



**Universitas Negeri Surabaya  
Faculty of Engineering  
, Undergraduate Culinary Education Study Program**

Document Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>			<b>SEMESTER</b>	<b>Compilation Date</b>																																										
Applied mathematics	8321102036		T=2	P=0	ECTS=3.18	2	July 17, 2024																																										
<b>AUTHORIZATION</b>		<b>SP Developer</b>	<b>Course Cluster Coordinator</b>			<b>Study Program Coordinator</b>																																											
		TIM MBKM	TIM MBKM			Dr. Hj. Sri Handajani, S.Pd., M.Kes.																																											
<b>Learning model</b>	Case Studies																																																
<b>Program Learning Outcomes (PLO)</b>	PLO study program which is charged to the course																																																
	Program Objectives (PO)																																																
	PLO-PO Matrix																																																
		P.O																																															
	<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																																
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 5%;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 5%;">1</td> <td style="width: 5%;">2</td> <td style="width: 5%;">3</td> <td style="width: 5%;">4</td> <td style="width: 5%;">5</td> <td style="width: 5%;">6</td> <td style="width: 5%;">7</td> <td style="width: 5%;">8</td> <td style="width: 5%;">9</td> <td style="width: 5%;">10</td> <td style="width: 5%;">11</td> <td style="width: 5%;">12</td> <td style="width: 5%;">13</td> <td style="width: 5%;">14</td> <td style="width: 5%;">15</td> <td style="width: 5%;">16</td> </tr> </table>																P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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<b>Short Course Description</b>	Conduct studies and provide an understanding of the role of mathematics through learning that is adapted to the curriculum structure in the field of culinary arts. Mathematics learning consists of: Basic concepts of algebra, including: Number Systems and Operations, Powers, Roots and Logarithms, Basic Mathematics in buying and selling, Series, Functions, Matrices and Linear Programming. The assessment is carried out during the learning process with the participation of each face-to-face, USS, and UAS. Learning is carried out by applying a combination of scientific approaches, cooperative learning models, and case studies. The learning activity ended with a paper presentation on the application of mathematics in the field of culinary arts.																																																
<b>References</b>	<b>Main :</b>																																																
	1. Du Mairy. 2010, Matematika Terapan untuk Bisnis dan Ekonomi. Yogyakarta: BPFE: (1) Budnick, Frank S. 1986. Applied Mathematics for business, economics, and the Social Sciences . Second Edition. Singapore: McGraw-Hill Book (2) Easterling. 2003. Merchandising of Mathematic. New Jersey: Prentice Hall (3) Martono. 2008. Programasi Linier, Modul 1-9. Jakarta: Universitas Terbuka (4)																																																
	<b>Supporters:</b>																																																
<b>Supporting lecturer</b>	Dra. Dewi Lutfiati, M.Kes.																																																
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>																																										
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>																																												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)																																										

1	Able to understand basic algebra concepts	- Explain the meaning and application of algebra - Explain the concepts and operations of numbers - Operate numbers using addition, subtraction, multiplication, division, powers, roots and logarithms, along with their applications.	<p><b>Criteria:</b> Each question has maximum value if the steps are correct and the final result is correct</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Group discussion and reflection 2 X 50		<p><b>Material:</b> Algebra, Number Operations <b>Reader:</b> <i>Du Mairy. 2010, Applied Mathematics for Business and Economics. Yogyakarta: BPFE: (1) Budnick, Frank S. 1986. Applied Mathematics for business, economics, and the Social Sciences. Second Edition. Singapore: McGraw-Hill Books (2) Easterling. 2003. Merchandising of Mathematics. New Jersey: Prentice Hall (3) Martono. 2008. Linear Programming, Module 1-9. Jakarta: Open University (4)</i></p> <p><b>Material:</b> Students are able to apply algebraic operations applied to the field of culinary literature:</p>	0%
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2	Able to apply algebraic operations and apply them in the culinary field	- using addition, subtraction, multiplication, division, powers of roots and logarithms, along with their applications.	<p><b>Criteria:</b> Each question has maximum value if the steps are correct and the final result is correct</p> <p><b>Form of Assessment :</b> Participatory Activities</p>	Group discussion and reflection 2 X 50		<p><b>Material:</b> Algebra, Number Operations <b>Reader: Du Mairy. 2010, Applied Mathematics for Business and Economics. Yogyakarta: BPFE: (1) Budnick, Frank S. 1986. Applied Mathematics for business, economics, and the Social Sciences. Second Edition. Singapore: McGraw-Hill Books (2) Easterling. 2003. Merchandising of Mathematics. New Jersey: Prentice Hall (3) Martono. 2008. Linear Programming, Module 1-9. Jakarta: Open University (4)</b></p> <p><b>Material:</b> Students are able to apply algebraic operations applied to the field of culinary literature:</p>	0%
3	Students are able to understand the concept of series, Arithmetic Series and Geometric Series	- Explaining fractions and their operations - Explaining decimals and their operations - Explaining percents and their operations - Explaining increase and decrease in buying and selling	<p><b>Criteria:</b> Maximum value for those who work with the right process and results</p>	Discussion of the 2 X 50 practice assignment			0%
4	Students are able to understand Series	- Explain the concept of sequences and series - Explain the concept of arithmetic/arithmetic series - Explain the concept of geometric/geometric series - Apply the concept of series	<p><b>Criteria:</b> Maximum value for those who work with the right process and results</p>	Jigsaw type MPK 2 X 50			0%
5	Students are able to understand Series	- Apply the concept of series - Apply the concept of arithmetic series - Apply the concept of geometric series	<p><b>Criteria:</b> The maximum correct value is all 100</p>	Jigsaw type MPK 2 X 50			0%
6	Functions and Delineation of Functions	1. Explain the concept of Function 2. Depicting Functions on Coordinate Axes 3. Create function equations from known points	<p><b>Criteria:</b> Maximum value for those who work with the right process and results</p>	Lectures and Group Discussions 2 X 50			0%
7	Students are able to understand the concept of function	- Explain the concept of basic functions - Explain the concept of linear relationships - Explain the concept of non-linear relationships		Discussion and scientific approach. 2 X 50			0%

8	Students are able to understand the concept of function	- Applying the concept of linear relationships - Applying the concept of non-linear relationships	<b>Criteria:</b> The highest correct score is all 100	Discussion and scientific approach. 2 X 50			0%
9	Students are able to understand the matrix	- Explain the meaning and types of matrices - Explain determinants - Explain adjoint and inverse matrices		MPK jigsaw type 2 X 50			0%
10	Students are able to understand the matrix	Explains the application of matrices in solving everyday problems in the form of a system of linear equations	<b>Criteria:</b> 100 marks for all correct answers	MPK jigsaw type 2 X 50			0%
11							0%
12	Students are able to understand linear programming and mathematical models	- Explain the concept of linear programming - Explain the concept of mathematical models - Apply the concept of mathematical models	<b>Criteria:</b> 100 marks if everything is correct	Discussion of assignments and exercises 2 X 50			0%
13	Students are able to understand linear programming and graphic methods for maximization and minimization cases	- explain the meaning of the steps of the graphical simplex method - explain maximization and minimization cases solving problems using the graphical method	<b>Criteria:</b> 100 marks for all correct	MPK 2 X 50			0%
14	Able to understand the concept of the simplex method	- explains the meaning of the steps of the tableau simplex system method. - explain the simplex analysis technique - solve problems using the simplex method	<b>Criteria:</b> Maximum score is 100 for all correct ones	Practice discussion and reflection 2 X 50			0%
15	Able to apply mathematical concepts in the field of culinary arts	Examining cases related to mathematical number operations in the case of buying and selling, series applications, matrix function applications and linear programming.	<b>Criteria:</b> Maximum score is 100 for all correct answers	Presentation and discussion 2 X 50			0%
16	UAS			2 X 50			0%

#### Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
		0%

#### 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.