Bachelor Program
Agriculture Industrial Technology

MODULE HANDBOOK

2026

UNIVERSITAS PADJADJARAN
JATINANGOR

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: UNX01-007

Module designation	Pancasila
Semester(s) in which the module is taught	1
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Able to understand Pancasila as the Ideology and Foundation of the Unitary State of the Republic of Indonesia
Content	1. Introduction to Pancasila Education 2. History of Pancasila Thought 3. Pancasila as an Ethical System and Basic Values for Developing Science 4. Implementation of Pancasila
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: ● Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. ● Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results ● Good/C (60-68): Shows basic analytical skills but may misinterpret some results.

	● Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. ● Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Pancasila Education Module 2. Tax Module 3. Video Pancasila as National Identity 4. Tax Video 5. Kaelan. (2021). *Pendidikan Pancasila untuk Perguruan Tinggi*. Yogyakarta: Paradigma. 6. Direktorat Jenderal Pendidikan Tinggi. (2022). *Buku Master Pendidikan Pancasila di Perguruan Tinggi*. Jakarta: Kemendikbudristek.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: UNX01-001

Module designation	Islam Religion
Semester(s) in which the module is taught	1
Person responsible for the module	Dr.Efri Mardawati S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the essence of human relations with God, with fellow humans and with the natural environment in the Qur'anic paradigm. 2. Able to present the results of conceptual and / or empirical studies related to the essence and urgency of Islamic spirituality values as one of the determinants in development 3. Able to behave consistently towards the coherence of the main points of Islamic teachings as the implementation of Iman, Islam, and Ihsan in forming Insan Kamil. 4. Skilled in presenting the results of individual and group studies on a case (case study) related to the contribution of Islam in the development of world civilization.
Content	1. The essence of human relations with God, with fellow human beings and with the natural environment according to the Qur'anic paradigm 2. The main teachings of Islam as the implementation of Faith,

	Islam, and Ihsan in forming a Perfect Man 3. Application of Islamic concepts on science and technology, art, socio-culture, politics, economics and issues of public welfare in facing the challenges of modernization .
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: ● Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. ● Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results ● Good/C (60-68): Shows basic analytical skills but may misinterpret some results. ● Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. ● Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Director General of Learning and Student Affairs Kemenristekdikti, Islamic Religious Education for Higher Education, Jakarta, Director General of Belmawa, 2016. Download link: https://lldikti11.ristekdikti.go.id. 2. Wahyuddin, Islamic Religious Education Builds Student Character in Higher Education, Surabaya, ITS Press, 2019. 3. Saifulloh, Moh, et al, Islamic Religious Education Building Civilized Character, Surabayaa, CV Lentera Jannata, 2016. 4. Zaenal Aushop, Asep. Islamic Character Building, Building Insan Kamil Scholar with Quranic Character, Bandung: Salamadani, 2014. 5. Nashir, H. (2021). *Moderasi Islam dalam Kehidupan Berbangsa*. Yogyakarta: Suara Muhammadiyah.

	6. Azra, A. (2022). *Reaktualisasi Islam Wasathiyah: Menyemai Nilai-Nilai Kedamaian dan Peradaban*. Jakarta: Kompas Penerbit Buku.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: UNX01-008

Module designation	Civic Education
Semester(s) in which the module is taught	1
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	able to understand Pancasila as the Ideology and Basis of the Unitary State of the Republic of Indonesia
Content	1. The Essence and Urgency of National Identity as one of the Determinants of National Development and Character 2. The Urgency of National Integration as One of the Parameters of National Unity and Unity 3. Constitutional values and norms of statutory provisions under the Constitution 4. Historical dynamics and urgency of the archipelago insight
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and

	originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Ministry of Research, Technology and Higher Education. 2016. Civic Education Module for Higher Education. Jakarta: Director General of Belmawa Kemenristekdikti. 2. Winarno. (2022). *Paradigma Baru Pendidikan Kewarganegaraan di Perguruan Tinggi*. Jakarta: Bumi Aksara. 3. Latif, Y. (2021). *Negara Paripurna: Historisitas, Rasionalitas, dan Aktualisasi Pancasila*. Jakarta: Gramedia Pustaka Utama.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: UNX01-004

Module designation	Indonesian Language
Semester(s) in which the module is taught	1
Person responsible for the module	Dr.Efri Mardawati S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain academic ethics correctly in compiling scientific papers 2. Able to find, store, and process references through the Mendeley application to avoid plagiarism 3. Able to explain and/or provide examples of systematics, Indonesian language formulations used in scientific papers by paying attention to grammatical rules, PUEBI, and KBBI
Content	1. The concept of academic ethics in compiling KTI; 2. Logical, critical, systematic, and innovative thinking using good and correct Indonesian 3. Presenting the results of compiling KTI through presentations according to the principles of effective communication
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned

	solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Sugono, D. (2021). *Sintaksis Bahasa Indonesia: Penataan Kalimat*. Jakarta: Bumi Aksara. 2. . Rahardi, R. K. (2022). *Bahasa Indonesia Keilmuan untuk Perguruan Tinggi*. Jakarta: Erlangga.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10N1110

Module designation	Introduction to Agro-Industry
Semester(s) in which the module is taught	1
Person responsible for the module	Prof. Dr. Ir. H. Roni Kastaman,M.SIE Devi Maulida Rahmah S.T.P., M.T., Ph.D. Ir. Totok Pujianto MSIE.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain, calculate according to basic science theories/principles of basic science. 2. Able to apply basic science to solve industrial technology problems in agriculture. 3. Able to utilize information technology and engineering knowledge within the scope of industrial technology agriculture.
Content	1. Scope agro-industry 2. Development of agro-industry 3. natural resources and their management 4. energy and its management 5. the role and development of agricultural technology in Indonesia 6. infrastructure, process technology, systems and management 7. standardization and quality certification 8. sustainability in agricultural technology 9. technological innovation and IPR 10. technology transfer.

Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: ● Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. ● Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results ● Good/C (60-68): Shows basic analytical skills but may misinterpret some results. ● Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. ● Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Pustaka-1 Mangunwidjaja, D and Sailah, I. 2002. Introduction to Agricultural Technology. Panebar Swadaya, Jakarta. 2. IABEE. Indonesian Accreditation Board for Engineering Education. https://iabee.or.id/ 3. Library-3 Agro Industry Development Policy and Program. Directorate General of Chemicals, Forest Products, and Agro. Ministry of Trade, Jakarta. 4. Mangunwidjaja, D., & Sailah, I. (2022). *Pengantar Teknologi Pertanian dan Agroindustri* (Edisi Revisi). Jakarta: Penebar Swadaya. 5. Syamsul, B. (2023). *Dasar-Dasar Agroindustri Berkelanjutan*. Bogor: IPB Press.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: UNX01-006

Module designation	Exercises for Creativity and Entrepreneurship
Semester(s) in which the module is taught	1
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 136 hours **Class** Lecture: 1 x 50' x 14 weeks = 11.6 hours **Field Study** Field study: 2 x 120' x 14 weeks = 56 hours Independent study: 2 x 135' x 14 weeks = 63 hours **Examination 5.4** Final Project: 2 x 160' x 1 weeks = 5.3 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to be responsible for group work resulting from cooperation and collaboration with fellow students from various disciplines involving community members. 2. Able to coordinate various activities in the local village community through sports, arts and creativity.
Content	1. Social community insight and social approach 2. Health insight 3. Regional insight and teamwork principles 4. Application of design thinking in community empowerment
Examinations forms	Form Examination: Problem based examination and presentation Assignment problem based examination rubric: ● Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion ● Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion.

	● Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. ● Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. ● Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Field Work: 60% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Paul et al. (2017). Digital Literacy for the 21st Century. Encyclopedia of Information Science and Technology. IGI-Global: USA 2. British Council. (2017). Active Citizens Facilitator's Toolkit 3. Harris & Harris. (2005). Enhancing Educational Effectiveness: Group Facilitation Skills and Experiential Learning. Pre-Conference Workshop for the 12th National Conference on Students in Transition. Costa Mesa: 4. Myers, et al., (2012). The Self in Social World. Social Psychology 12th Edition. McGraw Hill: USA 5. Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2023). *Entrepreneurship* (12th ed.). New York: McGraw-Hill. 6. Suryana. (2021). *Kewirausahaan: Pedoman Praktis, Kiat dan Proses Menuju Sukses*. Jakarta: Salemba Empat.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C201111

Module designation	The Basic of Physic
Semester(s) in which the module is taught	1
Person responsible for the module	Dr.Puspita Nurlilasari Dr.Siti Nurhasanah S.TP., M.Si.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23,33 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Able to understand the basic knowledge in physic
Content	1. Basics of vector operations Kinematics of point objects 2. Newton's Law and its application, 3. Work and Energy 4. Linear Momentum and Impulse 5. Rotation of Rigid Bodies 6. Fluid Statics and Fluid Dynamics 7. Kinetic Theory of Gases 8. First Law of Thermodynamics applied to the science and technology of the agricultural industry.
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information,

	integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Basics of vector operations 2. Paul A. Tipler, Prasetio L., Adi W. Rahmad, Physics for Science and Engineering, Volume I and II, Third Edition, Erlangga Publisher, 1998 3. Serway Raymond A, Physics For Scientists & Engineers, Volume II, Saunders Golden Sunburst Series, 1997 4. David Halliday, Robert Resnick, Jearl Walker ," Fundamentals of Physics", 10th edition, Jhon Wiley, 2014 5. John D. Cutnell, Kenneth W. Johnson, David Young, Shane Stadler, "Physics", 10th edition, Jhon Wiley, 2014 6. Muhammad Farchani Rosyid, Yusuf Dyan Prabowo, and Eko Firmansyah, Basic Physics Volume 1: Mechanics, Periuk Publisher, 2014 7. Halliday, D., Resnick, R., & Walker, J. (2021). *Fundamentals*

	of Physics (11th Global Edition). Hoboken: John Wiley & Sons. 8. Serway, R. A., & Jewett, J. W. (2022). *Physics for Scientists and Engineers* (10th ed.). Boston: Cengage Learning.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C201112

Module designation	The Basic of Chemistry
Semester(s) in which the module is taught	1
Person responsible for the module	Desy Nurliasari, S.TP. M.Si Aisyah Hanifah, S.T.P., M.T.P.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to master and solve problems within the scope of atomic structure and chemical bonding. 2. Students are able to explain the basic principles and problem solving of reactions, stoichiometry, kinetics and chemical equilibrium, acid-base, oxidation-reduction and colloidal physical chemistry. 3. Students are able to identify organic and inorganic chemical compounds and their reaction characteristics.
Content	1. Atomic structure and chemical bonding 2. Stoichiometry 3. Kinetics 4. Acid base

	5. Organic and inorganic chemistry
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Basic Chemistry Book 2. Chang, R., & Overby, J. (2022). *Chemistry* (14th ed.). New York: McGraw-Hill. 3. Silberberg, M. S., & Amateis, P. (2021). *Chemistry: The Molecular Nature of Matter and Change* (9th ed.). New York: McGraw-Hill.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C201113

Module designation	The Basic of Microbiology
Semester(s) in which the module is taught	1
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T. Aisyah Hanifah, S.T.P., M.T.P.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the structure and function of microorganism cells (archaea, bacteria, fungi, protists, algae). 2. Able to explain and understand the principles of growth, metabolism, and genetics typical of microorganisms and the application of microorganisms for humans and the environment. 3. Able to explain and perform various basic techniques required in the microbiology laboratory.
Content	1. The basics of microbiology including microbial cell structure (archaea, bacteria, eukarya),

	2. Microbial constituent components, 3. Cellular systems, 4. Cell metabolism, 5. Genetic traits, 6. Genetic engineering.
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Madigan, M. T et al. (2014). Brock Biology of Microorganisms (14th ed) 2. Pelczar, M. J. et al. (2007). Fundamentals of microbiology 1

	3. Madigan, M. T., et al. (2021). *Brock Biology of Microorganisms* (16th ed.). London: Pearson. 4. Tortora, G. J., Funke, B. R., & Case, C. L. (2023). *Microbiology: An Introduction* (14th ed.). Boston: Pearson.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201114**

Module designation	*The Basics of System Theory*
Semester(s) in which the module is taught	2
Person responsible for the module	Prof. Dr. Ir. Roni Kastaman, M.SIE. Dr. Faizal Syahmurman, ST., MM Dr.Irfan Ardiansah S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the properties and principles that apply to a system. 2. Able to explain the concept of systems thinking, the basic understanding of systems along with examples. 3. Able to explain systems methodology as a way to analyze and solve existing problems.
Content	1. Definition of a system: usefulness of thinking in systems, examples of systems 2. Principles of systems - openness & purposefulness 3. Principles of systems - multidimensionality 4. System methodology - operational thinking 5. System methodology - self-organization & interactive design"
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex

	problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. J. Gharajedaghi, System Thinking: Managing Chaos and Complexity, 2006. 2. Daellenbach, H. G., McNikle, D.C., Management Science: Decision Making Through Systems Thinking, Palgrave MacMilan, New York, 2005 3. Meadows, D. H. (2021). *Thinking in Systems: A Primer* (Terjemahan Indonesia). Bandung: Kaifa. 4. Skyttner, L. (2022). *General Systems Theory: Problems, Perspectives, Practice*. Singapore: World Scientific.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201115**

Module designation	*The Basics of Economics and Management*
Semester(s) in which the module is taught	2
Person responsible for the module	Prof. Dr. Ir. Roni Kastaman, M.SIE. Dr. Faizal Syahmurman, ST., MM
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Explain the basic concepts of economics and management and their importance in Agro-Industry. 2. Explain the concepts of operational management in an organization, covering human resources, production/operations, marketing, and finance in Agro-Industry. 3. Identify and analyze problems in agro-industry based on the mastery of basic concepts of economics and management.
Content	1. Roles, Characteristics, and Economic and Management 2. Models in Agroindustry 3. Types of Economic Models in Agroindustry 4. Mathematical Models in Economic Approaches 5. Scope of Management in Agroindustry 6. Fundamentals of Production Management 7. Fundamentals of Marketing Management 8. Fundamentals of Operations Management 9. Fundamentals of Financial Management"
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information,

	integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Dennis, Alan. Barbara Haley Wixom, Roberta M. Roth.. 2009. Systems analysis and design–5th ed.p. cm. John Wiley & Sons, Inc. Harlow Essex CM20 2JE England. 2. Mankiw, N. G. (2021). *Principles of Economics* (9th ed.). Boston: Cengage Learning. 3. Robbins, S. P., & Coulter, M. (2021). *Management* (15th ed.). London: Pearson.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201116**

Module designation	Basics Calculation for Process Engineering
Semester(s) in which the module is taught	2
Person responsible for the module	Dr. Puspita Nurlilasari, S.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	1. Fundamental Chemistry 2. Fundamental Physics
Module objectives/intended learning outcomes	1. Able to understand the fundamental calculations of process engineering in the field of agricultural industry. 2. Have the ability to calculate the material and product handling in the agricultural industrial field. 3. Able to explain the implementation of the mass and energy balance concept in its application. 4. Have the ability to combine the concepts of fluid flow, kinetic s of chemical reaction, and thermal processes.
Content	1. Units and Dimension 2. Mass Balance 3. Energy Balance 4. Steam and Gas 5. Heat Transfer and Thermal Processes 6. Fluids Flow and Dynamic 7. Kinetics of Chemical Reaction
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex

	problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Earle, RL. (1983). Unit Operation in Food Processing. Pergamon, Oxford. 2. Singh, R.P. and D.R. Heldman. (1984). Introduction to Food Engineering, Academic Press, Inc.,San Diego, California. 3. Toledo, RT. (1991). Fundamentals of Food process Engineering, Chapman & Hall, New York. 4. Geankoplis, CJ. (1983). Transport Processes and Unit Operations. Allyn and Bacon, Inc., Boston. 5. Felder, R. M., Rousseau, R. W., & Bullard, L. G. (2021). *Elementary Principles of Chemical Processes* (4th Global Edition). Hoboken: Wiley. 6. Himmelblau, D. M., & Riggs, J. B. (2023). *Basic Principles and Calculations in Chemical Engineering* (9th ed.). Upper Saddle River: Prentice Hall.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201117**

Module designation	Industrial Microbiology
Semester(s) in which the module is taught	2
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assigment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory session/Field Study** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	1. Fundamental Microbiology
Module objectives/intended learning outcomes	1. Able to understand the basic definition of industrial microbiology and its supporting aspects. 2. Have the ability to explain the benefits and various metabolic pathways of microorganisms to produce various value-added products. 3. Have the ability to plan, develop, and employ microorganisms in various industrial fields.
Content	1. An Introduction of Biotechnology and Microbiology 2. Fermentation in Industrial Field 3. Microbial Enzymes 4. Fuels and Chemicals Industries 5. Food and Beverage Fermentation 6. Health Care Products 7. Food Additives and Supplements 8. Microbial Biomass Production 9. Environmental Biotechnology 10. Microbial Deterioration
Examinations forms	Form Examination: Problem based examination and presentation

	Assignment problem based examination rubric: Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion. Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Waites, M. J, et al. (2001). Industrial Microbiology: An Introduction (2 ed)

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201118**

Module designation	Technical Drawing, Scheme, and Models
Semester(s) in which the module is taught	2
Person responsible for the module	Dr. Irfan Ardiansah, S.TP., M.T. Dr. Dwi Purnomo, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assigment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory session/Field Study** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Have the ability to understand and apply standardisation of working drawings to the creation process so that concepts and ideas can be generally understood and ensure that the ideas in the drawings are in accordance with the final result.
Content	1. Technical Drawing: Concept, Function, and Tools 2. Basic Geometric Shapes 3. Projection and Recontruction 4. AutoCAD for Technical Drawing 5. Measurement Principles 6. Shaping and Shading 7. 3D Object Modification 8. Whorl, Gear, and Spring 9. Composing and Knockdown 10. Provision Tolerance 11. Working Drawing Serving 12. Construction and Agriculture

Examinations forms	Form Examination: Problem based examination and presentation Assignment problem based examination rubric: Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion. Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Project Works: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Engineering Drawing" oleh Frederick E. Giesecke, Alva Mitchell, Henry C. Spencer, Ivan L. Hill, John T. Dygdon, James E. Novak, Robert Olin Loving – 2. Giesecke, F. E., et al. (2022). *Technical Drawing with Engineering Graphics* (16th ed.). San Francisco: Peachpit Press. 3. Setyautama, R. (2023). *Gambar Teknik untuk Industri dan Rekayasa Pertanian*. Bogor: IPB Press.

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Module designation	Computing Program
Semester(s) in which the module is taught	2
Person responsible for the module	Dr. Irfan Ardiansah, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assigment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory session/Field Study** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Have the ability to analyse problems and apply basic programming concepts to solutions to simple real problems using Python.
Content	1. SDLC and IDE Debugging 2. Numerical Data Processing 3. String Data Processing 4. List and Dictionary 5. Logical IF, FOR, and WHILE 6. Data Acquisition and Basic OOP 7. Sorting and Searching 8. Stack, Queue, and Tree 9. Graph Theory 10. Decision Tree Expert Systems 11. Applied Linear Regression
Examinations forms	Form Examination: Problem based examination and presentation Assignment problem based examination rubric:

	Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion. Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Project Works: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. McConnell, Steve. "Code Complete: A Practical Handbook of Software Construction." Microsoft Press, 2004. 2. Gaddis, T. (2022). *Starting Out with Python* (5th ed.). Boston: Pearson. 3. Downey, A. B. (2021). *Think Python: How to Think Like a Computer Scientist* (2nd ed.). Sebastopol: O'Reilly Media.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201121**

Module designation	Industrial Mathematics
Semester(s) in which the module is taught	2
Person responsible for the module	Ir. Totok Pujianto, M.SIE. Januardi, S.TP., M.T., Ph.D. Dr. Puspita Nurlilasari, S.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Have the ability to explain the important role of mathematics in the agricultural industrial field. 2. Have the ability to explain the steps to solve agricultural and industrial problems using a mathematical approach. 3. Able to formulate agricultural and industrial problems into a mathematical model. 4. Have the ability to carry out a simple sensitivity analysis of the solution of a mathematical model.
Content	1. Mathematics Role in Agricultural and Industrial Field 2. Composing Mathematical Models 3. Algebra Logical Application 4. Function for Technical Problem Solving 5. Differential Equation 6. Matrix Operation 7. Vector Operation 8. Probabilities Theory 9. Inferential Statistics 10. Sensitivity Analysis 11. Case Study of Agricultural Industrial Problems
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric:

	Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. European Mathematical Society. 2010. Mathematics and Industry. Published by European Science. 2. Foundation, November 2010, Printing: IREG, Strasbourg, ISBN: 978-2-918428-28-2. www.esf.org. 3. Jeremy Pickles, 2010. Applied Mathematics by Example:Theory. Jeremy Pickles & Ventus. 4. Pierre A. Gremaud, Zhilin Li, Ralph C. Smith, Hien T. Tran. 1999. Industrial Mathematics Modeling Workshop for Graduate Students. Center for Research in Scientific Computation North Carolina State University.

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Module designation	Technical Economy
Semester(s) in which the module is taught	2
Person responsible for the module	Prof. Dr. Ir. Roni Kastaman, M.SIE. Januardi, S.TP., M.T., Ph.D.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Mastery of concepts, theories, and methods related to the application of engineering fields. 2. Understand the concept of financial management. 3. Have the ability to calculate or analyse finances.
Content	1. Technical Economy Roles and Business Activities Planning 2. Concept of Costs 3. Basic Production Costs and Break Even Point 4. Concept of Interests 5. Calculation of Interests 6. Investment Comparison 7. Projects Alternative and Multistage Analysis 8. Financial Credits for Projects 9. Replacement Analysis 10. Depreciation and Depletion 11. Sharia Economy and Banking
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a

	clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	Park, Chan S., and K. Stuart Rossmiller. "Economics of Engineering Decisions." Prentice Hall, 1998

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Module designation	Financial Management
Semester(s) in which the module is taught	2
Person responsible for the module	Prof. Dr. Ir. Roni Kastaman, M.SIE.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Have the ability to discuss capital structure and dividend policy, financial planning, and working capital management. 2. Have the ability to discuss special topics in financial management.
Content	1. Fundamental of Financial Management 2. Enterprises Type Analysis 3. Forecasting, Planning, and Budgeting 4. Time Value Calculation and Analysis 5. Capital Management 6. Case Study and Exercise
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning.

	Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	Garrett, S. (2015). Introduction to actuarial and financial mathematical methods. Academic Press.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201124**

Module designation	Unit Processes
Semester(s) in which the module is taught	2
Person responsible for the module	Dr.Puspita Nurlilasari Koko Iwan Agus Kurniawan S.T.P., M.Sc., Ph.D
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	Fundamental Chemistry
Module objectives/intended learning outcomes	1. Have the ability to master knowledge of process and bioprocess technology for agricultural products, materials, and environmental aspects. 2. Able to identify, analyse, and solve resource limitations and other problems in the agricultural industry. 3. Able to identify needs in a sustainable manner and adapt to the novel in each reaction. 4. Have the ability to develop agricultural-based value-added products in both aspects of process and bioprocess technology as well as systems and management within the scope of the process unit.
Content	1. Carbohydrates Conversion 2. Proteins Conversion 3. Oils and Fats Conversion 4. Essential Oils and Fragrances Conversion 5. Pigment Materials Conversion 6. Chemical Reaction and Conversion 7. Bioactive Materials Conversion 8. Chemical Reactor and Up-Scaling
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric:

	Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Singh, R.P. and D.R. Heldman. 1984. Introduction to Food Engineering, Academic Press, Inc.,San Diego, California. 2. Toledo, RT. 1991. Fundamentals of Food process Engineering, Chapman & Hall, New York. 3. Willhelm,Luther,R; Dwayne.A.Suter and Gerald.H.Brusewitz. 2005. Food and Process Engineering Technology Textbook. American Society of Agricultural Engineers. St,Joseph, Michigan: ASAE.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201140**

Module designation	Industrial Statistics
Semester(s) in which the module is taught	3
Person responsible for the module	Dr. Irfan Ardiansah, S.T.P., M.T Ir. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to understand the use of statistics in the agricultural industry activities and environment. 2. Able to master various statistical methods and designs in raw materials and products handling and processes applied in agricultural industrial fields. 3. Have the ability to solve problems that arise in the development of the agricultural industry using a statistical analysis approach.
Content	1. Basic Principles of Probability 2. Random Number Generator 3. Discrete Probability Distribution 4. Normal DIstribution 5. Sampling Distribution 6. Probabilities for Parameter Estimation 7. Hypothesis Test 8. Chi-Square Analysis
Examinations forms	Form Examination: Written Examination

	Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Sudaryono, Statistika Probabilitas – Teori & Aplikasi, Andi, 2012 2. Johnson, James L, Probability and Statistics for computer science, wiley interscience, English, 2011

Module Handbook Agroindustrial Technology Program

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202116**

Module designation	Control and Instrumentation Systems
Semester(s) in which the module is taught	3
Person responsible for the module	Dr. Irfan Ardiansah, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Know the control equipment and instrumentation for manufacturing processes for agricultural-based materials. 2. Have the ability to apply scientific concepts and theories to control systems and instruments employed in the agricultural industry. 3. Have the ability to create and run control system programs through a technology engineering approach. 4. Have the ability to design integrated agricultural product manufacturing process control equipment based on microcontroller hardware.
Content	1. Electric Resistance, Current, and Voltage 2. Electrical Circuits 3. Wheatstone Bridge 4. Alternating Current Circuits 5. Conductivity and Resistivity 6. Microcontroller Programming 7. Sensors Instrumentation

Examinations forms	Form Examination: Written Examination Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. A.P. Godse U.A. Bakshi “Basic Electronics”. Technical Publications, Jan 1, 2009 2. BALBIR KUMAR, SHAIL B. JAIN “ELECTRONIC DEVICES AND CIRCUITS”, PHI Learning Pvt. Ltd., Jan 1, 2014 3. Earl Gates, “Introduction to Electronics”, Cengage Learning, Feb 9, 2011 4. U.A. Bakshi, A.V. Bakshi “Electric Circuits”, Technical Publications, Jan 1, 2008

	5. Nise, N. S. (2022). *Control Systems Engineering* (8th Global Edition). Hoboken: Wiley. 6. Dunn, W. C. (2021). *Fundamentals of Industrial Instrumentation and Process Control* (2nd ed.). New York: McGraw-Hill.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202117**

Module designation	Operations Research 1
Semester(s) in which the module is taught	3
Person responsible for the module	Ir. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the management principles and practices of the operational research approach to agro-industrial management problems. 2. Have the ability to formulate case studies in conceptual, algorithmic and mathematical models. 3. Have the ability apply operational research techniques based on its formulation and analyze sensitivity to solve agro-industrial case problems.. 4. Have the ability to apply modern software packages to carry out data analysis in the agro-industrial sector. 5. Have technopreneurship capabilities to develop agro-based processed products through an operational analysis approach.
Content	1. Operational Research Models Formulation 2. Linear Programming 3. Integer Programming 4. Non-Linier Programming

	5. Primal - Duality Theory 6. Assignment and Transportation Models 7. Dynamic Programming 8. Queueing Model 9. Game Theory 10. Markov Chain
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. Students must attend the exam to get final grade
Reading list	1. Hamdy A. Taha. 2007. Operation Research.:An Introduction , MacMillan.

	2. Hillier, Frederich S. and Lieberman. 2000. Introduction to Operation Research, McGraw-Hill. 3. Ravi Ravindran, A. (editor). 2008. Operations research and management science handbook , Taylor & Francis Group, LLC 4. Donald Yeates and Tony Wakefield, 2004. Systems Analysis and Design, Pearson Education Limited Edinburgh Gate Harlow Essex CM20 2JE England 5. Purutçuoğlu et al., *Operations Research: New Paradigms and Emerging Applications* (2022).

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202118**

Module designation	Supply Chain Management, Logistics and Transportation
Semester(s) in which the module is taught	3
Person responsible for the module	Devi Maulida Rahmah, STP., MT., Ph.D Januardi, STP., MT., Ph.D
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to identify and solve the problems related to supply chains, logistics, and transportation in the agricultural industry. 2. Having the analytical skills through qualitative and quantitative approaches to relevant problems. 3. Having the ability to implement concepts and theories related to supply chains, logistics, and transportation to increase the effectiveness and efficiency of agricultural industry activities. 4. Skilled on practicing, evaluating, redesigning the sustainable supply chain management
Content	1. Supply Chain Scopes, Elements, and Flows 2. Agro-Industrial Supply Chain Structure 3. Supply Chain Performances Evaluation 4. Supply Chain Competition 5. Sustainable Supply Chain Model 6. Sustainable Supply Chain Mitigation
Examinations forms	Form Examination: Problem based examination and presentation Assignment problem based examination rubric: ● Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion

	● Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion. ● Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. ● Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. ● Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination(Final project) 35% Midterm Examination (examination): 30% Lab /field Work: 20% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Handbook of Supply Chain Management (James B. Ayers) 2. Supply Chain Management handbook 3. The oxford Handbook of Supply Chain Management 4. Chopra, S. (2023). *Supply Chain Management: Strategy, Planning, and Operation* (8th ed.). London: Pearson 5. Pujawan, I. N., & Mahendrawathi, ER. (2022). *Supply Chain Management* (Edisi 3). Yogyakarta: Andi Offset

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201150**

Module designation	Knowledge and Analysis of Natural Materials
Semester(s) in which the module is taught	3
Person responsible for the module	Dr. Efri Mardawati, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Lab Work
Workload	Total workload: 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 93 hours **Laboratory** Laboratory Session : 1 x 100'x14 weeks = 23 hours Independent Study: 1 x 95' x 14 weeks = 22 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the meaning, properties, and characteristics of agricultural industrial materials. 2. Have the ability to to explain the basic principles of agricultural industrial material processing technology based on the properties and characteristics of the materials used. 3. Able to analyze agricultural industrial products/materials and solve problems related to the properties, characteristics and process technology of agri-based materials. 4. Have the skills to search and collect certain information effectively and efficiently.
Content	1. Carbohydrate-based Materials Characteristics and Properties 2. Protein-based Materials Characteristics and Properties 3. Oil and Fat Materials Characteristic and Properties

	4. Aquatic Products 5. Horticulture 6. Herbs and Spices 7. Essential Oils 8. Bio-based Polymers 9. Natural Products Application
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Organic Chemistry (Fessenden) 2. Analytics Chemistry (Khopkar) 3. Biochemistry (Lehninger) 4. Polymer Chemistry (Stevens) 5. Harborne, J. B. (2022). *Metode Fitokimia: Penuntun Cara Modern Menganalisis Tumbuhan* (Cetak Ulang Baru). Bandung: ITB Press. 6. Sarker, S. D., & Nahar, L. (2023). *Computational Phytochemistry*. Amsterdam: Elsevier.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C20105**

Module designation	Industrial unit operation
Semester(s) in which the module is taught	3
Person responsible for the module	Selly Harnesa Putri, S.T.P., M.P Dr. Puspita Nurlilasari
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to understand various unit operations applied in the agricultural industry. 2. Have the ability to identify and analyze appropriate operating units that are suited to the materials. 3. Have the ability to design processes and operational equipment to increase manufacturing effectiveness and efficiency.
Content	1. Extraction 2. Evaporation 3. Distillation 4. Filtration and Separation 5. Centrifugation 6. Fermentation 7. Drying Technology 8. Cooling Technology 9. Pasteurization and Ultra High Temperature 10. Size Reduction and Milling
Examinations forms	Form Examination: Presentation and examination

	Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Earle, RL. 1983. Unit Operation in Food Processing. Pergamon, Oxford. 2. Singh, R.P. and D.R. Heldman. 1984. Introduction to Food Engineering, Academic Press, Inc.,San Diego, California 3. Toledo, RT. 1991. Fundamentals of Food process Engineering, Chapman & Hall, New York 4. Geankoplis, CJ. 1983. Transport Processes and Unit Operations. Allyn and Bacon, Inc., Boston. 5. McCabe, W. L., Smith, J. C., & Harriott, P. (2021). *Unit Operations of Chemical Engineering* (Edisi Internasional Baru). New York: McGraw-Hill. 6. Geankoplis, C. J., Lepek, D. H., & Eklund, R. (2022). *Transport Processes and Separation Process Principles* (5th Global Edition). Boston: Prentice Hall.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202119**

Module designation	The basics of bioprocess engineering
Semester(s) in which the module is taught	3
Person responsible for the module	Dr. Efri Mardawati, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the basic principles of bioprocess engineering and bioreactor design. 2. Able to analyze and solve problems related to calculations in process and bioprocess engineering. 3. Able to search and collect certain information effectively and efficiently. 4. Able to compose writing in the form of scientific papers.
Content	1. Enzymes and Its Kinetics Reaction 2. Enzymes Immobilization 3. Cell Growth on Batch and Continues Bioreactors 4. Solid State Fermentation 5. Bioreactors Scale-Up 6. Principles of Genetics Engineering 7. Metabolics Engineering 8. Metabolic Flux and Control Analysis
Examinations forms	Form Examination: Presentation and examination

	Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Shuler, M. L. dan Kargi F. (2002). Bioprocess Engineering: Basic Concepts (2 ed) 2. Mitchell, D. A. dkk. (2006). Solid-state Fermentation Bioreactors 3. Stephanopoulos G. N. dkk. (1998). Metabolic Engineering: Principles and Methodologies

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202120**

Module designation	Agroindustrial Equipment
Semester(s) in which the module is taught	3
Person responsible for the module	Ir. Totok Pujianto, M.SIE Devi Maulida Rahmah, S.T.P., M.T., Ph.D Januardi, S.T.P., M.T., Ph.D Dr. Puspita Nurlilasari
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Have the ability to recognize the various types of equipment and resources used in agro-industry. 2. Able to analyze the differences between two or more similar agro-industrial equipment. 3. Able to evaluate the operationalization of agro-industrial equipment. 4. Able to develop ideas for equipment needs based on the effective and efficient production process flow of an agro-industry.
Content	1. Agricultural Industry Machinery and Equipment 2. Driving Energy Resources and Generation 3. Electrical Energy 4. Combustion Engine 5. Energy Conversion 6. Transmission System 7. Heat Exchanger 8. Material Handling Machine and Equipment

	9. Agricultural Manufacturing Machine and Equipment 10. Food Manufacturing Machine and Equipment 11. Production System Installation 12. Estimation of Area and Energy Requirements
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Handbook of Postharvest Technology (Amalendu Chakraverty) 2. Srivastava, A. K., et al. (2022). *Engineering Principles of Agricultural Machines* (3rd ed.). St. Joseph: ASABE. 3. Purwantana, B. (2023). *Alat dan Mesin Industri Pertanian*. Yogyakarta: UGM Press.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201119**

Module designation	Computer-based information system
Semester(s) in which the module is taught	3
Person responsible for the module	Dr. Irfan Ardiansah, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Have the ability to explain concepts and knowledge about information systems. 2. Have the ability to analyze various kinds of cases that are classified as information system problems. 3. Have the ability to carry out the steps in developing information system equipment. 4. Have the ability to apply algorithm and programming methods to build information system devices.
Content	1. Hyper Text Markup Language (HTML) 2. Cascading Style Sheets (CSS) 3. Web Page Layouting and Design 4. CSS Framework 5. Site Template Design with Bootstrap 6. Dynamics and Interactive Webpage 7. ANVIL Framework 8. Rapid Application Development 9. Structured Query Language (SQL) 10. Create Update Delete (CRUD)

	11. PANDAS Library and Dataset
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Munir, Rinaldi, Algoritma & Pemrograman Dalam Bahasa Pascal dan C Edisi Revisi. Bandung : Informatika, 2012. 2. Pressman, R. S., Maxim, B. R. (2020). Software Engineering: A Practitioner's Approach. United Kingdom: McGraw-Hill Education. 3. W3Schools. HTML and CSS Tutorial, and Documentation. 2023 4. Anvil. Anvil Frameworks Documentation. 2023

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201151**

Module designation	Material Handling
Semester(s) in which the module is taught	3
Person responsible for the module	Ir. Totok Pujianto, M.SIE Dr. Puspita Nurlilasari
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to understand the concept of material handling and its scope in agro-industry. 2. Have the ability to apply material handling knowledge in agro-industrial activities. 3. Able to analyze various methods of handling materials. 4. Have the ability to evaluate a material handling system to determine its performance and can propose an improving move to the system.
Content	1. Materials Handling Scope and Objectives 2. The Principles of Materials Handling 3. Power and Capacity Analysis 4. Bulking, Unitizing, and Packaging 5. Material Handling Equipments 6. Differences on Type and Use of Equipment 7. Materials Handling System Evaluation
Examinations forms	Form Examination: Presentation and examination

	Assignment of project presentation rubric: Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results Good/C (60-68): Shows basic analytical skills but may misinterpret some results. Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Raymond A. Kulwiec, (1985) ”material handling handbook”, 2nd edition, John Wiley and Sons, ASME, USA. 2. Siddharta Ray., (2017),“introduction to materials handling”, new age international publisher, New Delhi. 3. Muljawan, D. (2023). *Teknik Penanganan Pasca Panen dan Material Handling Agroindustri*. Yogyakarta: Graha Ilmu.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C202121

Module designation	Oil, Emulsion and Oleochemical Technology
Semester(s) in which the module is taught	4
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T. Desy Nurliasari, S.TP., M.Si.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Focus Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Students are able to analyse oil, emulsion, emulsified oil and oleochemicals process technology and solve problems related to the properties, characteristics and technology of emulsified oil.
Content	1. oil technology. 2. oil processing and refining. 3. emulsion systems in agro-industrial products. 4. basic oleochemicals. 5. derivatives and their applications.

Examinations forms	Form Examination: Presentation and Written Paper Assignment Paper Rubric: Form Examination: Problem based examination and presentation Assignment problem based examination rubric: ● Excellent/A (80-100): Students highly understand the family of oil and lipid derivatives from all agro industrial commodities and products. ● Very Good/B (69-79): Students understand the lipid and oil derivatives from specific types of Agroindustrial commodities and products. ● Good/C (60-68): Students are able to know the derivative of lipid or oil in specific types of Agroindustrial commodities and products. ● Fair/D (50-59): Students knows only the product derivative from lipid or oil based. ● Poor/E (< 50): Student do not understand the product derivatives from lipid and oil.
Study and examination requirements	Minimum attendance requirement 80% from total lecture. Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement · Students must attend 15 minutes before the class starts. · Students must switch off all electronic devices. · Students must inform the lecturer if they will not attend the class due to sickness, etc. Students must submit all class assignments before the deadline
Reading list	1. Food Oils and Fats (Ketaren)

	2. Agroindustry Material Knowledge (Muchtadi, et al) 3. The Lipid Handbook (Gustone, FD., et al) 4. Introduction to Fats and Oils Technology (O'Brien, RD., et al)

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C202122

Module designation	Fiber, Rubber and Resin Technology
Semester(s) in which the module is taught	4
Person responsible for the module	Desy Nurliasari Suparno, S.T.P., M.T. and Dr. Puspita Nurlilasari
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Focus Group Discussion 3. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students have master principles of fiber, rubber, resin processing technology. 2. student have ability to develop and solve problems related to properties, characteristics, and production technology made from rubber fiber and resin relationships within the scope of the agricultural industry with respect to laws and regulations.
Content	1. raw materials and characteristic properties of rubber, fiber, resin 2. natural vs synthesis material of rubber, fiber, and resin

	3. various application of rubber, fiber, and resin 4. industrial processing technology of rubber, fiber, and resin 5. LAC, CNSL, and tall oil resin
Examinations forms	Form Examination: Written Paper and project based examination Assignment Paper rubric: ● Excellent/A (80-100): Accepted review paper in international journal and the review displayed the comprehensive explanation of the processing technology of rubber, fiber and resin from upstream to downstream; plus value added; potentially produce in mass production / commercialization; have a product marketing strategy; have a financial feasibility analysis; and generate the impact to the community. ● Very Good/B (69-79): The submitted review paper to the national journal has good content of rubber, fiber and resin technology with value added which can potentially produce in mass production / commercialization through feasible study and generate the impact to the community. ● Good/C (60-68): The submitted review paper content has good comprehensive learning of rubber, fiber and resin technology with value added; potentially produced in mass production / commercialization and generates the impact to the community. ● Fair/D (50-59): AThe assignment paper has general content of bioenergy technology without value added and not feasible to produce in mass production / commercialization. ● Poor/E (< 50): Poor and lack of knowledge, hence failed to fulfill the requirement.
Study and examination requirements	Minimum attendance requirement 80% from total lecture. Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 45% Midterm Examination: 35% Review paper Assignment: 30% Study and Examination Requirement is as follows: · Students must attend 15 minutes before the class starts.

	· Students must switch off all electronic devices. · Students must inform the lecturer if they will not attend the class due to sickness with proven evidence/letter. Students must submit the assignments before the deadline
Reading list	1. A text book of fiber science and technology (Mishra, SP) 2. Rubber Technology (Morton, M) (Ed.) 3. Epoxy Resin Technology (Polymer Engineering and Technology) 4. Akovali, G. (2021). *Handbook of Rubber and Resins Technology*. New York: Chemical Publishing. 5. Kalia, S. (2022). *Natural Fiber Composites: Materials, Processes and Applications*. Cham: Springer.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202123**

Module designation	Small and Medium Enterprise Development
Semester(s) in which the module is taught	4
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D Dr. Dwi Purnomo, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to know the basic principles in developing small and medium industries 2. Students are able to analyze the business conditions of IKM 3. Students are able to model the business development of agroindustry 4. Students are able to provide suggestions for improvements of small medium agroindustry
Content	1. basics or fundamentals of small medium agroindustry development 2. Model Business tools (BMC) 3. Value proposition Tools and model on evaluating the business situation (SWOT) 4. How to develop the improvements in business processes in SMEs
Examinations forms	Form Examination: Written Examination

	Assignment Paper rubric: ● Excellent/A (80-100): Shows original and innovative thinking in proposing solutions or strategies for SME development. Provides in-depth analysis and critical evaluation of SME case studies, showing a high level of critical thinking and problem-solving skills. ● Very Good/B (69-79): Provides thorough analysis and evaluation of SME case studies, with good critical thinking and problem-solving skills. Shows some level of original thinking and proposes relevant solutions or strategies for SME development. ● Good/C (60-68): Shows limited original thinking and proposes basic solutions or strategies for SME development. Provides basic analysis and evaluation of SME case studies, with limited critical thinking and problem-solving skills. ● Fair/D (50-59): Shows little to no original thinking and struggles to propose relevant solutions or strategies for SME development. Provides superficial analysis and evaluation of SME case studies, with weak critical thinking and problem-solving skills. ● Poor/E (< 50): Shows no original thinking and fails to propose any viable solutions or strategies for SME development. Provides little to no analysis or evaluation of SME case studies, with very weak critical thinking and problem-solving skills.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement · Students must attend 15 minutes before the class starts.

	• Students must switch off all electronic devices. Students must inform the lecturer if they will not attend the class due to sickness, etc
Reading list	1. Business model generation: A Handbook for visioner, game changers, and challengers 2. Value Proposition design, Alex Osterwalder, dkk, Wiley

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202124**

Module designation	Ergonomics
Semester(s) in which the module is taught	4
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D Ir. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 90,6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to understand the basic principles of ergonomics, the relationship between humans and machines 2. Students are able to evaluate ergonomic work systems based on physical, mental, anthropometric and biomechanical loads (Physiological, RULA, Reba, Nasa TLX) 3. Students are able to carry out time study measurements along with ideas for improvements 4. Students are able to understand, identify, redesign improvements to work maps 5. Students are able to understand the principles of lean manufacturing in the agroindustry 6. Students are able to provide ideas and recommendations for improving work systems
Content	1.Introduction and principle of ergonomic 2.Human Factors in Ergonomics 3.Environmental working system

	4.Working chart 5.Workload assessment 6. Time study 7. Ergonomic assessment
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Shows extensive knowledge and understanding, including current research and advanced concepts in ergonomics. ● Very Good/B (69-79): hows good knowledge and understanding, including some current research and advanced concepts in ergonomics ● Good/C (60-68): Shows basic knowledge and understanding, with limited coverage of current research or advanced concepts. ● Fair/D (50-59): Shows limited knowledge and understanding, with little to no coverage of current research or advanced concepts. ● Poor/E (< 50): Shows very little or no knowledge and understanding of the subject, with no coverage of current research or advanced concepts.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement · Students must attend 15 minutes before the class starts. · Students must switch off all electronic devices. Students must inform the lecturer if they will not attend the class due to sickness, etc

Reading list	1. Teknik Tata Cara Kerja (Iftikar sutalaksana) 2. The Toyota Ways 3. Bridger, R. S. (2022). Introduction to Human Factors and Ergonomics (4th ed.). Boca Raton: CRC Press. 4. Tarwaka. (2021). Ergonomi Industri: Dasar-Dasar Pengetahuan Ergonomi dan Aplikasi di Tempat Kerja. Surakarta: Harapan Press.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202125**

Module designation	F*actory Layout Design* (*Tata Letak Pabrik*)
Semester(s) in which the module is taught	4
Person responsible for the module	Ir. Totok Pujianto, M.SIE. Dr. Puspita Nurlilasari, S.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to understand the factors related to the design of factory facilities. 2. Able to understand the concepts and techniques for developing alternative layout designs for material handling production facilities and so on using qualitative and quantitative approaches.
Content	1. Factory and Manufacturing Process 2. Layout Design Objectives 3. Principles of Site Selection 4. Quantitative and Qualitative Methods 5. Processes and Products Analysis 6. Workstation and Capacity 7. Layout Types and Materials Handling Flow 8. Activity Relationship Chart 9. Factory Process Layout 10. Systematic Layout Planning
Examinations forms	Form Examination: Presentation and Written Paper

	Assignment Paper rubric: ● Excellent/A (80-100) Students have the ability to make a plant layout that follows the principle in the production system to minimize the total cost. ● Very Good/B (69-79) Student can build a plant layout that follows the principles in the production system without cost consideration. ● Good/C (60-68) Student have the ability to make a plant layout without following any principles in production system. ● Fair/D (50-59) Student can make a plant layout withour condmsidering any principles. ● Poor/E (< 50) Student cannot make a plant layout at all.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Moran, S. (2016). Process plant layout. Butterworth-Heinemann. 2. Stephens, M. P., & Meyers, F. E. (2013). Manufacturing facilities design and material handling. Purdue University Press. 3. Tompkins, J. A., White, J. A., Bozer, Y. A., & Tanchoco, J. M. A. (2022). *Facilities Planning* (5th ed.). Hoboken: Wiley. 4. Meyers, F. E., & Stephens, M. P. (2021). *Manufacturing Facilities Design and Material Handling* (6th ed.). West Lafayette: Purdue University Press.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C202126

Module designation	Biorefinery and Bioeconomy
Semester(s) in which the module is taught	4
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T Devi Maulida Rahmah, S.T.P., M.T., Ph.D
Language	Indonesian
Relation to curriculum	Election Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students understand the basic concept and concept of biorefinery 2. Students are able to explain the concept and benefits of biorefinery for various feedstocks (biomass, lignocellulose, oil and fat, protein, etc.), stoichiometric calculations 3. Students are able to plan, develop and apply a circular economy in the concept of biorefinery
Content	1. Concept and application of biorefineries of natural materials such as lignocellulosic biomass, proteins, oils and fats. 2. Analysis of bioeconomics or circular economy in the concept of biorefineries of these materials.
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric:

	● Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. ● Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results ● Good/C (60-68): Shows basic analytical skills but may misinterpret some results. ● Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. ● Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Chantal Bergeron, Danielle Julie Carrier, Shri Ramaswamy (2012). Biorefinery Co-Products: Phytochemicals, Primary Metabolites and Value-Added Biomass Processing. John Wiley & Sons, Ltd. 2. Pierre-Alain Schieb , Honorine Lescieux-Katir , Maryline Thénot , Barbara Clément-Larosière. (2015). Biorefinery 2030: Future Prospects for the Bioeconomy. Springer. 3. Reputable international journals related to the material taught

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202127**

Module designation	Industrial Environment Management
Semester(s) in which the module is taught	4
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D Ir. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students understanding the basic principles of agro-industrial environmental management 2. Students are able to analyze industrial environmental conditions 3. Students are able to provide input for improvements in creating a sustainable agro-industry environment
Content	1. Environmental Regulations and Policies 2. Sustainable Development 3. Waste Management 4. ISO 14001 5. Life Cycle Assessment in agroindustry 6. Cleaner production 7. Industrial Ecology
Examinations forms	Form Examination: Written Examination Assignment Paper rubric:

	● Excellent/A (80-100): Demonstrates an exceptional understanding of concepts, theories, and principles related to industrial environment management. Accurately explains and integrates knowledge from various sources. Correct assessment method and result. Comprehensively provide the discussion and suggestion. ● Very Good/B (69-79): Shows a strong grasp of key concepts, theories, and principles in industrial environment management. Explanations are clear, though some minor details may be lacking. Correct assessment method and result. ● Good/C (60-68): Understands fundamental concepts and theories in industrial environment management. Some gaps in knowledge or minor misunderstandings are present. ● Fair/D (50-59): Shows a limited understanding of basic concepts and theories. Significant gaps or misunderstandings are evident. ● Poor/E (< 50): Displays very little understanding of concepts and theories in industrial environment management. Numerous and significant misunderstandings.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement · Students must attend 15 minutes before the class starts. · Students must switch off all electronic devices. Students must inform the lecturer if they will not attend the class due to sickness, etc
Reading list	1. IPCC 2016 2. IPCC refinement 2019

	3. Theodore, L., & Dupont, R. R. (2022). *Environmental Management: Problems and Solutions*. Boca Raton: CRC Press. 4. Kristanto, P. (2021). *Ekologi Industri* (Edisi 2). Yogyakarta: Andi Offset.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C202128

Module designation	Beverage and Essential Oil Technology
Semester(s) in which the module is taught	4
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T. Desy Nurliasari, STP., M.Si Dr. Ir. Sarifah Nurjanah., M.App.Sc. Selly Harnesa Putri, S.TP., M.P.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to explain botany, plants of origin, uses, types of essential oils that are widely available in Indonesia 2. Students are able to understand production techniques that can be implemented on each source of essential oils 3. Students are skilled in practicing laboratory-scale essential oil production
Content	1. Definition of Essential Oils

	2. Processing technology/production methods, benefits, classification, physical properties and chemical composition 3. Isolation of main components and derivatization of main components from several essential oils (clove oil, patchouli oil, cinnamon oil, citronella oil, nutmeg oil, jasmine oil) and Essential Oil Quality
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Students understand clearly about agroindustrial commodities derivatives into beverages and the extraction metjod of essential oils. ● Very Good/B (69-79): Students know about the Agroindustrial commodities derivatives into beverages and essential oils. ● Good/C (60-68): Students know about agroindustrial products derivatives into beverages or essential oils. ● Fair/D (50-59): Students know enough about beverages and essential oil extractions. ● Poor/E (< 50): Student cannot identify any essential oil extraction and beverages production.
Study and examination requirements	Minimum attendance requirement 80% from total lecture. Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement · Students must attend 15 minutes before the class starts. · Students must switch off all electronic devices. · Students must inform the lecturer if they will not attend the

	class due to sickness, etc. Students must submit all class assignments before the deadline
Reading list	1. Ernest Guenther, essential oils 2. Hardjono Sastrohamidjojo, Chemistry of essential oils 3. Ir. S. Ketaren. Introduction to Essential Oil Technology 4. Tatang S Julianto, Indonesian Flower Essential Oils Ruslan Harris, Essential Oil Plants 5. Baser, K. H. C., & Buchbauer, G. (2023). *Handbook of Essential Oils: Science, Technology, and Applications* (3rd ed.). Boca Raton: CRC Press. 6. Varnam, A. H., & Sutherland, J. P. (2022). *Beverages: Technology, Chemistry and Microbiology*. Cham: Springer.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202129**

Module designation	Operations Management in Agro-Industry
Semester(s) in which the module is taught	4
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D Ir. H. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to understand operational strategies in a global environment 2. Students understand the design of goods and services 3. Understand production process planning (Process design and production capacity planning and forecasting) 4. Students understand planning and strategies for determining operational locations
Content	1. Managing resources in the operational process of a business 2. Planning raw materials 3. Products or services 4. Product design 5. Planning and controlling the production process
Examinations forms	Form Examination: Written Examination Assignment Paper rubric:

	● Excellent/A (80-100): Demonstrates a comprehensive and in-depth understanding of operations management principles and their application in the agro-industry. Provides detailed and accurate explanations of key concepts and theories. ● Very Good/B (69-79): Demonstrates a good understanding of operations management principles and their application in the agro-industry. Provides accurate explanations, with minor gaps in detail. ● Good/C (60-68): Demonstrates a basic understanding of operations management principles and their application in the agro-industry.Provides explanations that are generally accurate but lack detail. ● Fair/D (50-59): Demonstrates a limited understanding of operations management principles and their application in the agro-industry. Provides explanations that are often incomplete or inaccurate. ● Poor/E (< 50): Demonstrates little to no understanding of operations management principles and their application in the agro-industry. Provides explanations that are mostly inaccurate or irrelevant.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement · Students must attend 15 minutes before the class starts. · Students must switch off all electronic devices. Students must inform the lecturer if they will not attend the class due to sickness, etc
Reading list	1. Heizer, Jay Render, Barry (2010) Operation Management. Prentice Hall. Inc

	2. Jacobs, F. Robert; Chase, Richard; Aquilano, Nicholas . 2009. Operations and Supply Management, 12th Edition.McGraw-Hill Higher Education. Copyright Year: 2009. 3. Heizer, J., Render, B., & Munson, C. (2022). *Operations Management: Sustainability and Supply Chain Management* (13th Global Edition). London: Pearson. 4. Chase, R. B., & Shankar, R. (2021). *Operations and Supply Chain Management* (16th ed.). New York: McGraw-Hill.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202130**

Module designation	Assessment 1
Semester(s) in which the module is taught	4
Person responsible for the module	Dr. Irfan Ardiansah, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Problem-Based Learning 2. Project-Based Learning
Workload	Total workload: 45 hours **Class** Assignment: 1 x 50' x 14 weeks = 11.67 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Examination** 1st Examination: 1 x 50' x 1 weeks = 0.83 hours 2nd Examination: 1 x 50' x 1 weeks = 0.83 hours 3rd Examination: 1 x 50' x 1 weeks = 0.83 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	all courses from semester 1 to semester 4
Module objectives/intended learning outcomes	Students are able to complete Assessment 1 problems and questions at LIVE Unpad platform.
Content	1. Provision 2. Simulation (3 class meeting) 3. Assessment and Examination (3 times)
Examinations forms	Form Examination: Presentation and Written Paper Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points.

	● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: 1st Examination: 30% 2nd Examination: 30% 3rd Examination: 30% Structured Assignment: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	

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Module designation	Operations Research 2
Semester(s) in which the module is taught	4
Person responsible for the module	Ir. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. understand everything related to real problems that are probabilistic in nature 2. understand Dynamic Programming problems, Game Theory, and be able to construct Non-Linear mathematical models and at the same time find solutions 3. Understand and understand Queuing Theory
Content	1. mathematical modeling and an introduction to non-linear models 2. mathematics in management problems 3. especially decision making based on modeling real problems.
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Demonstrates an exceptional understanding of key Operations Research concepts, models,

	and methods. ● Very Good/B (69-79): Shows a good understanding of key concepts, with minor gaps or inaccuracies. ● Good/C (60-68): Displays an adequate understanding of basic concepts, but struggles with more advanced topics. ● Fair/D (50-59): Shows limited understanding of fundamental concepts, with significant gaps in knowledge. ● Poor/E (< 50): Displays a very poor understanding of basic concepts, with little to no grasp of advanced topics.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement · Students must attend 15 minutes before the class starts. · Students must switch off all electronic devices. Students must inform the lecturer if they will not attend the class due to sickness, etc
Reading list	1. Carter, M., Price, C. C., & Rabadi, G. (2018). Operations research: a practical introduction. Crc Press.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203119**

Module designation	Quality Management
Semester(s) in which the module is taught	5
Person responsible for the module	Prof. Dr. Ir. Roni Kastaman, M.SIE.
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to identify and solve problems related to quality management. 2. Able to conduct analysis in quality management. 3. Able to apply quality management knowledge in Agro-Industry companies.
Content	1. Scope and definition of quality management 2. International quality standards 3. Cost of quality 4. Voice of customers 5. Voice of markets 6. Service quality 7. Continued service quality 8. Quality function deployment 9. Continued quality function deployment

	10. Total quality management
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: ● Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret results. ● Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of most results ● Good/C (60-68): Shows basic analytical skills but may misinterpret some results. ● Fair/D (50-59): Poor application of theory to practical problems, with many inaccuracies and weak reasoning. Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. S. Thomas Foster, Managing Quality. International Edition, Pearson Education International, 2004. 2. Goetsch, D. L., & Davis, S. B. (2021). *Quality Management for Organizational Excellence: Introduction to Total Quality* (9th ed.). London: Pearson. 3. Gaspersz, V. (2022). *Total Quality Management (TQM) untuk Industri Manufaktur dan Jasa*. Jakarta: Vinchristo Publication.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203121**

Module designation	Quality Control Engineering
Semester(s) in which the module is taught	5
Person responsible for the module	Ir.H. Totok Pujianto, MSIE
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to identify and solve problems related to product quality issues. 2. Able to conduct analysis in product quality issues. 3. Able to apply knowledge of product quality issues in Agro-Industry companies.
Content	1. Introduction to basic concepts of quality and quality improvement 2. DMAIC and Six-sigma as a framework for quality improvement 3. Review statistical methods:- sampling and descriptive statistics, - probability and probability distributions) 4. Capacity Index 5. Shewhart Control Chart 6. Good Laboratory Practice (GLP) 7. Quality Function Deployment (QFD)
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100):

	Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. D. C. Montgomery, Introduction to Statistical Quality Control, John Wiley & Sons, 7th Edition. 2. Myers, R.H., Montgomery, D.C., Dan Cook, C.M.A. 2016. Response Surface Methodology: Process and Product Optimization Using Designed Experiments (Edisi ke-4). Hon Wiley & Sons 3. Chan, L. K., & Wu, M. L. (2002). Quality Function Deployment: A Comprehensive Review of Its Concepts and Methods. Quality Engineering, 15(1), 23–35.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203122**

Module designation	Technopreneurship
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Dwi Purnomo, S.T.P., M.T Faizal Syahmurman, S.T., M.M
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Have a deep understanding of the concepts of technopreneurship and social business. 2. Able to identify social problems, social impacts, innovation opportunities in the context of the agricultural industry. 3. Able to understand and apply a design thinking approach, develop creative & innovative ideas to design a social business. 4. Able to design and run social business projects by paying attention to business opportunities, innovative solutions.
Content	1. Introduction to technopreneurship and social Impact in the Agricultural Industry. 2. Concept of social business and innovation in agriculture. 3. Identification of social business opportunities in agricultural technology. 4. Introduction to design thinking in the context of social business.

	5. Implementation and evaluation of social business projects.
Examinations forms	Form Examination: Project based learning Assignment project based learning examination rubris: ● Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion ● Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion. ● Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. ● Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. ● Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on project based learning, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 30% Structured Assignment: 30% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Design a Better Business: New Tools, Skills, and Mindset for Strategy and Innovation" oleh Patrick Van Der Pijl, Justin Lokitz, dan Lisa Kay Solomon. 2. The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses" oleh Eric Ries. 3. Creating a World Without Poverty: Social Business and the Future of Capitalism" oleh Muhammad Yunus.

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Module designation	Packaging and Storage in Agro-industry
Semester(s) in which the module is taught	5
Person responsible for the module	Selly Harnesa Putri, S.T.P., M.P Desy Nurliasari, S.T.P., M.Si Januardi, S.T.P., M.T., Ph.D
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Lab Work
Workload	Total workload: 135 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assigment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Laboratory session/Field Study** Laboratory session: 1 x 100' x 14 weeks = 23 hours Independent study: 1 x 95' x 14 weeks = 22 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to explain the meaning of packaging and basic packaging materials 2. Students are able to explain the basic principles of packaging process technology and packaging design 3. Students are able to analyze agro-industrial product packaging and solve problems related to the nature, characteristics and packaging and storage technology 4. Students are able to search and collect certain information effectively and efficiently
Content	Packaging Principles, Functions and Properties Basic Packaging Materials (Physical Properties Mechanical, Thermal Properties and

	Permeability), Plastic Packaging Principles, Paper and Selulose Packaging Principles, Material Packaging Interactions, Non-Convensional Packaging (Biodegradable Plastic, Edible Film/Coating) Principles and Processing, The principle of shelf life (determination shelf life, lifespan assessment attribute storage, storage life estimation, model shelf life estimation), Characteristics of grain materials (methods grain storage, characteristics tuber ingredients, method storage of tuber material), Meat characteristics, damage meat, meat storage systems, characteristics of fruit and vegetables, damage to fruit and vegetables, packaging and storage systems, Warehouse Storage pests (rats, insects), ecology, disease storage (bacteria, mold, yeast, mold), product damage and caused, and Warehouse Storage Sanitation
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examplezs, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the

	class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. The Art of Packaging (Julianti) 2. A Practical Guide To Flexible Packaging (Julianti) 3. Teknologi Pengemasan Pangan (Herudiyanto) 4. Pengetahuan Bahan Agroindustri (Muchtadi,dkk) 5. Robertson, G. L. (2021). *Food Packaging: Principles and Practice* (4th ed.). Boca Raton: CRC Press. 6. Syarief, R., & Irawati, A. (2022). *Teknologi Pengemasan Pangan Berkelanjutan*. Bogor: IPB Press.

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Module designation	Starch and Sugar Technology
Semester(s) in which the module is taught	5
Person responsible for the module	Selly Harnesa Putri, S.T.P., M.P Desy Nurliasari, S.T.P., M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	1. Knowledge and analysis of natural materials 2. The basics of chemistry 3. Introduction to Agroindustry
Module objectives/intended learning outcomes	1. Able to identify, analyze and solve resource limitations, especially in commodities, potential agricultural products, properties and characteristics of starch and sugar 2. Able to identify needs on an ongoing basis and able to adapt to new (contemporary) areas in the agro-industry sector in modifying starch and Sugar 3. Able to design a complete and simple agro-industry within the scope of starch and sugar technology
Content	1. Sources of Raw Materials for the Starch and Sugar Industry. 2. Characteristics of Starch (Physicochemical and Amylographic Properties). 3. Industrial Products from Starch (Glucose Syrup, Dextrin, Maltodextrin). 4. Characteristics of sugar and sources of sugar. Sugar processing.
Examinations forms	Form Examination: Presentation and Written Examination

	Assignment Paper rubric: ● Excellent/A (80-100): Demonstrates an exceptional understanding and mastery of all key concepts in starch and sugar technology. ● Very Good/B (69-79): Demonstrates a solid understanding of most key concepts in starch and sugar technology. ● Good/C (60-68): Shows a basic understanding of fundamental concepts in starch and sugar technology. ● Fair/D (50-59): Demonstrates a weak understanding of fundamental concepts in starch and sugar technology. ● Poor/E (< 50): Shows no understanding or incorrect understanding of key concepts in starch and sugar technology.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 30% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Organic Chemistry (Fessenden & Fessenden) 2. Knowledge and analysis of natural materials *(Pengetahuan Bahan Agroindustri)* (Muchtadi,dkk) 3. Starch (Be Miller & Whistler) 4. Eliasson, A. C. (2022). *Starch in Food: Structure, Function and Applications* (2nd ed.). Cambridge: Woodhead Publishing. 5. Asikin, Y. (2023). *Teknologi Pengolahan Tebu dan Gula Alternatif*. Jakarta: AgroMedia.

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Module designation	Scientific Method
Semester(s) in which the module is taught	5
Person responsible for the module	Prof. Dr. Ir. H. Roni Kastaman, M.SIE Dr. Dwi Purnomo, S.T.P., M.T Dr. Efri Mardawati, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Course of Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning
Workload	Total workload: 2 x 170’ x 16 weeks : 60’ = 90.6 hours **Class** Lecture: 2 x 50’ x 14 weeks = 23.3 hours Assignment: 3 x 50’ x 14 weeks = 35 hours Independent study: 2 x 62’ x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50’ x 1 weeks = 1.67 hours Final Examination: 2 x 50’ x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to identify and solve problems related to Scientific Method Research 2. Able to develop a comprehensive and logical way of thinking 3. Able to communicate analysis in Scientific Research (Research) 4. Able to apply knowledge of scientific methods (research) in Agro Industry
Content	1. Basic knowledge of the problem. 2. Research as part of problem solving. 3. Important stages in research. 4. Research methodology. 5. Data collection and analysis methodology. 6. Research report methods. 7. Ethical aspects in research and scientific work
Examinations forms	Form Examination: Presentation and Written Examination

	Assignment Paper rubric: ● Excellent/A (80-100): Applies critical thinking skills effectively to analyze and evaluate scientific problems, hypotheses, and experimental designs. ● Very Good/B (69-79): Applies critical thinking skills to analyze and evaluate scientific problems, hypotheses, and experimental designs adequately. ● Good/C (60-68): Applies basic critical thinking skills to analyze scientific problems, hypotheses, and experimental designs with limitations. ● Fair/D (50-59): Demonstrates limited critical thinking skills in analyzing scientific problems, hypotheses, and experimental designs. ● Poor/E (< 50): Lacks critical thinking skills in analyzing scientific problems, hypotheses, and experimental designs.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 35% Structured Assignment: 20% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	C.R.Kothari : Research and Methodology Methods Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.). SAGE Publications.

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Modelling and Simulation of Agro-industrial Systems	Modelling and Simulation of Agro-industrial Systems
Semester(s) in which the module is taught	5
Person responsible for the module	Ir. Totok Pujianto, M.SIE Devi Maulida Rahmah, S.T.P., M.T., Ph.D Januardi, S.T.P., M.T., Ph.D
Language	Indonesian
Relation to curriculum	Elective Courses
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Simulation Project
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Familiar with mathematical modeling and simulation and various case studies related conceptual models and solutions 2. Analyze, design, and begin controlling rigorous mathematical models in continuous and discrete approaches. 3. Apply a modeling process to arrive at an appropriate mathematical model. 4. Apply basic analysis techniques and simulation methods used to develop insight into system behavior.

Content	1. Able to the concept and knowledge of modeling and simulation design systems. 2. Explaining the types of modeling and simulation. 3. explaining the benefits and feasibility of models and simulations.
Examinations forms	Form Examination: Presentation and Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Demonstrates a deep and comprehensive understanding of Modelling and Simulation concepts, including both fundamental and advanced topics. ● Very Good/B (69-79): Shows a solid understanding of most modeling and simulation concepts, with minor gaps in more advanced topics. ● Good/C (60-68): Displays a basic understanding of key modelling and simulation concepts, but lacks depth and has gaps in more advanced topics. ● Fair/D (50-59): Shows limited understanding of modelling and simulation concepts, with significant gaps in knowledge. ● Poor/E (< 50): Fails to demonstrate an understanding of basic modelling and simulation concepts. Major gaps in knowledge.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Simulation: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Mathematical Modeling and Simulation: Introduction for Scientists and Engineers, Kai Veltn, Wiley 2009. (Main Reference 1) 2. Simulation Modeling and Analysis with Expertfit Software, Averill Law, McGraw-Hill Science, 2007. 3. Introduction to Simulink® with Engineering Applications, Steven

	T. Karris, Orchard Publications, 2006. (Main Reference 2) 4. Introduction to Dynamic Systems: Theory, Models, and Applications. D. G. Luenberger, 1979. 5. Law, A. M. (2021). *Simulation Modeling and Analysis* (6th ed.). New York: McGraw-Hill. 6. Kastaman, R. (2022). *Pemodelan dan Simulasi Sistem Komputasi untuk Agroindustri*. Bandung: Unpad Press.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202133**

Modelling and Simulation of Agro-industrial Systems	Decision Support System
Semester(s) in which the module is taught	5
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D Dr. Dwi Purnomo, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Elective Courses
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Simulation Project
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours ***Field Study*** Field study session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to identify decision-making methods in the agro-industry sector. 2. Students are able to analyze the decision-making process and tools in the decision-making process. 3. Students are able to identify problems related to decision-making cases in the agro-industry sector. 4. Students are able to solve problems in decision-making.
Content	1. Basic principles of decision making. 2. Types and types of decision making.

	3. Cases of decision making in the agro-industry sector. 4. Decision-making tools and processes. 5. Assessment of decision making, risk management and recommendations from an agro-industrial project
Examinations forms	Form Examination: Presentation and Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Demonstrates a deep and comprehensive understanding of Decision Support System (DSS) concepts, including both fundamental and advanced topics. ● Very Good/B (69-79): Shows a solid understanding of most DSS concepts, with minor gaps in more advanced topics. ● Good/C (60-68): Displays a basic understanding of key DSS concepts, but lacks depth and has gaps in more advanced topics. ● Fair/D (50-59): Shows limited understanding of DSS concepts, with significant gaps in knowledge. ● Poor/E (< 50): Fails to demonstrate an understanding of basic DSS concepts. Major gaps in knowledge.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Simulation: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Handbook of decision support system, springer 2. Teori dan aplikasi pengambilan keputusan kriteria, Marimin 3. Pengambilan keputusan kriteria majemuk, Marimin 4. Marimin, & Hasanah, N. (2022). *Sistem Pendukung Keputusan Berbasis Kecerdasan Jamak dalam Manajemen Rantai Pasok Agroindustri*. IPB Press. 5. Turban, E., Outland, J., King, D., Lee, J. K., Liang, T.-P., & Turban, D. C. (2021). *Business Intelligence, Analytics, and Data*

	Science: A Managerial Perspective (5th ed.). Pearson.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202135**

Module designation	Forest Products Industry
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Puspita Nurlilasari, S.T. Dr. Dwi Purnomo, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. able to identify raw materials, types of potential catalysts/biocatalysts, principles of process or bioprocess technology, as well as its challenges. 2. able to understand the challenges and opportunities in planning and developing agricultural-based products and have the ability to innovate as provisions for developing micro and small enterprises.
Content	1. Timbers Plantation 2. Wood Chemicals and Variance 3. Pulp and Papper Industry 4. Sap and Gum 5. Agarwood and Rosin 6. Essential Oils from Forest 7. Oil and Fat from Forest 8. Herbs and Floral

	). Bee-based Products 0. Forest Products Market Development 1. Social Forestry
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Wang, David, S.,Y., Wood Chemistry – Fundamentals and Application. Department of Forestry, NCHU. 2. Handbook of Forest Industry. 3. Handbook of Pulping and Papermaking Second Edition. 4. Rowell, R. M. (2023). *Handbook of Wood Chemistry and Wood Composites* (3rd ed.). CRC Press. 5. Bowyer, J. L., Shmulsky, R., & Haygreen, J. G. (2022). *Forest Products and Wood Science: An Introduction* (8th ed.). Wiley-Blackwell. 6. Syafii, W., dkk. (2024). *Teknologi Konversi Biomassa Hutan*

	Menjadi Bioenergi dan Bioproduk. IPB Press.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C202136**

Module designation	Perfume and Cosmetics Industry
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Puspita Nurlilasari, S.T. Selly Harnesa Putri, S.TP., M.P.
Language	Indonesian
Relation to curriculum	Elective Course (Study Program, Bioprocess Technology)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hourss
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	Beverages and Essential Oils Technology
Module objectives/intended learning outcomes	1. Able to explain the scope of perfume and cosmetics technology. 2. Have the ability to identify chemical components as raw materials for perfume and cosmetics. 3. Able to formulate perfume based on its composition and carry out product-design based on their segmentation. 4. Have the ability to to design derivative products of perfume and cosmetic that meet established quality standards.
Content	1. History and Scope of Perfume Technology 2. Perfume and Cosmetics Industries Development 3. Perfume Raw Materials 4. Scent Matching 5. Basic Composition for Perfume 6. Physical and Chemical Properties 7. Perfume Derivative Products 8. Perfume Marketing

	9. Formula Protection 10. Cosmetical Products Marketing 11. Products Security Requirement
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Calkin, R.R dan J.S. Jellinek. 1994. Perfumery. John Wiley and Sons, Singapore. 2. Turin, L. and T. Sanchez. 2008. Perfumes.Penguin Group, New York. 3. Flick, E.W. 1989. Cosmetic and Toiletry Formulations Volume I. Noves Publication, New Jersey USA. 4. Ellena, J.C. 2011. Perfume. Arcade Publishing, New York. 5. Baki, G., & Alexander, K. S. (2023). *Introduction to Cosmetic Formulation and Technology* (2nd ed.). John Wiley & Sons. 6. Salvador, A., & Chisvert, A. (2022). *Analysis of Cosmetic*

	Products (2nd ed.). Elsevier.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203126**

Module designation	Managerial Economics
Semester(s) in which the module is taught	5
Person responsible for the module	Prof. Dr. Ir. Roni Kastaman, M.SIE.
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to identify and solve problems related to managerial economics. 2. Able to develop a comprehensive and logical way of thinking. 3. Able to communicate analysis in managerial economics clearly. 4. Have the ability to apply knowledge of managerial economics in a company in the agricultural industries.
Content	1. Scope of Managerial Economics and Decision for Global Business 2. Supply Theory 3. Demand Theory 4. Elasticity 5. Customers Behaviour 6. Costs and Production Analysis 7. Markets and Price Strategies

	8. Investment and Financial Decision
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Project Works: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	Vincent Gasperz (2008), Economy Managerial for Management Business Total, 2nd edition Salvatore, D. (2021). *Managerial Economics in a Global Economy* (9th ed.). Oxford University Press. Baye, M. R., & Prince, J. T. (2022). *Managerial Economics and Business Strategy* (10th ed.). McGraw-Hill Education..

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203127**

Module designation	Forecasting and Prospective Analysis
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Irfan Ardiansah, S.TP., M.T. Devi Maulida Rahmah, S.TP., M.T., Ph.D. Januardi, S.TP., M.T., Ph.D.
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Field Study** Field study session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to explain the purpose of conducting qualitative and quantitative forecasting and predictive analysis. 2. Able to explain the procedures commonly used in carrying out qualitative and quantitative predictive analysis of contemporary time series data from the internet. 3. Able to explain a number of forecasting techniques and the differences between these techniques and the use of contemporary time series data from the internet. 4. Able to apply a number of forecasting techniques using contemporary time series data from the internet.
Content	1. Statistics for Forecasting 2. Regression Analysis 3. Exponential Smoothing 4. Autoregressive Integrated Moving Average (ARIMA) 5. Intervention Model and Function

	6. Other Techniques
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Project Works: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Montgomery D C, Jennings C L and Kulachi M, 2015. Introduction to time series analysis and forecasting, Wiley. 2. Brockwell, P J and Richard A. Davis.,2002, Introduction to time series and forecasting. 2nd ed. Springer. 3. Brooks, C., 2008, Introductory Econometrics for Finance, 2nd Ed., Cambridge University Press, Cambridge. 4. Amstrong J S (ed)., 2002, Principles Of Forecasting:A Handbook for Researchers and Practitioners, Kluwer Academic Publishers.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203129**

Module designation	Technology of Bio-Industry
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	Fundamental Chemistry Industrial Microbiology Fundamental of Bioprocess Engineering
Module objectives/intended learning outcomes	1. Have the ability to explain the processes of biotechnologies products. 2. Have the ability to understand and are able to analyze the environmental, economic and social impacts of the biotechnology industry. 3. Have the ability to analyze and interpret experimental results in the microbiology laboratory.
Content	1. Scope and History of Biotechnology Industries 2. Fermentation Technology 3. Enzymes Industrial 4. Biofuel 5. Organics Acid 6. Biotechnology for Food, Feed, and Pharmacological Industry 7. Nanobiotechnology 8. Socio-Economics and Environmental of Biotechnology

	Industries
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Soetaert, W. dan Vandamme E. J. (2010). Industrial Biotechnology: Sustainable Growth and Economic Success. 2. Mosier, N. S. and Ladisch M. R. (2009) Modern Biotechnology: connecting innovation in microbiology and biochemistry to engineering fundamentals. 3. Okafor, N. (2007). Modern Industrial Microbiology and Biotechnology. 4. Okafor, N., & Okeke, B. C. (2023). *Modern Industrial Microbiology and Biotechnology* (2nd ed.). CRC Press. 5. Madigan, M. T., Bender, K. S., Buckley, D. H., Sattley, W. M., & Stahl, D. A. (2021). *Brock Biology of Microorganisms* (16th ed.). Pearson.

	6. Mardawati, E. (2024). *Bioteknologi Industri Pangan dan Non-Pangan: Prinsip dan Aplikasi Komersial*. Unpad Press.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203142**

Module designation	Downstream Bioprocess Technology
Semester(s) in which the module is taught	5
Person responsible for the module	Selly Harnesa Putri, S.TP., M.P.
Language	Indonesian
Relation to curriculum	Elective Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	Basics Calculation for Process Engineering Fundamental of Bioprocess Engineering
Module objectives/intended learning outcomes	1. Able to identify, analyze, and solve the limitation on agricultural industry resources at downstream process stages, downstream process techniques and their applications. 2. Able to identify sustainable needs for the downstream process of a bioprocess product & carry out process optimization so that it can produce high yield & purity. 3. Able to to develop added value to agricultural derivative products, especially the ability to carry out simulations using the SuperPro Designer.
Content	1. Introduction on Bioproducts and Separation 2. Characteristics and Properties of Biological Resources 3. Insoluble Products Separation 4. Mechanical Cell Breakdown 5. Soluble Products Separation 6. Drying and Crystallization

	7. Separation Process Simulation
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Harrison, R. G. dkk. (2003). Bioseparations Science and Engineering (2 ed). 2. Ghosh, R. (2006). Principles of Bioseparations Engineering. 3. Schuler, M. L. dan Kargi, F. (2002). Bioprocess Engineering: Basics Concepts (2 ed). 4. Ahuja S. (2000). Handbook of Bioseparations. 5. Harrison, R. G., Todd, P., Rudge, S. R., & Petrides, D. P. (2021). *Bioseparations Science and Engineering* (2nd ed.). Oxford: Oxford University Press. 6. Doran, P. M. (2022). *Bioprocess Engineering Principles* (3rd ed.). London: Academic Press.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C204117**

Module designation	Agroindustrial Waste Technology
Semester(s) in which the module is taught	6
Person responsible for the module	Selly Harnesa Putri, S.T.P., M.P Desy Nurliasari, S.T.P., M.Si
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Lab Work
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Skilled in exploring the potential of agro materials as raw materials for agro-industry and developing a technopreneurship spirit in the agro-industry sector by applying 2. Skilled in exploring the potential of agro materials as raw materials for agro-industry and developing a technopreneurship spirit in the agro-industry sector by applying 3. Understand the challenges and opportunities in planning agro-industrial product development and have the ability to innovate as provisions for developing start-ups
Content	● Introduction of waste

	● Introduction of waste processing methods, characteristics and the most appropriate handling methods for various types of waste such as solid waste, liquid waste, B3 waste, particulate waste, gas waste, noise pollution along with knowledge about sanitation that can applied to the agro-industrial industry
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Applies knowledge effectively to solve problems related to agroindustrial waste management. Answers are well-structured, clear, and concise, demonstrating excellent communication skills. ● Very Good/B (69-79): Identifies and addresses common problems in agroindustrial waste management. Answers are generally clear and structured, with some minor issues in clarity or organization. ● Good/C (60-68): Recognizes common problems in agroindustrial waste management, but solutions may be simplistic. Answers are somewhat clear but may lack structure or coherence. ● Fair/D (50-59): Has difficulty identifying problems in agroindustrial waste management. Answers are unclear, poorly structured, or lack coherence. ● Poor/E (< 50): Unable to recognize or address problems in agroindustrial waste management. Answers are extremely unclear, disorganized, or incoherent.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Ir. Perddana ginting, Sistem pengelolaan lingkungan dan limbah industry

	2. Arif Zulkifli Pengelolaan limbah berkelanjutan 3. Yulinah Trihadiningrum Pengelolaan limbah B3 4. Betty Sri Laksmi Jeni, winiati puji rahayu Penanganan limbah industry pangan

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C204118**

Module designation	Management of Change	
Semester(s) in which the module is taught	6	
Person responsible for the module	Ir. Totok Pujianto, M.SIE Dr. Dwi Purnomo	
Language	Indonesian	
Relation to curriculum	Compulsory Course of Study Program	
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning	
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours	
Credit points	3.2 ECTS	
Required and recommended prerequisites for joining the module	-	
Module objectives/intended learning outcomes	1. Able to identify and analyze the change of requirement of all stakeholder in agro-industry 2. Able to develop and redesign the strategy to overcome the change in agroindustry	
Content	● Management of change in agroindustry sector ● Principle of management of change ● Analyze the management of change in agroindustry ● Decision making on Management of change ● Model development the management of change in	

	agroindustry
Examinations forms	Form Examination: Oral and Written Examination Assignment Paper Rubric: ● Excellent/A (80-100): Shows originality and creativity in proposing solutions to chance-related challenges. Provides in-depth analysis and insightful interpretations of chance management issues. ● Very Good/B (69-79): Shows some originality and creativity in proposing solutions to chance-related challenges. Provides a reasonable level of analysis and interpretation of chance management issues. ● Good/C (60-68): Shows minimal originality and creativity in proposing solutions to chance-related challenges. Provides superficial analysis and interpretations of chance management issues. ● Fair/D (50-59): Shows little to no originality or creativity in proposing solutions to chance-related challenges. Provides very limited analysis and shallow interpretations of chance management issues. ● Poor/E (< 50): Shows no originality or creativity in proposing solutions to chance-related challenges. Provides no analysis or interpretation of chance management issues.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 40% Assignment: 20% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness with proven evidence/letter. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Martin J.Sikora-The Change Management HandBook : A Road Map to Corporate Transformation 2. Hayes, John. The Theory and Practice of Change Management (7th Edition). Bloomsbury Academic, 2025. ISBN: 978-1350413337.

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C204119**

Module designation	The Agro-Industrial Process Design
Semester(s) in which the module is taught	6
Person responsible for the module	Dr. Efri Mardawati, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem and Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study cases: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours Exhibition Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	All course from semester 1 to 5
Module objectives/intended learning outcomes	1. Able to develop the value added of agricultural products through the terms of process technology and bioprocesses, as well as systems and management. 2. Able to design the agroindustry product system (strategy, supply chain, resources, finance, marketing, manufacturing and business information systems).
Content	In this course, students can design a plan for establishing an industrial factory; starting from developing product design, process design, determining the location of the factory to layout design, through evaluating physical, environmental feasibility and economic feasibility, profit and loss analysis.
Examinations forms	Form Examination: Presentation on exhibition examination and

	process simulation examination Assignment Paper rubric: ● Excellent/A (80-100): Effectively applies theoretical knowledge to practical problems on pre-design plant processes. Provides precise and proper solutions to complex design issues. ● Very Good/B (69-79): Applies the knowledge to practical study cases with good accuracy. Provides very good solution to design issues on pre-design plant processes, though some may lack depth or innovation. ● Good/C (60-68): Applies the knowledge to practical problems with moderate accuracy. Provides basic solutions to design issues, often lacking depth or innovation. ● Fair/D (50-59): Applies the knowledge to practical problems with low accuracy. Provides ineffective solutions to design issues, often missing key elements ● Poor/E (< 50): Applies the knowledge to practical problems with very low accuracy. Provides solutions that are largely ineffective or incorrect.
Study and examination requirements	Minimum attendance requirement 80% from total lecture. Assessment is carried out based on exhibition examinations, hysys simulation examination, and written examination. assessment/evaluation of the learning process and performance with the following components: Hysys simulation Examination: 30% Midterm Examination: 30% Exhibition Examination: 40% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness with proven evidence or letter. ● Students must submit all class assignments before the deadline. ● Students must attend the final exhibition examination to get final grade.
Reading list	1. Peters M. S. & Timmerhaus K.D. Plant Design and Economics for Chemical Engineers, McGraw-Hill, New York, 1991 2. Machfud dan Y. Agung, Perancangan Tata Letak pada Industri Pangan, Depdikbud-Ditjen-Dikti-PAU Pangan dan Gizi, IPBBogor, 1990

	3. Purnomo H., Perencanaan dan Perancangan Fasilitas, Graha Ilmu, Yogyakarta, 2004 4. Towler, G., & Sinnott, R. (2022). Chemical Engineering Design: Principles, Practice and Economics of Plant and Process Design (3rd ed.).

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATE STUDY PROGRAM**	COURSE CODE: **N10C204112**

Module designation	Project Design and agroindustrial business
Semester(s) in which the module is taught	6
Person responsible for the module	Ir. Totok Pujianto, M.SIE Dr. Irfan Ardiansah, S.T.P., M.T
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Simulation Project
Workload	Total workload: 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 2 x 50' x 14 weeks = 23 hours Independent study: 2 x 50' x 14 weeks = 23 hours **Simulation Project** Simulation project : 1 x 100'x14 weeks = 23.33 **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	All courses of semester 1-5
Module objectives/intended learning outcomes	● Able to design projects (product and business in agro-industry) comprehensively (strategy, supply chain, resources, finance, marketing, manufacturing and business information systems). ● Able to manage the project in agroindustry
Content	● Principle of project management ● Preparing the project and business in agroindustry ● method and tools on preparing the project on agroindustry ● Designing the Project and business in agroindustry
Examinations forms	Form Examination: written examination and Project Based Presentation Assignment of project based presentation:

	• Excellent/ A (80-100) Student has an ability to make two or more Agroindustrial project with economical assessment and the feasibility condition of the project • Very good (69-79) Student has an ability to work on one agroindustrial project with economical assessment and the feasibility condition of the project • Good (60-68) Student can make one or more Agroindustrial project with any analysis on economical assesment without knowing feasibility condition. • Fair (50-59) Student has an ability to make one or more Agroindustrial project without any economical assessment and the feasibility studies. • Poor (< 50) Student cannot make any agroindustrial project
• Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Simulation: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement • Students must attend 15 minutes before the class starts. • Students must inform the lecturer if they will not attend the class due to sickness, etc. • Students must submit all class assignments before the deadline. • Students must attend the exam to get final grade
Reading list	1. HANDBOOK OF INDUSTRIAL and SYSTEMS ENGINEERING Adedeji B. Badiru A CRC title, part of the Taylor & Francis imprint, a member of the Taylor & Francis Group, the academic division of T&F Informa 2. Food Plant Design Antonio López-Gómez Gustavo V. Barbosa-

	Cánovas Boca Raton London New York Singapore A CRC title, part of the Taylor & Francis imprint, a member of the Taylor & Francis Group, 3. IENG441 FACILITIES PLANNING AND DESIGN LECTURE NOTES Prepared by: Asst. Prof. Dr. Orhan KORHAN EASTERN MEDITERRANEAN UNIVERSITY DEPARTMENT OF INDUSTRIAL 4. Kerzner, H. (2022). *Project Management: A Systems Approach to Planning, Scheduling, and Controlling* (13th ed.).

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C201152**

Module designation	Inovation System
Semester(s) in which the module is taught	6
Person responsible for the module	Dr. Dwi Purnomo, S.T.P., M.T Ir. Totok Pujianto, M.SIE
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Lab Work
Workload	Total workload: 135 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assigment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 60' x 14 weeks = 29 hours **Laboratory session/Field Study** Laboratory session: 1 x 100' x 14 weeks = 23 hours Independent study: 1 x 95' x 14 weeks = 22 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to recall the definitions and history of Innovation & Invention. 2. Able to understand the theories of innovation and identify sources of innovation. 3. Able to comprehend the innovation process, understand intellectual property rights, and grasp innovation strategies. 4. Able to identify techno-entrepreneurs, fund innovation, manage innovation, and foster innovation.
Content	1. Fundamentals related to the innovation system 2. Theory of innovation

	3. Identification of innovation sources 4. Intellectual property 5. Innovation strategy 6. Techno entrepreneurs 7. Funding innovation 8. Managing innovation 9. Fostering innovation
Examinations forms	Form Examination: Written Examination Assignment Paper rubric: ● Excellent/A (80-100): Provides insightful analysis and synthesis of information, integrating multiple perspectives and showing advanced critical thinking. Offers innovative and well-reasoned solutions to complex problems, showing high levels of creativity and originality. ● Very Good/B (69-79): Proposes good solutions to problems, with a reasonable degree of creativity and originality. ● Good/C (60-68): Offers solutions to problems, but they are standard and lack creativity or originality. ● Fair/D (50-59): Offers solutions to problems, but they are weak, unoriginal, or impractical. Uses few or irrelevant examples, failing to effectively illustrate points. ● Poor/E (< 50): Offers no viable solutions to problems. Lacks creativity and originality.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Smith, David (2010), Exploring Innovation, 2nd Ed. London:

	Mc.Graw-Hill Education (UK) Limited 2. Tidd, Joe., Bessant, John (2009), Managing Innovation: Integrating Technological, Market and Organizational Change, 4th Ed, London, John Willey& Sons, Ltd 3. Sundbo, Jon., Fugisan, Lars (2002), Innovation as Strategic Reflexing, London, Routledge

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATE STUDY PROGRAM**	COURSE CODE: N10C203134

Module designation	Expert System and Artificial Intelligence
Semester(s) in which the module is taught	6
Person responsible for the module	Irfan Ardiansyah, S.TP., M.T. Ir. Totok Pujianto, MSIE
Language	Indonesian
Relation to curriculum	Election Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to understand the concept of artificial intelligence 2. Able to design and create intelligent system applications
Content	1. The fundamental of expert system and AI 2. Applications of artificial intelligence in agroindustry 3. Method and tools of artificial intelligence 4. Machine learning for agroindustry 5. Problem-solving techniques in artificial intelligence in agroindustry
Examinations forms	Form Examination: Problem based examination and presentation

	Assignment problem based examination rubric: ● Excellent/A (80-100): Has high ability to analyze and apply machine learning, artificial intelligence, and expert analysis completely with no misjudgement. ● Very Good/B (69-79): Has high ability only to analyze machine learning, artificial intelligence, and expert system in Agroindustrial application ● Good/C (60-68): Understand the analysis and implementation of machine learning, artificial intelligence, and expert system. ● Fair/D (50-59): Cannot implement the methods of machine learning, artificial intelligence, and expert system but able to perform the analysis ● Poor/E (< 50): has inability to perform analysis and applying machine learning, artificial intelligence, and expett system in agroindustry
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Suyanto, Artificial Intelligence second revision - informatics Bandung, 2014 2. Russel, Stuart, Artificial Intelligence: a modern approach, Pearson, 2011

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: N10C203136

Module designation	E-commerce
Semester(s) in which the module is taught	6
Person responsible for the module	Dr. Irfan Ardiansyah, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Election Course
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	● Students are able to explain the forms and mechanisms of e-commerce, ● Students are able to analyze business opportunities and consumers preference ● Students are able to develop the business activity in e commerce
Content	● The fundamental and principle of e-commerce ● Current market preference overview ● Strategy on e-commerce for agroindustry product

	● Branding on e-commerce ● Develop the sustainable business activity on e commerce
Examinations forms	Form Examination: Presentation and examination Assignment of project presentation rubric: ● Excellent/A (80-100): Shows strong analytical skills and the ability to critically evaluate and interpret the condition and the opportunity of online purchasing and e-commerce. ● Very Good/B (69-79): Demonstrates good analytical skills, with a clear interpretation of e-commerce business process ● Good/C (60-68): Shows basic analytical skills but may misinterpret the application of e-commerce in business decision-making. ● Fair/D (50-59): Poor application of theory and practical problems, with many inaccuracies and weak reasoning in understanding e-commerce and online purchasing. ● Poor/E (< 50): Fails to apply theory to practical problems, with incorrect or irrelevant reasoning in the entire e-commerce system
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 30% Lab Work: 0% Structured Assignment: 10% Quiz: 10% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Efraim Turban, "Introduction to Electronic Commerce 3/e", Prentice Hall, 2011. 2. Efraim Turban, "Electronic Commerce: A Managerial and Social Networks Perspective 8/e", Springer, 2015.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203140**

Module designation	Extraction for Bioactive Matters
Semester(s) in which the module is taught	6
Person responsible for the module	Selly Harnesa Putri, S.TP., M.P.
Language	Indonesian
Relation to curriculum	Elective Course (Study Program, Process Technology)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	Natural Resources Science
Module objectives/intended learning outcomes	1. Skilled in exploring the potential of agricultural products as active matter resources and able to identify chemical components that have physiological benefits for humans. 2. Have the ability to identify needs in a sustainable manner and be able to adapt to novel processes in extracting active matter using various chemical methods. 3. Have the ability to understand the challenges and opportunities in planning and developing agricultural-based products and have the ability to innovate as provisions for developing micro and small enterprises. 4. Have the ability to carry out analysis within the scope of agricultural active matters in the activity assay according to their function.
Content	1. Scopes of Extraction for Bioactive Matters 2. Agricultural Bioactive Matters

	3. Extraction and Purifying Techniques 4. Case Study and Presentation
Examinations forms	Form Examination: Presentation and Written Paper Assignment Paper rubric: ● Excellent/A (80-100) Students have high performance to identify all specific bioactive ingredients in agroindustrial commodity(ies). ● Very Good/B (69-79) Students can identify at least half of bioactive ingredients in specific commodities. ● Good/C (60-68) Students have an ability to identify at least one bioactive ingredient in agricultural commodity and product. ● Fair/D (50-59) The student knows specific bioactive ingredients but cannot identify the source of the agricultural commodities. ● Poor/E (< 50) Students cannot identify any bioactive ingredients in specific agricultural commodity and product.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Tringali, C. 2001.Bioactive Compounds from Natural Sources. Taylor and Francis, London. 2. Rai, M. And Carpinella, M.C. 2006. Naturally Occurring Bioactive Compounds. Elsevier, Oxford UK. 3. Nugroho, A. 2017. Buku Ajar Teknologi Bahan Alam.Lambung Mangkurat University press. 4. Najib, A. 2018. Ekstraksi Senyawa Bahan Alam. Deepublish.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203141**

Module designation	Technology of Halal Industry
Semester(s) in which the module is taught	6
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Elective Course (Study Program, Process Technology)
Teaching methods	1. Lecturer 2. Focus Group Discussion 3. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Have the ability to understand and master the theory and concept of halal product guarantee systems and halal relationships within the scope of the agricultural industry with respect to laws and regulations.
Content	1. Halal Foods according to Islam and Government Regulation 2. Sharia Economy Regulation 3. Indonesian Halal Certification 4. Halal Products Guarantee System 5. Halal Agricultural Products Value and Supply Chain 6. International Halal Guarantee System 7. Halal Critical Points for Animal and Vegetable Products 8. Halal Critical Points for Biotechnology Products 9. Halal Critical Points for Pharmacy and Cosmetics Products 10. Halal Critical Points for Services Enterprises 11. Halal Quantification on Agricultural Industry
Examinations forms	Form Examination: Written Paper and project based examination

	Assignment Paper rubric: ● Excellent/A (80-100) Students can apply the implementation of halal in agroindustry according to the halal regulation, with identification analysis of halal critical point. ● Very Good/B (69-79) Students can apply implement the halal application in agroindustry according to the halal regulation. ● Good/C (60-68) Students only know the halal application in agroindustry. ● Fair/D (50-59) Student is lack of knowledge about halal application and implemenetation in agroindustry. ● Poor/E (< 50) Student is entirely not knowing and poor to implement halal application and concept in Agroindustrial system.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 40% Midterm Examination: 30% Project Assignment: 30% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness with proven evidence/letter ● Students must submit the project assignments before the deadline. ● Students must attend the midterm and final examination to get final grade.
Reading list	1. YR Al-Teinaz . 2020. The Halal Food Handbook. Editor(s):. Yunes Ramadan Al-Teinaz, Stuart Spear, Ibrahim H. A. Abd El-Rahim. Wiley Publ., New York. 2. Departemen Agama RI. 2009, Himpunan Fatwa Halal Majelis Ulama Indonesia, Direktorat Urusan Agama Islam dan Pembinaan Syariah, Dirjen Bimas Islam, Kementerian Agama RI, Jakarta. 3. Undang-Undang No. 33 Tahun 2014 tentang Jaminan Produk Halal. 4. Halal and Kosher Food: Integration of Quality and Safety for Global Market Trends. Springer Nature Switzerland, 2023. ISBN: 978-3-031-41458-9.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203143**

Module designation	Enzymes Technology for Industry (*Teknologi Enzim Industrial*)
Semester(s) in which the module is taught	6
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T. Yana Cahyana, S.TP., DEA., Ph.D.
Language	Indonesian
Relation to curriculum	Elective Course (Study Program, Bioprocess Technology)
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Able to understand enzyme concepts, enzymatic reaction kinetics, enzyme purification, and factors that influence enzyme performance. 2. Have the ability to explain and compare the application of enzyme technology in various industries. 3. Have the ability to explain and evaluate the structure (native and engineered) and enzyme interactions.
Content	1. Biochemistry of Enzymes 2. Enzymes Activity 3. Enzymes Production, Isolation, and Purification 4. Enzymes Immobilization 5. Bioreactors for Enzyme 6. Application for Starch-based Industry 7. Application for Bakery Industries

	8. Application for Animals Feed 9. Application for Textile Industry 10. Application for Detergent and Personal Care Products
Examinations forms	Form Examination: Presentation and Written Paper Assignment Paper rubric: ● Excellent/A (80-100) Student is able to understand entirely the concept of enzymes, types of enzymes, enzymes immmobilization and application procedures. ● Very Good/B (69-79) Student know the concept of enzymes, types of enzymes, enzymes immmobilization and application procedures. ● Good/C (60-68) Student knows the immobilization and application procedures of enzymes in agroindustry. ● Fair/D (50-59) Students knows only the basic concept of enzymes. ● Poor/E (< 50) Student cannot understand fully about enzymes.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Buchholz, K dkk. (2012). Biocatalysts and Enzyme Technology (2 ed). 2. Ray , R.C. and Roseli C.M. (2021). Microbial enzyme technology in Food Applications ((first edition).

	UNIVERSITAS PADJADJARAN FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY AGRICULTURAL INDUSTRIAL TECHNOLOGY UNDERGRADUATED STUDY PROGRAM	COURSE CODE: **N10C203144**

Module designation	Bioenergy Technology
Semester(s) in which the module is taught	6
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Elective Course (Study Program, Bioprocess Technology)
Teaching methods	1. Lecturer 2. Project-Based Learning 3. Study cases
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours **Class** Lecture: 2 x 50' x 14 weeks = 23 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Laboratory *session/Field Study*** Laboratory session: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Have the ability to identify raw materials, types of potential catalysts/biocatalysts, principles of process or bioprocess technology, as well as its challenges. 2. Able to produce one of the laboratory-scale bioenergy products. 3. Have the ability to analyse and interpret the results related to bioenergy technology experiments and bioenergy effectively plus its efficiency.
Content	1. Indonesian Bioenergy Development and Challenges 2. Potential Raw Materials for Biofuel and Energy Generation 3. Biodiesel 4. Bio Briquette and Biopellet 5. Thermal Conversion of Biomass 6. Bioethanol Production from Sugars, Starch, and Lignocellulosic Biomass 7. Pretreatment Technology and Hydrolysis 8. Biogas and Anaerobic Digestion 9. Biobutanol

	10. Electricity Generation via Microbial Fuel Cell
Examinations forms	Form Examination: project based examination and written review paper Assignment Paper rubric: ● Excellent/A (80-100) accepted review paper in international journal and the review displayed the comprehensive explanation of the production system of bioenergy technology from upstream to downstream; plus value added; potentially produce in mass production / commercialization; have a product marketing strategy; have a financial feasibility analysis; and generate the impact to the community. ● Very Good/B (69-79) The submitted review paper in national journal has good content of bioenergy technology with value added which can potentially produce in mass production / commercialization through feasible study and generate the impact to the community. ● Good/C (60-68) The submitted review paper content has good comprehensive learning of bioenergy technology with value added; potentially produce in mass production / commercialization and generate the impact to the community. ● Fair/D (50-59) The assignment paper has general content of bioenergy technology without value added and not feasible to produce in mass production / commercialization. ● Poor/E (< 50) Poor and lack of knowledge, hence failed to fulfill the requirement.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Lab Work: 25% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	1. Dahiya, A. (2014). Bioenergy: Biomass to Biofuel. 2. Hou, C. T dan Shaw J. (2009). Biocatalysis and Bioenergy. 3. The Japan Institute of Energy (2008). The Asian Biomass

	Handbook.

	UNIVERSITAS PADJADJARAN **FACULTY OF AGRICULTURAL INDUSTRIAL TECHNOLOGY** **AGRICULTURAL INDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10C203120**

Module designation	Assesment 2 (*The 2nd Assesment*)
Semester(s) in which the module is taught	2
Person responsible for the module	Devi Maulida Rahmah, STP.,MT.,Ph.D Faisal Syahmurman, SE., MM
Language	Indonesian
Relation to curriculum	Compulsory Course (Study Program)
Teaching methods	1. Assessment Project Learning 2. Sharing Session 3. Lecturer
Workload	Total workload: 2 x 170' x 16 weeks : 60' = 90.6 hours **Class** Lecture: 2 x 50' x 14 weeks = 23.3 hours Assignment: 3 x 50' x 14 weeks = 35 hours Independent study: 2 x 62' x 14 weeks = 28.9 hours **Examination** Midterm Examination: 2 x 50' x 1 weeks = 1.67 hours Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Preparing the prospective graduates from alumni who represent the expected profile of study program graduates. 2. Evaluating course learning outcomes (CLO) from semester 1-6.
Content	1. Debriefing and sharpening assessment 2 2. Learning from practitioners and alumni: Professional Worker Profile 3. Learning from practitioners and alumni : Profile of entrepreneurs 4. Learning from practitioners and alumni : Profile of local empowerment 5. Product exhibition and assessment
Examinations forms	Examination Form: Presentation and Product Exhibition Assignment Product Exhibition:

	Excellent/A (80-100) The products displayed in the exhibition presented the comprehensive explanation of the production system from upstream to downstream; have the added value; Potentially produce in mass production / commercialization; have a product marketing strategy; have a financial feasibility analysis; and generate the impact to the community. Very Good/B (69-79) The products displayed in the exhibition presented the comprehensive explanation of the production system from upstream to downstream; have the added value; and n; have a product marketing strategy Good/C (60-68) The products displayed at the exhibition lack the information of the production system in upstream to downstream, have a moderate value added category and lack a marketing strategy. Fair/D (50-59) The products displayed at the exhibition do not have an upstream to downstream production system, have a low added value category and lack marketing strategies. Poor/E (<50) Does not fulfill all aspects required.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination (final) : 60% Midterm Examination(Assessment): 35% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	

Module Handbook Agroindustrial Technology Program

	UNIVERSITAS PADJADJARAN, **FACULTY OF AGROINDUSTRIAL TECHNOLOGY** **AGROINDUSTRIAL TECHNOLOGY** **UNDERGRADUATED STUDY PROGRAM**	COURSE CODE: **N10N4114**

Module designation	Field Practice
Semester(s) in which the module is taught	7
Person responsible for the module	Devi Maulida Rahmah, S.T.P., M.T., Ph.D Selly Harnesa Putri, S.T.P., M.P
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Lecturer 2. Small Group Discussion 3. Problem-Based Learning 4. Project-Based Learning
Workload	Total workload: 3 x 170' x 16 weeks : 60' = 136 hours ***Field Study*** Field Study: 1 x 100' x 14 weeks = 23.3 hours Independent study: 1 x 95' x 14 weeks = 22.1 hours **Examination** Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	1. Students are able to apply theory in the world of agricultural engineering work, adapt to the work environment, and understand organizational structure and culture 2. Students are able to develop professional communication skills, solve problems, and manage time efficiently 3. Students are able to build a professional network, demonstrate good work ethics and a professional attitude in accordance with industry standards
Content	The Field Work Practice course aims to provide students with direct experience in the professional world, especially in the context of agricultural engineering. Field Work Practice (PKL) activities for the Agricultural Engineering Study Program are carried out at institutions or business units that are relevant to the field of study that students are interested in and are carried out for at least one month (30 working days). Before carrying out field work, students are required

	to scout the location of the PKL and submit a proposal for PKL activities which must be approved by the PKL supervisor.
Examinations forms	Form Examination: Problem based examination and presentation Assignment problem based examination rubric: Excellent/A (80-100): Complex of problem; proper method and result; comprehensive discussion Very Good/B (69-79): moderate problem in agroindustry, proper method and result; moderate discussion. Good/C (60-68): moderate problem in agroindustry; generate the proper result; moderate discussion. Fair/D (50-59): problem not in agroindustry sector; generate the proper result; no discussion. Poor/E (< 50): Failed to fulfill the requirement.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on evaluation of the learning process and performance with the following components: Final Examination: 30% Simulation: 25% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	Handbook Field Practice Agriculture Engineering Program Sweitzer, H. F., & King, M. A. (2022). *The Successful Internship: Personal, Professional, and Civic Development in Experiential Learning* (5th ed.). Boston: Cengage Learning.

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Module designation	Students Community Services Program
Semester(s) in which the module is taught	7
Person responsible for the module	Devi Maulida Rahmah,S.T.P., M.T., Ph.D.
Language	Indonesian
Relation to curriculum	Compulsory Course (Universities)
Teaching methods	1. Small Group Discussion 2. Problem-Based Learning 3. Project-Based Learning
Workload	Total workload: 135 hours **Field study Class** Field study: 3 x 100' x 14 weeks = 70 hours Assignment: 2 x 50' x 14 weeks = 23 hours Independent study: 3 x 60' x 14 weeks = 42 hours **Examination** Final Examination: 2 x 50' x 1 weeks = 1.67 hours
Credit points	4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	Have the ability to apply academic knowledge, contribute to community empowerment, improve communication skills, and get involved in initiatives.
Content	1. Provision Program 2. Composing Proposal and Orientation 3. Community Services Activities 4. Report Supervision
Examinations forms	Form Examination: Presentation and Written Paper Assignment Paper rubric: ● Excellent/A (80-100) The anatomy of the paper is in accordance with the established format, written with the right language rules, with an easy-to-read layout, consistent in the presentation of pictures, graphs and tables, and free from elements of plagiarism, and inspires readers. ● Very Good/B (69-79) The anatomy of the paper is in accordance with the established format, written in the correct language rules, with an easy-to-read layout, consistent in the presentation of images, graphs and tables, and free from elements of plagiarism. ● Good/C (60-68) The anatomy of the paper is in accordance with the established

	format, written with proper language conventions, with a layout that is not good, consistent in presenting pictures, graphs and tables, and free from elements of plagiarism. ● Fair/D (50-59) The anatomy of the paper is in accordance with the established format, written in the correct language rules, with a layout that is not good, not yet consistent in the presentation of pictures, graphs and tables, but free from elements of plagiarism. ● Poor/E (< 50) Failed to fulfill the requirement.
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination (Field report): 50% Project Works: 30% Structured Assignment: 20% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	Universitas Padjadjaran Community Services Program for Students Yusra, A. (2023). *Panduan dan Metode Pemberdayaan Masyarakat dalam KKN Tematik*. Yogyakarta: Pustaka Pelajar.

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Module designation	Thesis and Scientific Publication
Semester(s) in which the module is taught	7
Person responsible for the module	Dr. Efri Mardawati, S.TP., M.T.
Language	Indonesian
Relation to curriculum	Compulsory Study Program
Teaching methods	1. Discussion 2. Academic supervising 3. Final examination
Workload	Total workload: 6 x 170' x 16 weeks : 60' = 272 hours **Class** Discussion: 2 x 50' x 13 weeks = 21.6 hours Independent study: 10 x 114' x 13 weeks = 247 hours **Examination** Research proposal hearing: : 2 x 50' x 1 weeks = 1.67 hours Commission hearing: : 2 x 50' x 1 weeks = 1.67 hours Comprehensive hearing : : 2 x 50' x 1 weeks = 1.67 hours
Credit points	9.6 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	
Content	1. Preparation of research proposal manuscript 2. implementation of research proposal seminar 3. implementation of research 4. implementation of commission hearings 5. implementation of comprehensive hearings
Examinations forms	Form Examination: Presentation and Written Paper Assignment Paper rubric: ● Excellent/A (80-100): The anatomy of the paper is in accordance with the established format, written with the right language rules, with an easy-to-read layout,

	consistent in the presentation of pictures, graphs and tables, and free from elements of plagiarism, and inspires readers. ● Very Good/B (69-79): The anatomy of the paper is in accordancewith the established format, written in the correct language rules, with an easy-to-read layout, consistent in the presentation of images, graphs and tables, and free from elements of plagiarism. ● Good/C (60-68): The anatomy of the paper is in accordance with the established format, written with proper language conventions, with a layout that is not good, consistent in presenting pictures, graphs and tables, and free from elements of plagiarism. ● Fair/D (50-59): The anatomy of the paper is in accordance with the established format, written in the correct language rules, with a layout that is not good, not yet consistent in the presentation of pictures, graphs and tables, but free from elements of plagiarism. ● Poor/E (< 50): Failed to fulfill the requirement
Study and examination requirements	Minimum attendance requirement 80% from total lecture Assessment is carried out based on written examinations, assessment/evaluation of the learning process and performance with the following components: Final Examination: 30% Midterm Examination: 30% Structured Assignment: 10% Quiz: 5% Study and Examination Requirement ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade
Reading list	FTIP Final Assignment Guidelines Book