UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND SCIENCES
DEPARTMENT OF BIOLOGY EDUCATION
Colombo 1 Street Yogyakarta 55281
Phone: (0274)565411 Ext. 217, (0274)565411(Administration Office),fax (0274)548203
Website:fmipa.uny.ac.id, E-mail :humas_fmipa@uny.ac.id

Bachelor of Science in Biology **MODULE HANDBOOK**

Module name:	Plant Anatomy
Module level, if applicable:	Undergraduate
Code:	BIO6201
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	Odd
Module coordinator:	Ratnawati, MSc.
Lecturer(s):	Budiwati, MSi., Ratnawati, MSc.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes for lecture, 120 minutes for structured activities, and 120 minutes for individual study per week.
Work load:	Total workload is 91 hours per semester consisting of 100 minutes lecture, 120 minutes for structured activities, and 120 minutes for individual study per week for 16 weeks.
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	-
Program Learning Outcomes:	4. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences. 6. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields. 9. Being able to work and create jobs/being an entrepreneur in the field of Biology. 11. Possessing scientific skills to support the ability to speak in local, national, and international forums.
Course Outcomes	After attending this subject students are able to: CO1. Explain the concepts of protoplasmic and non-protoplasmic components, cell, tissue and organ.

<table>
<tr><td></td><td>CO2. Explain the role of cell components in the life of cell.
CO3. Compare the cell components among various cells.
CO4. Compare the structure and composition of cells among various tissues.
CO5. Compare the structure of tissues among various organs.
CO6. Identify the structure of anomalous organs.
CO7. Analyse the adapting structures to the environmental change.
CO8. Understand the economic importance of plant structures in human life.
CO9. Present the results of journal studies or group projects.</td></tr>
<tr><td>Content:</td><td>This subject discuss about the structure and development of cells and the organeles, meristem, epidermis, parenchyme, strengthening, and vascular tissues of Spermatophytes. The understanding about these structures will be the basic knowledge to dicuss more and compare among the structure of organs and compare between the organ structures in Dicots/Gymnosperms and the ones in Monocots. The anomalous structure of organs will be elaborated and compared with the normal ones. The structural response to environmental conditions, and the roles of plant anatomy in daily life will be presented and discussed through group project or journal studies.</td></tr>
<tr><td>Study/exam achievements:</td><td>The final mark will be weighted as follows:
<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>CO1 to CO8</td><td>Knowledge</td><td>Written Test</td><td>75%</td></tr>
<tr><td>2</td><td>CO9</td><td>Skill, knowledge and attitude.</td><td>Observation, peer assesment.</td><td>25%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table></td></tr>
<tr><td>Forms of media:</td><td>Real objects, microscopic slides, model, and multimedia.</td></tr>
<tr><td>References:</td><td>

1. Agus Pudjoarinto dan Issirep Sumardi, 1992. *Struktur dan Perkembangan Tumbuhan*. Fakultas Biologi UGM, Yogyakarta.
2. Esau, K (1992). *Anatomy of Seed Plants 2nd*. John Wiley and Sons, New York.
3. Estiti Hidayat. 1991. *Anatomi Tumbuhan Berbiji* . Bandung: Institut Teknologi Bandung.
4. Fahn, A, 1990. *Plant Anatomy*. 4th. edit Pergamon. New York.
5. Karp, G. 1984. *Cell Biology*, 2nd ed, McGraw-Hill Book Co., New York.
6. Sheeler And Bianchi. 1983. *Cell Biology, Structure, Biochemistry And Function*. New York.

</td></tr>
</table>

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1				√							
CO2				√							
CO3				√							
CO4				√							
CO5				√							
CO6				√							
CO7				√		√					
CO8				√		√			√		
CO9				√							√