



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Biology Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date										
Horticulture	4620103203		T=2	P=1	ECTS=4.77	5	July 18, 2024										
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator											
			Dr. H. Sunu Kuntjoro, S.Si., M.Si.											
Learning model	Project Based Learning																
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																
	Program Objectives (PO)																
	PLO-PO Matrix																
		P.O															
	PO Matrix at the end of each learning stage (Sub-PO)																
	P.O	Week															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Course Description	This course discusses the basic understanding and scope of horticulture (fruit, vegetables and ornamental plants) and food (cereals and legumes), characteristics and cultivation of horticultural plants and food plants. Appropriate business technology for the production of horticultural crops and food crops which includes selecting quality seeds, vegetative and generative plant propagation, land preparation and planting, fertilization, pruning, flowering regulation and flower and fruit management, harvest and post-harvest, and yard intensification.																
References	Main :																
	<ol style="list-style-type: none"> 1. > 2. Beveridge, T. H. J. 2003. Maturity and Quality Grades for Fruits and Vegetables". In Handbook of Postharvest Technology, cereals, fruits, vegetables, tea and spices. Ed. A. Chakraverty, .. Mujumdar, G.S.V. Raghavan and H. S. Ramaswamy. Marcel Dekker, Inc. New York. 3. Edmond, J.B., T.L. Senn, F.S. Andrew and R.G. Halfacre. 1975. Fundamentals of Horticulture. Tata McGraw Hill Publ. Co. Ltd. New Delhi. 560 pp. 4. Pantastico, E.B. 1975. <i>Postharvest Physiology, Handling and Utilization of Tropical and Subtropical Fruits and Vegetables</i> . The Avi Publishing Company, Inc. Westport, Connecticut. 5. Zulkarnain. 2009. Dasar-Dasar Hortikultura. Bumi Aksara. Jakarta. 																
	Supporters:																
Supporting lecturer	Dr. Nur Ducha, S.Si., M.Si.																
Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)										
		Indicator	Criteria & Form	Offline (offline)	Online (online)												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)										

1	Able to explain the principles of food crops and horticulture	1. Explain the meaning of horticultural plants 2. Analyze various characteristics of horticultural plants 3. Understand the relationship between horticultural plant cultivation and other fields of science	Criteria: 1.1. Presentation and participation 20% 2.2. Practicum/Assignments 30% 3.3.USS 20% 4.4. UAS 30% Form of Assessment : Participatory Activities	Lectures, discussions 2 X 50			5%
2	Able to explain the importance and classification of food and horticultural plants	1. Explain the importance of food and horticultural plants 2. Explain the classification of food and horticultural plants	Criteria: 1.1. Attendance/Participation 20% 2. 2. Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, discussions 2 X 50			10%
3	Able to explain the cultivation system for horticultural crops and food crops in Indonesia	Discuss the cultivation system for horticultural crops and food crops in Indonesia	Criteria: 1.1. Attendance/Participation 20% 2. 2. Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, Discussions, Assignments 2 X 50			10%
4	Explains the development of world and Indonesian horticulture	1. Explain the development of horticulture in the scope of fruit in the world and in Indonesia 2. Explain the development of horticulture in the scope of vegetables in the world and in Indonesia 3. Explain the development of horticulture in the scope of ornamental plants in the world and in Indonesia 4. Discuss the consumption of horticultural products in the world and in Indonesia	Criteria: 1.1. Attendance/Participation 20% 2. 2. Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, Discussion, 2 X 50			5%
5	Explains the cultivation of horticultural plants using hydroponics	1. Explain about water culture 2. Describe the hydroponic fertilization program 3. Describe the Fertilization Target and Balance of Plant Growth Phases 4. Describe the fertilizer formulation for hydroponics	Criteria: 1.1. Attendance/Participation 20% 2. 2. Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, discussion 2 X 50			5%

6	Explains the cultivation of horticultural plants using hydroponics	1. Explain water culture 2. Describe the hydroponic fertilization program 3. Describe Fertilization Targets and Plant Growth Phase Balance 4. Describe fertilizer formulations for hydroponics	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, discussion 2 X 50			5%
7	Students can apply vegetative and generative propagation of ornamental plants	Students are able to carry out grafting and pollination of plants	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Learn grafting techniques, cuttings and pollination 2 X 50			5%
8	Meetings 1-7	Meetings 1-7	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Participatory Activities, Tests	Sub Summative Exam 2 X 50			15%
9	Students can design ornamental plants (leaves, flowers, fruit) and dried flowers carefully	Students can design ornamental plant production and harvest businesses	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, Discussion 2 X 50			5%
10	Students can design vegetable plantations (leaves and tubers)	Students can design a vegetable production and harvest business	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, Discussion 2 X 50			5%
11	Students can design fruit plant businesses	Students can design fruit production and harvest businesses	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, Discussion 2 X 50			5%

12	Students can design food crop businesses (cereals and legumes)	Students can design food crop production and harvest businesses (cereals and legumes)	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, Discussion 2 X 50			5%
13	Students can compare organic and inorganic farming	Students will be able to compare the benefits of organic and inorganic farming	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Project Results Assessment / Product Assessment	Presentation, Discussion 2 X 50			0%
14	Students can design gardens in landscaping	Students are able to choose suitable plants for the garden	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Presentation, Discussion, 2 X 50			5%
15	Students can plan and analyze business patterns for a type of horticultural and food crops in writing	Students are able to analyze horticulture and food crop businesses well	Criteria: 1.1. Attendance/Participation 20% 2. 2.Practicum/assignments 30% 3.3.USS 20% 4.4. US 30% Form of Assessment : Participatory Activities	Presentation, Discussion 2 X 50			5%
16			Form of Assessment : Participatory Activities				10%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	40%
2.	Project Results Assessment / Product Assessment	52.5%
3.	Test	7.5%
		100%

Notes

- 1. Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- 2. The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- 3. Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- 4. Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- 5. Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- 6. Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- 7. Forms of assessment:** test and non-test.

8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.