: none"><li>1. Fowler, M.W., G. S. Warren. Plant Biotechnology: Comprehensive Biotechnology Second Supplement. Pergamon Press.</li><li>2. Pierik. R.L.M. 1997. In vitro culture of higher plants. Kluwer Academic. Publisher.</li><li>3. Tomes, D. T., 1982. Application of : Plant Cell and Tissue Culture to Agriculture &amp; Industry</li><li>4. Freshney, R.I., 2000. Culture of Animal Cells : A manual of basic techniques, fourth edition, A John Wiley&amp;Sons, Inc. Publication, USA.</li><li>5. Martin, B.M., 1994. Tissue Culture Techniques : an Introduction, braun-Brumfield, Inc., USA.</li></ol>
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