

220225434 Food Engineering

Module Name	Food Engineering
Module Level, if applicable	Intermediate
Code if Applicable	220225434
Subtitle, if applicable	-
Courses, if applicable	220225434 Food Engineering
Semester(s) in which the module is taught	4 nd
Person responsible for the module	Prof. Dr. Ir. Warkoyo, MP.
Lecturer	Prof. Dr. Ir. Warkoyo, MP.
Language	Indonesian
Relation to curriculum	Compulsory Course for undergraduate program in the Food Technology Department, Faculty of Agriculture and Animal Science
Type of teaching	Lecture, project, practicum
Workload	<ul style="list-style-type: none"> • Lecture: 3 SKS X 50 minutes X 16 weeks • Project: 3 SKS X 60 minutes X 16 weeks • Independent learning: 3 SKS X 60 minutes X 16 week
Credit points	3 SKS X 1.5 = 4.5 ECTS
Requirements according to the examination regulations	<ol style="list-style-type: none"> 1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module Objectives (Intended learning outcomes)	<p>On successful completion of this course, student should be able to:</p> <ul style="list-style-type: none"> • Understand the principles of food engineering and their application in the food industry. • Identify and analyze the various unit operations involved in food processing. • Apply engineering principles to design and optimize food processing operations.

	<ul style="list-style-type: none"> ● Understand the principles of food preservation and packaging. ● Analyze the factors affecting the quality and safety of food products. ● Develop skills in problem-solving and decision-making related to food engineering processes. Understand the fundamental principles of heat and mass transfer. ● Apply mathematical models to analyze heat and mass transfer processes. ● Analyze heat and mass transfer in various engineering systems such as heat exchangers, reactors, and distillation columns. ● Design and evaluate heat exchangers for different industrial applications. ● Design and evaluate mass transfer equipment for separation processes. ● Apply heat and mass transfer principles to solve engineering problems in industrial settings.
<p>Module Content</p>	<p>This course presents introduction, conduction, convection, heat exchanger, radiation, mass transfer, and combine properties, preservation, processing, packaging, food quality and safety</p>
<p>Study and examination requirements and forms of examination</p>	<p>Cognitive: Midterm exam, Final exam, Quizzes, Report of Practicum, Assignments Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
<p>Media employed</p>	<p>Classical teaching tools with white board and powerpoint presentation, sets of practicum tools</p>

<p>Recommended Literature</p>	<p>For Class</p> <p>A. Compulsory</p> <p>1. Singh, R.P., Heldman, D.R. 2016. "Introduction to Food Engineering." Academic Press. Incropera, F.P., DeWitt, D.P., Bergman, T.L., Lavine, A.S. 2017. Fundamentals of Heat and Mass Transfer. Wiley. Earle.</p> <p>2. Fellows, P.J. 2016. "Food Processing Technology: Principles and Practice." Woodhead Publishing. Cengel, Y.A., Ghajar, A.J. 2018. "Heat and Mass Transfer: Fundamentals and Applications." McGraw-Hill Education.</p> <p>3. Kern, D.Q. 2012. "Heat Transfer Process." CRC Press.</p> <p>B. Option</p> <p>1. Richardson, P., W. K. Nip, and J. P. Powers. 2018. "Introduction to Food Engineering." Springer. Holman, J.P. (2010). "Heat Transfer." McGraw-Hill Education.</p>
<p>Date of Last Amendment</p>	<p>22nd January 2022</p>