



MINISTRY OF EDUCATION, CULTURE, RESEARCH,
AND TECHNOLOGY

UNIVERSITAS NEGERI SURABAYA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES

Ketintang Campus, D-1 Building, Surabaya 60231 +6231-8296427

Website: www.fmipa.unesa.ac.id, email: info_fmipa@unesa.ac.id

Master Program of Science Education

Module Handbook

<i>Module Name :</i>	<i>Kajian Sains Biologi II/ Study of Biological Science II*)</i>
<i>Module level :</i>	<i>Master Program of Science Education</i>
<i>Course Code :</i>	<i>8410102205</i>
<i>Abbreviation, if applicable:</i>	<i>-</i>
<i>Courses included in the module, if applicable:</i>	<i>Not Applicable</i>
<i>Semester/Term</i>	<i>2nd /First Year</i>
<i>Module coordinator(s)</i>	<i>Dr. Yuni Sri Rahayu, M.Si.</i>
<i>Lecturer(s):</i>	<i>Dr. Yuni Sri Rahayu, M.Si.</i>
<i>Language:</i>	<i>Indonesian Language</i>
<i>Classification within the curriculum:</i>	<i>Compulsory/ Elective</i>
<i>Teaching format/class hours per week during the semester:</i>	<i>3 contact hours of lectures (Indonesia credit semester or CU*)</i>
<i>Workload :</i>	<i>3 x 50 minutes lectures, 3 x 90 minutes structured activity, 3 x 100 minutes individual activity, 14 weeks per semester, 168 total hours per semester ~ 6.72 ECTS**</i>
<i>Credit Point:</i>	<i>3 CU (6.72 ECTS)</i>
<i>Requirements:</i>	
<i>Learning goals/competencies:</i>	<p>Knowledge (KNO-2) <i>CLO-1</i> <i>Mastering concepts / theories related to the structure and function of plants</i> <i>CLO-2</i> <i>Solving problems related to the concept / theory of plant structure and function</i></p> <p>Competency (COM-3) <i>CLO-3</i> <i>Design and creating decisions in choosing various alternative solutions independently and in groups in the field of plant structure and function</i></p>
<i>Content</i>	<i>This course examines the structure and function of plants in accordance with the development of science and technology, delivered through a comparative approach to low-level plants and high-level plants. Studies include the growth, development and organization of plant cells, the origin and structure of the body of primary plants, the organization of tissues on the roots, stems and leaves; origin and structure of the body of secondary plants; plant evolution and systematics; defense mechanisms and structural</i>



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	<p><i>responses of plants to diseases, pests and damage; macro morphology; plant structure and ecology; defense mechanisms and structural responses of plants to diseases, pests and damage; diffusion, thermodynamics and water potential, osmosis; plant nutrition; mineral absorption; transport via phloem; photosynthesis, chloroplasts and light; fixation of carbon dioxide and carbohydrate synthesis; plant respiration; assimilation of nitrogen and sulfur; lipids in plants and other natural products; growth and development; plant hormones (auxin, Gibberellin, cytokinins, ABA, ethylene) and other growth regulatory compounds; motion in plants; photomorphogenesis; biological clock; photoperiodism; physiological stress in plants</i></p>																														
Attribute Soft skill:	Scientific report, public speaking, and team work																														
Study/exam achievements:	<p>Students are considered to be competent and pass if at least get 70. Final score is calculated as follows: 20% Participation + 30% Assignment + 20% Middle Exam (UTS) + 30% Final Exam (UAS)</p> <p>Final index is defined as follow:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Index</th> <th>Converted Score</th> <th>Score Range</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>4.00</td> <td>$85 \leq A \leq 100$</td> </tr> <tr> <td>A-</td> <td>3.75</td> <td>$80 \leq A- < 85$</td> </tr> <tr> <td>B+</td> <td>3.50</td> <td>$75 \leq B+ < 80$</td> </tr> <tr> <td>B</td> <td>3.00</td> <td>$70 \leq B < 75$</td> </tr> <tr> <td>B-</td> <td>2.75</td> <td>$65 \leq B- < 70$</td> </tr> <tr> <td>C+</td> <td>2.50</td> <td>$60 \leq C+ < 65$</td> </tr> <tr> <td>C</td> <td>2.00</td> <td>$55 \leq C < 60$</td> </tr> <tr> <td>D</td> <td>1.00</td> <td>$40 \leq D < 55$</td> </tr> <tr> <td>E</td> <td>0.00</td> <td>$0 \leq E < 40$</td> </tr> </tbody> </table>	Index	Converted Score	Score Range	A	4.00	$85 \leq A \leq 100$	A-	3.75	$80 \leq A- < 85$	B+	3.50	$75 \leq B+ < 80$	B	3.00	$70 \leq B < 75$	B-	2.75	$65 \leq B- < 70$	C+	2.50	$60 \leq C+ < 65$	C	2.00	$55 \leq C < 60$	D	1.00	$40 \leq D < 55$	E	0.00	$0 \leq E < 40$
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Learning Methods :	Case Method, Discussion, and Article Review																														
Form of Media:	Power Point slides, e-book file, and multimedia.																														
Literature (primary references):	<ol style="list-style-type: none"> 1. Nobel, P.S. (2005). <i>Physicochemical And Environment: Plant Physiology</i>. Third Edition. Academic Press: London 2. Davies, P.J. (1995). <i>Plant Hormones: Physiology, Biochemistry And Molecular Biology</i>. Kluwer Academic Publishers: Dordrecht. 3. Dickison, W.C. (2000). <i>Integrative Plant Anatomy</i>. Harcourt Academic Press: San Diego 4. Salisbury, F.B. Dan Ross, C.W. (2000). <i>Plant Physiology</i>. 4th Edition . Wardworth Publishing Company: Belmont 5. Stren, K.R., Jansky, S., Bidlack,J.E. (2003). <i>Introduction To Plant Biology</i>. Mcgrawhill: Boston 6. Singh, B.K. (1999). <i>Plant Amino Acid:Biochemistry And Biotechnology</i>. Marcel Dekker, Inc.: New York 7. Taiz, L. Dan Zeiger, E (2010). <i>Plant Physiology</i> . California: The Benjamin/ Cummings Puuubblishing Company. Inc. 																														
Notes:	*1 CU in learning process = three periods consist of: (a) scheduled																														



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	<i>instruction in a classroom (50 minutes); (b) structured activity (90 minutes); and (c) individual activity (100 minutes) according to according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</i>
	<i>**1 CU = 2.24 ECTS according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</i>
	<i>*Total ECTS = (total hours workload/ 60 min) / 25 hours</i> Each ECTS is equals with 25 hours
<i>Last Amendment</i>	<i>5 January 2023</i>