	Universitas Negeri Surabaya Faculty of Sports and Health Sciences, Undergraduate Nutrition Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Food Technology	1321103030	Compulsory Study Program Subjects	T=1	P=0	ECTS=1.59	4	January 8, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model	**Project Based Learning**	
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-8	Able to master the scientific basis of nutrition, food, biomedicine, humanities and public health sciences.
	PLO-9	Able to have an attitude of belief in the Almighty God, be ethical, disciplined, aware of the law, have a social and cultural insight, and behave professionally.
	PLO-11	Able to solve problems in the field of nutrition by applying scientific thinking concepts and cutting-edge approaches through research, scientific literacy and publications.
	Program Objectives (PO)	
	PO - 1	Students have knowledge of the basic theory of preserving, processing and storing food ingredients.
	PLO-PO Matrix	

P.O	PLO-8	PLO-9	PLO-11
PO-1			

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
PO-1																

Short Course Description	Mastery of basic concepts and application of various techniques for handling, processing, preserving and storing foodstuffs including: food damage and appropriate control methods, temperature regulation, preservation with salt, sugar and acid, drying, smoking, irradiation, food additives, food additives, food packaging & edibles coating, as well as sensory/organoleptic methods.

References

Main :

1. Desrosier, W. 1988. Teknologi Pengawetan Pangan. UI Press Jakarta.
2. Mountney, GJ and W. A. Gould. 1988. Practical Food Microbiology and Technology Third Edition. Van Nostrand Reinhold Company New York
3. Purnomo, H. 1995. Ilmu Pangan (Terjemahan). UI Press Jakarta.
4. Purnomo, H. 1996. Dasar-dasar Pengolahan dan Pengawetan Daging. Gramedia Widiasarana Indonesia Jakarta.
5. Winarno, F. G. 1987. Enzim Pangan. Gramedia Jakarta.
6. Winarno, F. G. 1987. Pengantar Teknologi Pangan. Gramedia Jakarta.
7. Winarno, F. G. 1997. Kimia Pangan dan Gizi. Gramedia Jakarta
8. Cahyadi, W. 2006. Analisis dan aspek Kesehatan Bahan Tambahan Pangan. PT Bumi Aksara Jakarta.

Supporters:

Supporting lecturer	Dr. Ir. Asrul Bahar, M.Pd. Prof. Dr. Rita Ismawati, S.Pd., M.Kes. Noor Rohmah Mayasari, Ph.D. Raisya, S.TP., M.TP., M.Sc. Aulia Putri Srie Wardani, S.Gz., M.Sc.

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 understand food technology knowledge	1. Explain the meaning of food technology 2. Explain the goals of food technology 3.. Explain the benefits of food technology 4. Explain the scope of food technology	**Criteria:** 1. If all questions are answered correctly it has a weight of 10 2. If one answer is wrong it has a weight of 5 3. If all answers are wrong it has a weight of 0 **Form of Assessment** : Participatory Activities	Discussion and reflection presentation 3x50			5%
2	Students are able to understand food spoilage	1. Explain the properties of food ingredients 2. Differentiate between the terms Losses & Damage 3. Explain the factors that cause damage	**Criteria:** 1. 1. If all questions are answered correctly they have a weight of 10 2. If one answer is wrong it has a weight of 5 3.. If all answers are wrong it has a weight of 0 **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	Independent practical discussion presentation 3x50			5%
3	Students are able to identify food damage and how to control it	1. Can differentiate the type of damage 2. Can carry out appropriate damage control methods	**Criteria:** 1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If more than three elements are not met it has a weight of 60 **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	Discussion and Presentation of 3x50 Independent Practicum Results			5%

4	Students are able to understand the principles of preservation at high and low temperatures	1. Explain the purpose of high temperature preservation 2.. Explain the various methods of high temperature preservation 3. Explain the purpose of low temperature preservation 4. Explain the various methods of low temperature preservation	**Criteria:** 1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If more than three elements are not met it has a weight of 60 **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	Discussion and Presentation of 3x50 Independent Practicum Results			5%
5	Students are able to understand the principles of preserving with salt, sugar and acid	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment, Tests	3x50 guided practice and practice discussions			5%
6	Students are able to understand the principles of preservation by drying	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	3x50 guided practice and practice discussions			5%

7	Students are able to understand the principles of preservation by drying	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	3x50 guided practice and practice discussions			5%
8	Students are able to understand the principles of preservation by drying	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Form of Assessment** : Participatory Activities, Tests	3x50 guided practice and practice discussions			0%

9	Students understand the principles of preservation by fermentation	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment, Tests	3x50 guided practice and practice discussions			5%
10	Students are able to explain the technique of preserving with light (Irradiation)	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment, Tests	3x50 guided practice and practice discussions			5%
11	Students are able to understand the principles of preservation by drying	1. Explain the nature and origin of enzymes 2. Explain the factors that influence enzyme activity 3. Provide examples of the benefits of enzymes in the food sector 4. Applying the function of enzymes in the food sector	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment, Tests	3x50 guided practice and practice discussions			5%

12	Students are able to understand the principles of preservation by drying	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment, Tests	3x50 guided practice and practice discussions			8%
13	Understand food packaging requirements and be able to determine the type of packaging material according to the nature of the food ingredient	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	3x50 guided practice and practice discussions			11%

14	Students understand the principles of sensory/organoleptic testing well	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	3x50 guided practice and practice discussions			10%
15	Students are able to calculate organoleptic test results and their interpretation	1. If the content of the material, presentation skills, mastery of the material and answering questions well has a weight of 100 2. If one element is not fulfilled it has a weight of 90 3. If two elements are not met, it has a weight of 80 4. If more than three elements are not met it has a weight of 60	**Criteria:** 1. Preparation of Materials and Tools (Score 20) 2. Practical implementation (Score 40) 3. Observation of Practical Results (Score 10) 4. All aspects are met (score 30) **Forms of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	3x50 guided practice and practice discussions			10%
16	Final exams	1. 2. 3. 4.	**Criteria:** 1. 2. 3. 4. All aspects are met (score 30) **Form of Assessment** : Test	Guided practice and practicum discussions			10%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	30.68%
2.	Project Results Assessment / Product Assessment	25.68%
3.	Practical Assessment	25.68%
4.	Test	17%
		99.04%

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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.