Module Description
Food Processing Engineering

Module designation	Food Processing Engineering
Module code	23G03121302
Semester(s) in which the module is taught	4th semester
Person responsible for the module (lecturers)	❖ Dr.rer.nat. Olly S. Hutabarat, S.TP., M.Si. ❖ Dr. Gemala Hardinasinta, S.TP. ❖ Muhpidah, 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 explain conceptually related to food ingredients, their physical properties and the influence of processing on the physical and chemical characteristics of food ingredients CLO 2. Able to explain conceptually related to mass and energy balance and elements of food processing operations
Content	❖ Physical properties of food ingredients, the influence of processing on the physical, chemical and sensory characteristics of food ingredients ❖ Mass and energy balance in the processing process food ❖ Drying ❖ Evaporation ❖ Extraction

<table>
<tr><td></td><td>❖ Cooling
❖ Freezing
❖ Psychrometric chart</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 assignments: 35%
❖ Group task: 35%
❖ Midterm exam: 15%
❖ End of semester exam: 15%

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. P. Fellows; Food Processing Handbook: Principles and Practice, CRC Press, New York.
2. Romeo T. Toledo et al.; Fundamentals of Food Process Engineering (Fourth edition); Springer
3. Heldman et al.; Handbook of Food Engineering (3rd edition); CRC Press</td></tr>
<tr><td>Date of last amendment</td><td>9 July 2025</td></tr>
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