Appendix 4.1

1. 320221995 Packaging and Storage

Module Name	**Packaging and Storage**
Module Level, if applicable	Advanced
Code if Applicable	320221995
Subtitle, if applicable	-
Courses, if applicable	320221995 Packaging and Storage
Semester(s) in which the module is taught	5th
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
Workload	• Lecture: 2 sks X 50 minutes X 16 weeks • Project: 2 sks X 60 minutes X 16 weeks • Independent learning: 2 sks X 60 minutes X 16 week
Credit points	2 SKS X 1.5 = 3 ECTS
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module Objectives (Intended learning outcomes)	On completion of this subject, student should be able to: ● Explain packaging, functions and properties of packaging materials ● Understand about edible films and coatings and their manufacture ● Mention the types of smart packaging ● Differentiate between Modified Atmosphere Packaging, Controlled Atmosphere Packaging, Aseptic Packaging, and Canning ● Estimate a product's expiration date and shelf life through microbial and appearance changes of foods.

	• Explain the principles of labeling on packaging and the importance of packaging design
Module Content	This course offers information on the function of packaging, the properties of several packaging materials, edible films and coatings, several types of packaging (smart aseptic packaging, MAP), labels and packaging design, canning, product shelf life and estimating expiry times.
Study and examination requirements and forms of examination	**Cognitive:** Midterm exam, Final exam, presentation **Affective:** Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.
Media employed	Classical teaching tools with white board and power point presentation
Recommended Literature	For Class **A. Compulsory** 1. Bureau, G. & J.L. Multon, 1996. Food Packaging Technology. VCH Publishers, Inc. Amerika Serikat. 2. Coles, R., D. McDowell, M.J. Kirwan, 2003. Food packaging technology. Blackwell Publishing. 3. Warkoyo, B. Rahardjo, D.W. Marseno, & J.N.P. Karyadi, 2015. Kinetika pertumbuhan mikrobia dan kemunduran mutu bakso berpelapis edible aktif berbasis pati kimpul pada berbagai ketebalan. Jurnal AGRITech Vol. 35 (4): 456-463. 4. Warkoyo, B. Rahardjo, D.W. Marseno, & J.N.P. Karyadi, 2015. Kinetika pertumbuhan mikrobia dan kemunduran mutu bakso daging terlapisi pati umbi kimpul yang diinkorporasi kalium sorbat. Jurnal AGRITech Vol. 35 (1): 61-68. 5. Warkoyo, B. Rahardjo, D.W. Marseno, & J.N.P. Karyadi, 2014. Sifat fisik, mekanik dan barrier edible film berbasis pati umbi kimpul yang

	diinkorporasi dengan kalium sorbat. Jurnal AGRITech Vol. 34 (1): 72-81. **B. Option** 1. Characterization of Edible Film from Starch of Taro (Colocasia esculenta (L.) Schott) with Addition of Chitosan on Dodol Substituted Seaweed (Eucheuma cottonii L.). FTHS Journal Vol. 1(1) Tahun 2018
Date of Last Amendment	22nd April 2024