

Module Name	
Module Level, if applicable	Advanced
Code if Applicable	220223164
Subtitle, if applicable	
Courses, if applicable	220223164 Introduction to Food Biotechnology
Semester(s) in which the module is taught	3 rd
Person responsible for the module	Rista Anggriani, STP.MP.MSc
Lecturer	Rista Anggriani, STP.MP.MSc
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, Practicum
Workload	<ul style="list-style-type: none"> ● 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 ● Practise : 1 SKS x 170 menit 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)	<ul style="list-style-type: none"> ● Understanding basic concept : the fundamental principles of biotechnology as applied to food production, including genetic engineering, molecular biology techniques, and bioprocessing ● Knowing genetic technique : the techniques used in genetic modification, such as gene cloning, gene editing (e.g., CRISPR-Cas9), and recombinant DNA technology, and understand their applications in food biotechnology. ● Knowing ethical and societal implications : the ethical in Islam religion, social, and environmental implications of biotechnological interventions in food production, considering issues such as food security, sustainability, consumer acceptance, and equitable access to biotechnological innovations ● Applying biotechnology in food field : DNA-based identification using PCR

Module Content	<p>This course explains the definition of biotechnology, scope and application in the food industry. Differences between conventional and modern biotechnology. Basic knowledge related to genetic material, DNA replication and protein biosynthesis is also provided. In conventional biotechnology, food fermentation is studied, while in modern biotechnology it discusses cell and enzyme immobilization, recombinant DNA technology, DNA isolation techniques, PCR techniques and other molecular technologies. In addition, the perspective of biotechnology in Islam is also studied. Not only is theory presented, this course also provides practicum for PCR applications for halal food authentication</p>
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> ● Cognitive: Midterm exam, Final exam, Quizzes, Assignments ● Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.
Media employed	<p>Classical teaching tools with white board and PowerPoint presentation</p>
Recommended Literature	<p>For Class</p> <p>A. Compulsory</p> <ol style="list-style-type: none"> 1. Clark, D.P and Pazdernik, N.J. 2013. Molecular Biology 2nd edition. Elsevier Taiwan LLC: Taiwan 2. Leonard, A. C., & Méchali, M. 2013. DNA replication origins. Cold Spring Harbor perspectives in biology, 5(10), a010116. 3. Morange, M. 2009. The Central Dogma of molecular biology. Resonance, 14(3), 236-247. 4. Old, R.W., and S.B.Primrose. 2003. Prinsip-Prinsip Manipulasi Gen. UI Press: Jakarta 5. Stueber, D., et al. 1984. A novel in vitro transcription-translation system: accurate and efficient synthesis of single proteins from cloned DNA sequences. The EMBO Journal, 3(13), 3143-3148. 6. Yuwono, T. 2005. Biologi Molekuler. Erlangga: Jakarta
Date of Last Amendment	<p>8th May 2022</p>