Module Description
Food Processing Tools and Machinery

Module designation	Food Processing Tools and Machinery
Module code	23G03121603
Semester(s) in which the module is taught	4th semester
Person responsible for the module (lecturers)	❖ Dr. Abd. Azis, S.TP, M.Si ❖ Husnul Mubarak, S.TP., M.Si
Language	Indonesian language
Relation to curriculum	Compulsory course
Teaching methods	Lecture
Workload	Total workload (estimated): ❖ 27 hours of lecture ❖ 32 hours of exercise ❖ 32 hours of independent study
Credit points	2 credit points = 3.24 ECTS
Required and recommended prerequisites for joining the module	Food Analysis
Module objectives/ Intended Learning Outcomes (ILO)	ILO 9. Exhibits advanced skills in food technology from post-harvest handling, food processing, packaging, to food product development (C6)
	CLO 1. Able to factually understand operating units in the food processing industry CLO 2. Able to conceptually understand the types and working principles of machines and equipment used in each operating unit
Content	❖ Introduction to courses, scope, and learning contracts ❖ Machinery and equipment for moving and storing materials in the food industry ❖ Machinery and equipment for size reduction, homogenization, and agglomeration of materials ❖ Equipment for the mechanical separation of food materials ❖ Evaporators for food products ❖ Food product drying machines ❖ Cooling and freezing

<table>
<tr><td></td><td>❖ Thermal process equipment
❖ Distillation, extraction, and crystallization equipment
❖ Equipment for separating product components: membrane technology, reverse osmosis and nano filtration
❖ Equipment for separating product components: ultrafiltration, microfiltration and pervaporation technology
❖ Supercritical extraction and fractionation
❖ Non-thermal preservation equipment
❖ Food product packaging equipment</td></tr>
<tr><td>Examination form</td><td>Writing (essay)</td></tr>
<tr><td>Study and examination requirements</td><td>Examination requirements: Attendance above 80%

❖ Individual tasks: 50%
❖ Project: 50%

Grading:
<table>
<tr><th>Numerical range</th><th>Letter grade</th><th>Conversion value</th></tr>
<tr><td>85 - 100</td><td>A</td><td>4.00</td></tr>
<tr><td>80 - < 85</td><td>A-</td><td>3.75</td></tr>
<tr><td>75 - < 80</td><td>B+</td><td>3.50</td></tr>
<tr><td>70 - < 75</td><td>B</td><td>3.00</td></tr>
<tr><td>65 - < 70</td><td>B-</td><td>2.75</td></tr>
<tr><td>60 - < 65</td><td>C+</td><td>2.50</td></tr>
<tr><td>50 - < 60</td><td>C</td><td>2.00</td></tr>
<tr><td>40 - < 50</td><td>D</td><td>1.00</td></tr>
<tr><td>< 40</td><td>E</td><td>0.00</td></tr>
</table>
If student(s) receives(s) a score below 40, student(s) must retake the course</td></tr>
<tr><td>Reading list</td><td>1. Saravacos, George, Athanasioes E. K. 2016. Handbook of Food Processing Equipment. New York: Springer.</td></tr>
<tr><td>Date of last amendment</td><td>14 August 2025</td></tr>
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