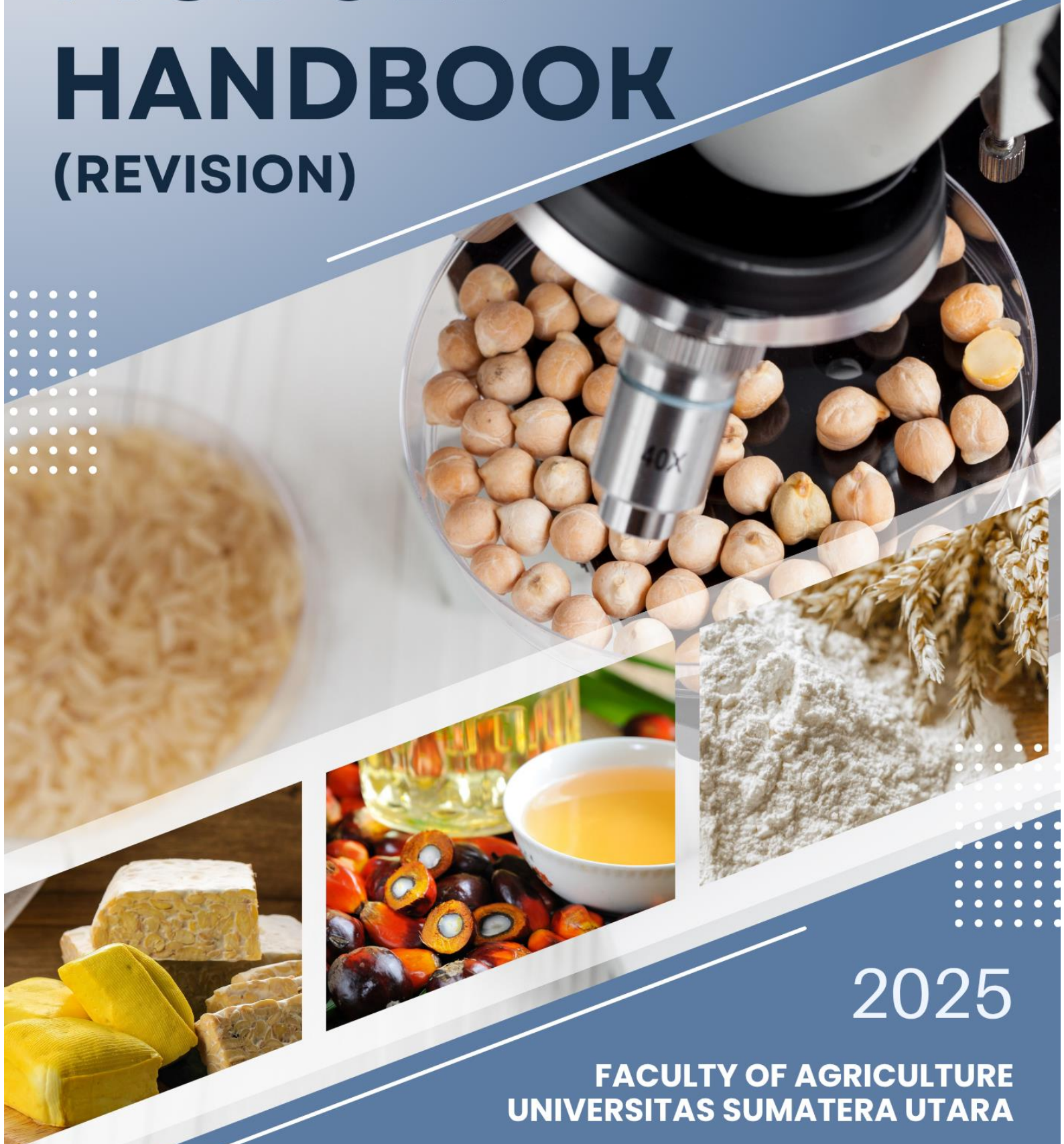
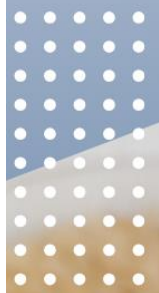


**FOOD TECHNOLOGY
STUDY PROGRAM**



MODULE HANDBOOK (REVISION)



2025

**FACULTY OF AGRICULTURE
UNIVERSITAS SUMATERA UTARA**



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1st Semester



USU1101 ISLAMIC RELIGIOUS EDUCATION

Course Name	Islamic Religious Education
Code	USU1101
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Dra. Sahliah, M.Ag
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per clas
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hourss • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a mandatory curriculum subject for first semester students. In this course students learn to build human values, as well as actualize thinking skills, contextualize various problems that exist in daily life based on good values of faith and devotion in context. a social project carried out as a form of internalization of the character of BINTANG (Belief in One Almighty God within the Frame of Diversity, Innovative with Integrity, Tough and Wise) at the University of North Sumatra.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply religious character in self-development activities • Able to apply religious knowledge in carrying out self-management activities and decision making
Content	<ol style="list-style-type: none"> 1. The Concept of Divinity in Islam 2. Faith and Devotion 3. Human Nature According to Islam 4. Religion, Religious Terms, Classification, Characteristics of Religion and Islam 5. Sources of Islamic Teachings and Methods of Ijtihad 6. Human Rights, Democracy and Corruption in an Islamic Perspective 7. Morals, Ethics and Morals 8. Science and Technology and Art in Islam



	<p>9. Harmony between Religious People and Civil Society 10. Economy and Welfare of the People 11. History of Islam 12. Islamic Political System</p>
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Pendidikan Agama Islam Untuk Perguruan Tinggi, Ditjen Belmawa Ristekdikti, cetakan I, S.K. Dirjen Dikti Depdiknas RI No.38/DIKTI/Kep./2002 tentang Rambu-rambu pelaksanaan Matakuliah Pengembangan Kepribadian di Perguruan Tinggi, Dirjen Dikti, Jakarta.</p> <p>Tim Dosen Pendidikan Agama Islam, USU Buku Ajar Pendidikan Agama Islam, Penerbit putra Maharatu Azhary, Tahir dkk, Islam untuk Disiplin ilmu Hukum, Social dan politik, Jakarta, Dirjen Pembina Kelembagaan Agama Islam</p> <p>Ali, Muhammad Daud, Sistem ekonomi Islam, Zakat dan Wakaf, JKT UI-Press, 1988</p> <p>Ali Muhammad, Pendidikan Agama Islam, JKT Rajawali Press</p> <p>Amiruddin, dkk, Pendidikan Agama Islam pada Perguruan Tinggi Umum Galia Jakarta 2002</p> <p>Departemen Agama RI Al-Qur'an dan Terjemahannya JKT 1985</p> <p>Harun Nasution, Islam ditinjau dari berbagai aspeknya jilid 1 dan 2</p> <p>Departemen Agama RI 2004 Islam Disiplin Ilmu Teknologi</p> <p>Ya'kub Hamzah, Etika Islami, Bandung Diponegoro 1993</p>



	<p>Yusuf, Ramlan Rangkuti, Pendidikan Agama Islam pada Perguruan Tinggi Umum, Bartong Jaya Medan, 2008</p> <p>Syahdin dkk, 2004, Pendidikan Agama Islam untuk Perguruan Tinggi, Direktorat Pembelajaran dan Kemahasiswaan Direktorat Jendral Perguruan Tinggi Kementrian Pendidikan dan Kebudayaan</p> <p>Umari, Akran Dhiyauddin, Masyarakat Madani Penerbitan Erlangga</p>
Last date of update	July 2025



USU1102 CHRISTIAN RELIGIOUS EDUCATION

Course Name	Christian Religious Education
Code	USU1102
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Ance Marintan D. Sitohang., M.Div., M.Th.
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a mandatory curriculum subject for first semester students. In this course students learn to build human values, as well as actualize the ability to think, contextually in various problems that exist in daily life based on good values of faith and devotion in the context of social projects that are carried out as a form of internalization of the BINTANG character (Believing in Yang). Almighty in the Frame of Diversity, Innovative with Integrity, Tough and Wise) University of North Sumatra.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply religious character in self-development activities • Able to apply religious knowledge in carrying out self-management activities and decision making
Content	<ol style="list-style-type: none"> 1. Conception of God According to Christian Faith (Religion, Bible, Triune God) 2. Humans, Morality, and Youth Relationships 3. Science and technology 4. Harmony between Religious People 5. Society and Culture 6. Politics (Socio-Political Challenges and Responsibilities of Christians) 7. Law (Law Enforcement, Human Rights and Democracy and the Role of Christians) 8. Man is the Guardian of God's Creation



Examination form	<ul style="list-style-type: none">• Project Base Learning (30%)• Case Method (20%)• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Sinulingga R., dan Sitohang, A., 2022. Pendidikan Agama Kritten (Medan, USU Press) Satjipto Rahardjo, <i>Hukum dan Masyarakat</i> , Angkasa, Bandung, 1986. Soerjono Soekanto, <i>Faktor-faktor yang Mempengaruhi Penegakan Hukum</i> , Raja Grafindo Persada, Jakarta, 2002. Soetandyo Wignyosoebroto, <i>Hukum Dalam Masyarakat</i> , Graha Ilmu, Jakarta, 2013. King Faisal Sulaiman, <i>Politik Hukum Indonesia</i> , Tafa Media, Jakarta, 2017. Amran Suadi, <i>Sosiologi Hukum Penegakan Realitas & Nilai Moralitas Hukum</i> , Prenada Media, Jakarta, 2018. Supporters: Related journals
Last date of update	July 2025



USU1103 CATHOLIC RELIGIOUS EDUCATION

Course Name	Catholic Religious Education
Code	USU1103
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Prof. Dr. Timbangan Sembiring M.Sc
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (ie: article reading and review, case method, project based learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a mandatory curriculum subject for first semester Catholic Christian students. This course provide basic skills for students to be able to understand the concept of Catholicism and its implementation in everyday life
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to apply religious character in self-development activities Able to apply religious knowledge in carrying out self-management activities and decision making
Content	<ol style="list-style-type: none"> The Conception of God According to the Catholic Faith Man Science and technology Harmony between Religious People Church and Society Humans and Their Relationship with the Environment Politics (Socio-Political Challenges and Responsibilities of Catholics) Law
Examination form	<ul style="list-style-type: none"> Quiz (5%) Assignment (5%) Midterm exam (20%) Final exam (20%) Project base learning (30%)



	<ul style="list-style-type: none">• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Dahler, Franz dan Candra, Julius. 1989. Asal dan Tujuan Manusia – Teori Evolusi yang Menggemparkan Dunia, Yogyakarta: Kanisius Go Piet, Ocar. 2007. Hubungan Antaragama dan Kepercayaan. Jakarta: Dokpen KWI Harjawayata, Frans. OCSO (ed.). 1998. Yesus dan Situasi Zaman-Nya. Yogyakarta: Kanisius Ismartono, I., S.J. 1993. Kuliah Agama Katolik. Jakarta: Obor Komisi Kateketik KWI. 2007. Materi Pokok Pendidikan Agama Katolik, Modul untuk Universitas Terbuka. Jakarta: Universitas Terbuka Pilarczyk, Daniel E. 2002. Beriman Katolik. Jakarta: Penerbit Obor Supporters: Related journals
Last date of update	July 2025



USU1104 HINDU RELIGIOUS EDUCATION

Course Name	Hindu Religious Education
Code	USU1104
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Suradi, S.Pd. S.Ag
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses: Basic Teachings about God, Hyang Widdhi in Various Names, Teachings of Shiva Sidharma, Parama Shiva Tattuwa, Ongkara Nyasa Brahmana, Human Nature in Hinduism, Society and Culture, Morals, Ethics and Their Application in Society, Sacred, Mix, Resentment, Letch, Pati Wangi, Prohibition of Marriage, Science, Technology and Arts, Harmony between Religious People, Padmasana, Lingga Yoni
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply religious character in self-development activities • Able to apply religious knowledge in carrying out self-management activities and decision making
Content	<ol style="list-style-type: none"> 1. Teachings about the Concept of the Three Basic Frameworks of Religion Hindu 2. Human nature in Hinduism 3. The relationship between science and technology, Sradha and Yadnya 4. Harmony between Religious People 5. Society and Culture (Catur Dormitory) 6. Environmental Responsibility 7. Politics (Socio-Political Challenges and Responsibilities of Hindus) 8. Law (Law Enforcement, Human Rights and Democracy and the Role of Hindus)



Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Ngurah, I Gusti Made. 1999. Hindu Religious Education Book for Universities. Surabaya: Paramita. Martono, et al. 2003. National Living and Multicultural Ethics. Surabaya: Bhakti Unity Foundation Supporters: Related journals
Last date of update	July 2025



USU1105 BUDDHIST RELIGIOUS EDUCATION

Course Name	Buddhist Religious Education
Code	USU1105
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Meng Lie Amran S.Ag., M.Pd
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project based learning) • The class size is 40-50 students per class • Contact hours for lectures are 23.30 hours per semester
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	In this course, students study the concept of the Almighty God, human nature and inner qualities regarding their roles and responsibilities in life. They are part of society and can play an active role in advancing their society. Students study morality to achieve the highest happiness, in addition to samādhi and panna, studying human-made laws with universal laws and combining the role of science and Buddhism in everyday life. Students study culture, politics and inter-religious harmony in the study of Buddhism.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply religious character in self-development activities • Able to apply religious knowledge in carrying out self-management activities and decision making
Content	<ol style="list-style-type: none"> 1. <i>Saddhain</i> suttas and other sources; implementation of sādha in daily life; the concept of Godhead; spirituality of divine philosophy; current and factual religious issues. 2. Human conception in Buddhism; the purpose of human life in Buddhism; human existence and dignity; human enlightenment in Buddhist studies; human roles and responsibilities; taxes in everyday life; The value of taxes in development and the historical context of Indonesia.



	<ol style="list-style-type: none"> 3. Buddhist society; the rights and obligations of Indonesian citizens as a form of Buddhist nationalism; empowerment of Buddhist communities; synergy of paramita funds and taxes in the welfare of Indonesian society; democracy according to Buddhist teachings. 4. Legal concept; four noble truths; the law of karma and punarbhava; the general law of three patterns; the law of dependent causes; the role of Buddhism in the formulation and enforcement of laws; the prophetic function of religion in law; aspects of law enforcement in tax courts 5. Values and morals as the basis of life 6. Science and Buddhist teachings in everyday life; the responsibility of scientists towards nature and the environment; art and human life; 7. Buddhist culture and religion; 8. Politics in Buddhist studies; understanding political concepts; ways to run a good government according to the Cakkavati Sihananda Sutta and Kuttadanta Sutta; Buddhism and nationality; four types or levels of humans; seven conditions for the welfare of the nation; the concept of dasa raja dhamma; king Asoka's concept of dhammavijaya; the role of Buddhist figures in politics; tax management by the state. 9. Religious moderation; sectarian and nonsectarian analysis; plurality in Buddhism; multiculturalism in Buddhism; inclusivism in Buddhism; exclusivism in Buddhism; religious tolerance in concepts: upali sutta, kalama sutta, government of king Asoka; inclusive and exclusive conceptions of religion; the human right to religion (1945 Constitution);
Examination form	<ul style="list-style-type: none"> • Project Base Learning (30%) • Case Method (20%) • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	Main:



	<p>Aryakumara. 2013. <i>Asoka</i>. Dhammacitta Press</p> <p>Bodhi. 2015. <i>Anguttara Nikaya (Khotbah-Khotbah Numerikal Sang Buddha)</i>. Jakarta : DhammaCitta Press</p> <p>Buddhagosa, Bhadantacariya. 1975. <i>The Path of Purification (Visudhi magga)</i>. Kandy Srilanka: Buddhist Publication Society.</p> <p>David, Rhys. 1977. <i>Dialgues of The Buddha Vol. I, II, III (Digha Nikaya I, II, III)</i>. London : Pali Text Society.</p> <p>David, Rhys. 1989. <i>Kindred Sayings Vol. I, II, III, IV, V (Samyutta Nikaya)</i>. Oxford : Pali Text Society</p> <p>Dhammika. 2006. <i>Maklumat Raja Asoka Insight</i>. Yogyakarta : Vidyasena Production</p> <p>Hare. 1989. <i>Gradual Sayings Vol. I, II, III, IV, V (Anguttara Nikaya)</i>. Oxford : Pali Text Society.</p> <p>Taniputera, Ivan. 2003. <i>Sains Modern dan Buddhisme</i>. Jakarta : Yayasan Penerbit Karaniya.</p> <p>Mehm Tin Mon. 2013. <i>Karma Pencipta Sesungguhnya</i>. Jakarta : Yayasan Hadaya Vatthu</p> <p>Narada. 1998. <i>Sang Buddha dan Ajaran-Ajarannya Jilid I & II</i>. Jakarta : Yayasan Dhammadipa Arama.</p> <p>Siddhi Butr-Indr. 1979. <i>The Social Philosophy of Buddhism</i>. Bangkok : Mahamangutarajaviyalaya Press</p> <p>Wijaya-Mukti, Krisnanda. 2003. <i>Wacana Buddha-Dharma</i>. Jakarta : Yayasan Dharma Pembangunan bekerjasama dengan Ekayana Buddhist Centre.</p> <p>Wowor, Corneles. 1991. <i>Pandangan Sosial Agama Buddha</i>. Jakarta: Aryasuryacandra</p> <p>Supporters:</p> <p>Dharmmananda, Sri. 2002. <i>Keyakinan Umat Buddha</i>. (Terjemahan Ida Kumiati). Jakarta : Karaniya & Ehipassiko.</p> <p>Maurice Walshe. 2009. <i>Khotbah-khotbah Panjang Sang Buddha (Digha Nikaya)</i>. Jakarta : DhammaCitta Press</p> <p>Nandasena Ratnapala. 1997. <i>Buddhist Democratic Political Theory and Practice (An Alternative Democracy for the 21st Century ?)</i>. Colombo : Sarvodaya Vishva Lekha Publication</p> <p>Nyanatiloka, Mahathera. 1970. <i>Hidup Bebas Bahagia</i>. Surabaya : The Light of the Borobudur.</p> <p>Wahyono Mulyadi. 1995. <i>Sejarah Perkembangan Agama Buddha I</i>. Direktorat Jenderal Bimbingan Masyarakat Hindu Buddha, Departemen Agama Buddha dan Universitas Terbuka</p>
Last date of update	July 2025



USU1106 CONFUCIAN RELIGIOUS EDUCATION

Course Name	Confucian Religious Education
Code	USU1106
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Drs. B.M. Sembiring, MPd.K
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the basics of Confucian teachings, moral and ethical values in the context of education, as well as the practical application of Confucian teachings in everyday life.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to internalize the BINTANG values in developing self ability as a lifelong learner in the field of agrotechnology. • Able to develop global insights for character and potential in accordance with scientific fields and across disciplines
Content	<ol style="list-style-type: none"> 1. Introduction to Confucianism 2. Basic Principles of Confucianism 3. Moral and Ethical Values in Confucianism 4. Education in Confucianism 5. Practical Application of Confucian Teachings
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)



Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Tu Weiming. (2004). <i>China's Confucian Tradition</i> . Johnathan Spence. (1990). <i>The Search for Modern China</i> .
Last date of update	July 2025



USU1107 EDUCATION OF THE SECT OF BELIEF IN THE ALMIGHTY GOD

Course Name	Education Of The Sect Of Belief In The Almighty God
Code	USU1107
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Ance Marintan D. Sitohang, SP., M.Div., M.Th.
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the various sects of belief in the One True God in Indonesia, including their history, doctrines, practices and roles in community life. The main objective is to provide a comprehensive understanding of spiritual diversity in Indonesia and enhance interfaith tolerance.
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Able to internalize the BINTANG values in developing self ability as a lifelong learner in the field of agrotechnology. 2. Able to develop global insights for character and potential in accordance with scientific fields and across disciplines
Content	<ol style="list-style-type: none"> 1. Introduction to Aliran Kepercayaan 2. Types of Faiths 3. Comparison of Faiths 4. The role of Aliran Kepercayaan in society 5. Interfaith Tolerance and Respect
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)



Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Ngurah, I Gusti Made. 1999. Hindu Religious Education Book for College. Surabaya: Paramita. Martono, et al. 2003. Living in a Multicultural Nation and Ethics. Surabaya: Yayasan Bhakti Persatuan
Last date of update	July 2025



USU1108 PANCASILA EDUCATION

Course Name	Pancasila Education
Code	USU1108
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Dra. Ria Manurung, M.Si.
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing this course, students who have the ability to solve social issues by making Pancasila a perspective to study and analyze as well as implement through social projects initiated as a form of internalization of the character of BINTANG (God Almighty in the Frame of Diversity, Inn North Sumatra.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to internalize the BINTANG values in developing self ability as a lifelong learner in the field of agrotechnology. • Able to develop global insights for character and potential in accordance with scientific fields and across disciplines
Content	<ol style="list-style-type: none"> 1. Background, purpose and urgency of Pancasila Education 2. Existence of Pancasila in the history of the struggle of the Indonesian nation 3. Pancasila as Indonesian State Ideology 4. Pancasila as the State Foundation of Indonesia 5. The urgency of Pancasila as a Philosophical System 6. Pancasila as a Ethical System 7. Pancasila as the Basic Value of Science Development in analyzing problems that occur in society.
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%)



	<ul style="list-style-type: none"> • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Pancasila Education for Higher Education, Ditjen Belmawa Ristekdikti, 1st printing, 2016.</p> <p>Decree of the Director General of Higher Education of the Ministry of Education and Culture of the Republic of Indonesia NO. 84/E/KPT/2020 conce Compulsory Subjects in the Higher Education Curriculum</p> <p>Drs. H. KAELAN, M.S. 2016. Pancasila Education, Reform Edition, Paradigma Yogyakarta.</p> <p>Support Material sources from journals:</p> <p>Asriani, D., & Dewi, D. A. (2022). Implementation of Pancasila as a Form of State Defense. <i>Anthropocene: Journal of Humanities Research</i>, 2(1), 8-</p> <p>Wendrik Sandwi Lukito¹, Aditya Permana², Ardian Prasetyo³ Pancasila and the Recontextualization of Indonesia's State Identity: International Relati Vol. 02, No. 02, October 2022, pages 179-195</p> <p>Ganjar Razuni. 2022. Orientation of Pancasila Ideology Acculturation (A Preliminary Study of The Relationship between Political - Regime Charac CosmoGov: Journal of Government Science P-ISSN 2442-5958 E-ISSN 2540-8674 Vol.9, No.1, 2023 Doi: 10.24198/cosmogov.v9i1.46960 https://jurnal.unpad.ac.id/cosmogov/index</p> <p>Agus Budiman, Otong Husni Taufiq, Egi Nurholis. 2022. The Threat of Intolerance to the Pancasila State Foundation and Its Implications for Regional Regency, West Java, 2019-2020 Period). <i>Journal of National Resilience</i>, Vol. 28, No. 3, December 2022: 372-391</p>
Last date of update	July 2025



FIS1101 BASIC PHYSICAL

Course Name	Basic Physical
Code	FIS1101
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Dr. Martha Rianna, S.Sc
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignment: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (Equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Basic Physics discusses the basic science of physics and the technological implementation of physics that internalizes the STAR and TALENT values. Basic physics courses study measurements, quantities and units, vectors and scalars, kinematics, dynamics, work and energy, momentum and impulse, rotational dynamics, equilibrium and center of gravity, elasticity, static fluids, dynamic fluids, heat, kinetic theory of gases, thermodynamics, vibrations and waves. Basic Physics is a collection of basic physics material to explain physical phenomena in everyday life.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze physical phenomena in everyday life in an innovative, educational and critical manner. • Able to apply basic physics knowledge in solving everyday problems. • Able to describe the development of today's basic physics science technology.
Content	<ol style="list-style-type: none"> 1. Measurement and Quantity 2. Particle Kinematics 3. Particle Dynamics 4. Gravity 5. Work and Energy 6. Momentum and Impulse 7. Angular momentum and rotation of rigid bodies



	<p>8. Static Equilibrium of Rigid Bodies 9. Mechanics of deforming objects and Fluids 10. Wave 11. Wave Superposition and Interference 12. Kinetic Theory of Gases 13. Temperature 14. First Law of Thermodynamics</p>
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49</p>
Reading list	<p>Main: Rianna, M., Sembiring, T., dkk., Fisika Dasar Jilid 1, Medan: CV. Merdeka Kreasi. Abdullah, Mikrajuddin, 2016. Fisika Dasar I, Bandung: Institut Teknologi Bandung. Halliday D, Resnick, R., 2005, Fundamental of Physics 8th edition, Jhon Wiley.</p> <p>Supporters: Jewet, serway, 2004, Physics for Scientists and Engineers 6th edition, Pomona: California State Polytechnic University. Tipler, Paul A, 1991, Physics for Scientists and Engineers, John Wiley.</p>
Last date of update	July 2025



KIM1101 BASIC CHEMISTRY

Course Name	Basic Chemistry
Code	KIM1101
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Prof. Dr. Juliati Br. T., M.Sc
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (ie: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignment: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-study: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	No requirement to have passed another course
Course Description	In this course students will learn about the basics of chemistry (the role of chemistry, materials and their properties) in relation to the role of chemistry as part of natural science and its application in everyday life, electronic structure in relation to matter, periodicity, chemical bonds, molecular geometry and atomic orbital hybridization, reaction stoichiometry, main chemical reactions, acid-base and buffer reactions, as well as energy in the process of chemical reactions and their calculations, physical properties and states of materials related to the properties physics of solutions, gas and molecular kinetic theory, state of matter and intermolecular forces, reaction stoichiometry, main chemical reactions, acids and bases and buffers, energy in chemical reactions, physical properties of colloids and solutions, gas and gas molecular kinetic theory, state matter and intermolecular forces, introduction to organic chemistry related to hydrocarbons and oxygen derivatives as well as derivatives of hydrocarbon complexes.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the basics of chemistry (the role of chemistry, matter and its properties) in relation to the role of chemistry as part of natural science



	<ul style="list-style-type: none">• Able to analyze the application of the basics of chemistry (the role of chemistry, materials and their properties) in everyday life.
Content	<ol style="list-style-type: none">1. The role of chemistry, matter and its properties2. Atom and electronic structure3. Chemical periodicity4. Chemical bond5. Molecular geometry and atomic orbital hybridization6. Reaction stoichiometry7. Major chemical reactions8. Acids and buffers9. Energy in chemical reactions10. Physical properties of colloids and solutions11. Gases and the kinetic theory of gas molecules12. States of matter and intermolecular forces13. Hydrocarbon compounds and oxygen derivatives14. Complex derivatives of hydrocarbons
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Tim Penyusun, Juliati Tarigan (editor), Buku Ajar Kimia Dasar 1, 2019, Penerbit Perdana Mulya Sarana. Brady, J.E, 1999, Kimia Universitas: Azas & Struktur, jilid 1, Binarupa Aksara Chang, R., 2005, Kimia Dasar: Konsep-Konsep Inti, Jilid 1 & 2, Edisi Ketiga, Penerbit Erlangga, Jakarta Petrucci, R.H., Harwood, W.S., Herring, F.G., and Madura, J.D., 2007, Kimia Dasar: Prinsip-Prinsip dan Aplikasi Modern, Jilid 1, Edisi Kesembilan, Penerbit Erlangga Keenan, W. C., Kleinfelter, D. C., and Wood, J. H., Ilmu Kimia Untuk Universitas, diterjemahkan oleh



	<p>Pudjaatmaka, A.H., 1986, edisi keenam, penerbit Erlangga.</p> <p>Supporters: Donald A McQuarrie, Peter A Rock, Ethan B Gallogly, General Chemistry, RSC. Ebbing, DD, 2007, General Chemistry, Nith Edition, Houghton Mifflin Company, Bostan, New York Jespersen, ND, Brady, JE, and Hyslop, A., 2012, Chemistry: The Molecular Nature of Matter, 6th ed, John Wiley and Sons, Inc. Smith, JG, 2014, Organic Chemistry, Fourth Edition, Mc Graw Hill, Singapore. Oxtoby, David W; Gillis,H.P; Nachtrieb, N.H., 2001, Kimia Modern, Edisi Keempat, Jilid I, Jakarta Linus Pauling, 2014, General Chemistry, New York.</p>
Last date of update	July 2025



MAT1101 BASIC MATHEMATIC

Course Name	Basic Mathematic
Code	MAT1101
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Muthia Ferliani Balqis S.Sc., M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignment: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study : (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Able to apply logical, critical, systematic and innovative thinking to the development of science and provide solutions to problems in the field of mathematics and its applications, both independently and in collaboration with various scientific fields and related parties by taking into account religious, social, cultural and economic factors comprehensively; (TALENT)
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze basic concepts about sets, functions, limits, and continuity of functions • Able to apply basic concepts and their relationship to derivative and integral concepts
Content	<ol style="list-style-type: none"> 1. Set 2. Real number system I 3. Real number system II 4. Function I 5. Function II 6. Function limits 7. Continuity of function 8. Derivatives 9. Rules on derivatives/derivatives 10. Use of I derivatives 11. Use of derivatives II 12. Indefinite integral 13. Integral of course and its applications



	14. Integral application
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Purcell, JE, Rigdon, SE Varberg. D "Calculus" 9 th edition, Prentice Hall, New Jersey, 2000 Anton, H, "calculus with Analytic Geometry" 6th edition, John Wiley & Sons, Inc., Singapore, 1999 James Stewart "Calculus Concepts and contexts" 8th Edition Singapore, 2001 Handout, Basic Mathematics book by several Mathematics Lecturers.
Last date of update	July 2025



ITP1101 INTRODUCTION TO AGRICULTURAL TECHNOLOGY

Course Name	Introduction to Agricultural Technology
Code	ITP1101
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Prof. Ir. Hotnida Sinaga, M. Phill, Ph.D
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course provides important basics in understanding the technology and techniques used in the processing and handling of food and its application in the agricultural industry. Students will learn various aspects that affect food quality and security, as well as how technology can be applied to maintain and increase the value of agricultural products.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze food ingredients from genetic engineering, food safety and processing processes • Able to analyze food ingredients related to storage, packaging and transportation processes
Content	<ol style="list-style-type: none"> 1. Food spoilage and how to prevent it 2. Heat in food processing 3. Refrigeration in food processing 4. Freezing in food processing 5. Decrease in moisture content in food processing 6. Food packing in processing 7. Drying process process 8. Two-substrate enzyme reaction 9. Ways to isolate enzymes from enzyme sources 10. Enzyme purification methods 11. Enzyme immobilization technology 12. Types of enzymes that hydrolyze carbohydrates 13. Types of enzymes that work on fats and oils



	14. Types of protease enzymes and their sources
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Suhartono, M.T. 1989. Enzim dan Bioteknologi. Pusat Antar Universitas IPB, Bogor. Winarno, F.G. 1980. Enzim Pangan. Gramedia, Jakarta. Wang, DIC, CLLooney, AL Demai, P. Dunnill, AE Humphrey and MDLilly. 1979. Fermentation and Enzyme Technology. John Willey & Sons, New York. Whitehurst, RJ, and Law, BA 2002. Enzymes in Food Technology. Sheffield Academic Press, CRC Press.
Last date of update	July 2025



ITP1102 FOOD INGREDIENTS SCIENCE

Course Name	Food Ingredient Science
Code	ITP1102
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Nauas Domu Marihot Romauli, Dr, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (ie: article reading and review, case method, project base learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignmet: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a mandatory course for students in the first semester of the Food Technology Study Program. Knowledge about plant and animal food commodities, including: sources, production, variety/race/breed, post-harvest and post-mortem physiology, morphology, preparation and treatment for fresh storage and distribution. The discussion is grouped based on nature or source, namely: vegetables, fruit, tubers, cereals, meat, poultry, fish, milk, eggs, plantation products and spices.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to describe physical, chemical and functional properties as well as quality deviations from plant-based food commodities in relation to the design of processing processes for these commodities. The food commodities discussed are grouped into cereals, nuts, spices, tubers, horticultural products, plantation products and sap. Able to describe the physical, chemical and functional properties and quality deviations of animal food commodities in relation to the processing process design for these commodities. The food commodities discussed are grouped into fish, meat, eggs and milk.
Content	<ol style="list-style-type: none"> Biological and physiological characteristics of food Physical and mechanical characteristics of food ingredients Characteristics of food hydration



	<ol style="list-style-type: none">4. Chemical characteristics and nutritional value of food ingredients5. Shrinkage and deviations in the quality of food ingredients6. Physical, chemical and functional characteristics of cereals and legumes7. Physical, chemical and functional characteristics of spices8. Physical, chemical and functional characteristics of tubers9. Physical, chemical and functional characteristics of horticultural products10. Physical, chemical and functional characteristics of plantation products11. Physical, chemical and functional characteristics of sap12. Physical, chemical and functional characteristics of fishery products13. Physical, chemical and functional characteristics of meat14. Physical, chemical and functional characteristics of eggs and milk
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Hadiwiyoto, S., 1980. Pengolahan Hasil Pertanian. Bagian Pengolahan Pangan UGM, Yogyakarta. Hulme, A.G., 1970. The Biochemistry of Fruits and Their Products. Volume 1&2. Academic Press, London. Muchtadi, T.R. dan Sugiyono. 1989. Petunjuk Laboratorium Ilmu Pengetahuan Bahan Pangan, Pusat Antar Universitas, IPB. Bogor. Peleg, M. and E.B. Bagley, 1983. Physical Properties of



	<p>Foods. AI Publishing Company, Inc. Westpor, Connecticut.</p> <p>Syarief, R. dan Irawati. 1988. Pengetahuan Bahan untuk Industri Pertanian. Mediatama Sarana Perkasa, Jakarta.</p> <p>Wirakartakusumah, M.A., K. Abdullah dan A.M. Syarief, 1992. Sifat Fisik Pangan. PAU Pangan dan Gizi IPB, Bogor.</p> <p>Supporters: Related journals (Journal of Food Properties, Food Science, Food Chemistry, Journal of Agricultural and Food Chemist)</p>
Last date of update	July 2025



ITP1103 FOOD INGREDIENT SCIENCE LABORATORY

Course Name	Food Ingredient Science Laboratory
Code	ITP1103
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Nauas Domu Marihot Romauli, Dr, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (i.e.: case method or project based learning)• The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours• Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a compulsory course for first semester students Food Technology Study Program. The practice of observing the biological and physiological characteristics, physical, hydration of materials, browning reactions, properties and breakage of cereals, tubers, plantation products, livestock and fisheries.
Module objectives/intended learning outcomes	Able to analyze the physical and chemical characteristics of food commodities
Content	<ol style="list-style-type: none">1. Observation of physical properties of fruit and vegetables2. Observation of the chemical properties of fruit and vegetables3. Observation of weight loss and characteristics of fruit and vegetables4. KVC testing using the iodimetric method5. Determination of physical properties of vegetables, fruit, cereals and nuts6. Cereal root density7. Observation of physical and chemical properties of spices8. Observation of the physical and chemical properties of sap water9. Observation of physical and chemical properties of meat and fish10. Observation of the physical and chemical properties of Eggs and Milk11. Final Sanitation



	12. Practical Test
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Laboratory Report (20%)
Learning media	Whiteboard and Practical Guide
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Tien R. Muchtadi, dkk. 2010. Ilmu Pengetahuan Bahan Pangan. Bandung: Alfabeta</p> <p>Gaman P.M., dan Sherington. 2008. Ilmu Pangan Pengantar Ilmu Pangan Nutrisi dan Mikrobiologi. Terjemahan Murdijati Gardjito dkk. Yogyakarta: Gajah Mada Unipress.</p> <p>Winarno FG. 2010. Kimia Pangan Dan Gizi. Jakarta : Gramedia</p> <p>Arion, Bennion. 1980. The Science of Food. Singapore: John Wiley & Sons</p> <p>Purnomo A., Hari. 1985. Ilmu Pangan (Terjemahan). Jakarta: UI Press</p> <p>Practical guide</p>
Last date of update	July 2025



ITP1104 FOOD NUTRITION

Course Name	Food Nutrition
Code	ITP1104
Semester(s) in which the module is taught	I
Lecturer (Person Responsible)	Prof. Ir. Hotnida Sinaga, M. Phill, Ph.D
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (ie: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignment: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course studies the function and understanding of nutrition, nutritional physiology related to the working function of the food digestive system, body composition and nutrient needs, nutrient behavior of carbohydrates, proteins, fats, vitamins and minerals in the body, energy and water needs, RDA and deficiencies and excesses. nutrients, the characteristics of food ingredients that contain the nutrients the body needs and food ingredients that are in accordance with the body's nutritional needs, so that they are able to maintain body health
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to evaluate the function and understanding of nutrition, nutritional physiology related to the work function of the food digestive system, body composition and nutrient needs, nutrient behavior of carbohydrates, proteins, fats, vitamins and minerals in the body's energy and water needs. • Able to analyze the characteristics of food ingredients that contain the nutrients the body needs and can choose food ingredients that suit the body's nutritional needs, so as to maintain body health
Content	<ol style="list-style-type: none"> 1. The role of food and nutrition 2. Food and nutrition problems 3. The process of digesting food in the body 4. The role of water and fluids in the body 5. The role of carbohydrates in the body



	<ol style="list-style-type: none">6. The role of proteins and amino acids7. The role of fats and oils in the body8. Energy needs and balance9. Types and roles of vitamins in the body10. Classification of food ingredients11. Functional and bioactive foods12. Food safety13. Food nutrition at various stages of life14. Global food systems and food security
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Hardinsyah dan A. Martianto. 1988. Menaksir Kecukupan Energi dan Protein serta Penilaian Mutu Gizi Konsumsi Pangan. Jurusan G.M.S.K- FP- IPB, Bogor Hardinsyah dan A. Martianto. 1992. Gizi Terapan. Depdikbud Ditjen Dikti-PAU Pangan dan Gizi-IPB, Bogor. Haris, R.S. dan E. Karmas. 1989. Evaluasi Gizi pada Pengolahan Bahan Pangan. Penerbit ITB, Bandung. Suhardjo. 1988. Sosio Budaya Gizi. Depdikbud Ditjen Dikti-PAU Pangan dan Gizi-IPB, Bogor. Suhardjo.dan C.M. Kusharto. 1988. Prinsip-Prinsip Ilmu Gizi. PAU-IPB, Bogor Suhardjo, Hardinsyah dan H. Riyadi. 1988. Survey Konsumsi Pangan. PAU-IPB, Bogor 5 Suhardjo. 1992. Gizi Salah dan Alternatif Penanggulangannya. Monografi Susanto dan T.D. Widyaningsih. 2004. Dasar-Dasar Ilmu Pangan dan Gizi. Penerbit Akademika, Yogyakarta Supporting: Related journals
Last date of update	July 2025



2nd Semester



USU1109 CIVICS EDUCATION

Course Name	Civics Education
Code	USU1109
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Afrita, S.H., M.Hum
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2sch x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After completing this course, students will be able to initiate alternative solutions to selected social issues through contributions, real roles in society and obeying the law which are realized in social projects, able to work together in teams, network, and draw lessons for continuous improvement in order to implement solutions to problems through independent, quality and measurable social projects as a form of internalization of the character of BINTANG (God Almighty in the Frame of Diversity,
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply an attitude of faith in God Almighty in the frame of diversity • Able to propose alternative solutions to selected social issues through contributions, real roles in society and obeying the law which are realized in social projects by working together in teams, networking, and drawing lessons for continuous improvement in order to implement solutions to problems through independent, quality and measurable social projects, as an embodiment of an innovative, integrity, wise and resilient self
Content	<ol style="list-style-type: none"> 1. The Nature of Civic Education in Developing the Whole Ability of Undergraduates. 2. The Essence and Urgency of National Identity as One



	<p>of the Determinants of Nation and Character Development.</p> <ol style="list-style-type: none"> 3. The Urgency of National Integration as One of the Parameters of National Unity and Unity. 4. Constitutional Values and Norms of the 1945 Constitution of the Republic of Indonesia and the Constitutionality of Legislative Provisions Under the Constitution. 5. Harmony of Obligations and Rights of the State and Citizens in a Democracy Based on People's Sovereignty and Consultation for Consensus 6. The Nature, Instrumentation, and Praxis of Indonesian Democracy Based on Pancasila and the 1945 Constitution of the Republic of Indonesia. 7. Equitable Law Enforcement. 8. The Urgency of Archipelago Concept as a Conception and Collective View of Nationality. 9. Urgency and Challenges of National Resilience and State Defense for Indonesia in Building Collective National Commitment.
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Bitu Gadsia Spaltani dkk, "Kuliah Pendidikan Kewarganegaraan", UAD Press, Jogjakarta, 2022.</p> <p>Damri dan Fauzi Eka Putra, "Pendidikan Kewarganegaraan", Kencana, Jakarta, 2020.</p> <p>Ditjen Belmawa Ristekdikti, "Pendidikan Kewarganegaraan Untuk Perguruan Tinggi", cetakan I, 2016.</p> <p>Ujang Charda, "Pendidikan Kewarganegaraan Untuk Pendidikan Tinggi", Rajagrafindo Persada, Jakarta, 2018.</p>



	Winarno, "Paradigma Baru Pendidikan Kewarganegaraan", Bumi Aksara, Jakarta, 2019.
Last date of update	July 2025



USU1110 BAHASA INDONESIA

Course Name	Bahasa Indonesia
Code	USU1110
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Dr. Dardanila, M.Hum
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project base learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2sch x60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a compulsory curriculum course for 1st / 2nd semester students in all study programs at USU. In this course students learn to build human values, as well as actualize the ability to think contextually in various problems that exist in daily life and based on good values of piety and religiosity in the context of social projects carried out as a form of internalization of the character of BINTANG (God Almighty in the Frame of Diversity, Innovative Integrity, Tough and Arif) University of North Sumatra.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to demonstrate the appreciation and application of diversity values in the context of religious, cultural, and ethnic diversity in society Able to formulate and implement innovative solutions to social issues faced by society Able to collaborate in a social project team by prioritizing an independent, quality, measurable, innovative, integrity, wise, and resilient attitude.
Content	<ol style="list-style-type: none"> Plagiarism in writing Position and function of Indonesian language Use of EBI in effective sentences Standard and nonstandard vocabulary Diction/word choice in scientific writing Effective sentence structure of Indonesian language Good paragraph structure



	<p>8. Academic and non-academic texts 9. Analyze book review texts to enrich thinking ideas 10. Research proposal and activity proposal 11. Report Research report and activity report 12. Scientific article text / conceptual article text</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main: Arikunto, Suharsimi. 2013. Prosedur Penelitian, Suatu Pendekatan Praktik. Jakarta: Rineka Cipta Basaria, Ida. 2016. Mahir Menulis di Perguruan Tinggi.. Medan : USU Press. Basaria, Ida.2019. Bahasa Indonesia : Teks Akademik di Perguruan Tinggi. Medan : USU Press Pusat Pembinaan dan Pengembangan Bahasa. Ejaan yang Disempurnakan. Jakarta: Depdikbud Komaidi, Didik. 2011. Panduan Lengkap Menulis Kreatif. Yogyakarta: Sabda Media Kosasih, E. 2014. Jenis-jenis Teks dalam Mata Pelajaran Bahasa Indonesia SMA/MA/SMK. Bandung: Yrama Widya Kridalaksana, Harimurti. 1985. Fungsi Bahasa dan Sikap Bahasa. Ende, Flores: Nusa Indah Mahsun. 2014. Teks dalam Pembelajaran Bahasa Indonesia Kurikulum 2013. Jakarta: Raja Grafindo Persada Panduan Pembelajaran Mata Kuliah Wajib Kurikulum Berbasis Proyek 2021. S.K. Dirjen Dikti Depdiknas RI No.38/DIKTI/Kep./2002 tentang Rambu-rambu pelaksanaan Matakuliah Pengembangan Kepribadian di Perguruan Tinggi, Dirjen Dikti, Jakarta. Related journals</p>
Last date of update	July 2025



KIM1204 BASIC ORGANIC CHEMISTRY

Course Name	Basic Organic Chemistry
Code	KIM1204
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Juliati br. Tarigan
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project based learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-study: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the basic concepts, names, functional groups and isomers, molecular structures and space isomers, physical properties and identification of organic compounds, alkanes and cycloalkanes, alkenes and cycloalkenes, alkynes or alkynes, alkadienes and alkatrienes, arenas, compounds with saturated functional groups, compounds with unsaturated functional groups, polyfunctional compounds, heterocyclic and metal compounds.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze organic chemistry knowledge which includes the structure, properties and functions of organic compounds• Able to analyze changes and identification of organic compounds
Content	<ol style="list-style-type: none">1. Scope of organic chemistry2. Molecular confirmation3. Space isomers or stereoisomers4. Properties of organic compounds5. Classification and naming of alkanes6. Structure and isomalies and Physical properties of alkenes7. Structure and isomalies and Physical properties of alkynes



	<ol style="list-style-type: none">8. Names and isomeries and physical properties of alkenes and alkynes9. Isomerism and order and Physical properties of alkenes10. Types of saturated functional groups and Organic halogen compounds11. Aldehydes and ketones12. Esters and lactones and acyl chlorides and anhydrides13. Amides, imides, and nitriles and oxidized S and N compounds14. Polyfunctional compounds
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Solomon, T.W.G. & Fryhle, C.B. (2016). Organic Chemistry. New York: John Wiley & Sons, Inc. John McMurry (2016) Organic Chemistry, Cengage Learning, 2016 Carey, F.A. (2000). Organic Chemistry. 4rd Ed. New York: McGraw-Hill Companies, Inc. Fessenden, R.J. and Fessenden, J.S. (1998). Organic Chemistry. Part 1 and 2. Translated by AH Pudjattmaka. Jakarta: Erlangga. Smith, J.G. (2011). Organic Chemistry. 3rd Ed. New York: Mc Graw-Hill Book
Last updated date	July 2025



BIO1023 CELL AND MOLECULAR BIOLOGY

Course Name	Cell and Molecular Biology
Code	BIO1023
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Karina Nola Sinamo, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	<p>This course discusses Cell and Molecular Biology. Students will gain mastery of the introduction, course contract, history and development of cell and molecular biology, cells and living organisms, basic materials of life/organisms, observation techniques and applications of cell and molecular biology, cell structure and parts and functions in prokaryotic cells/organisms, cell structure, parts and functions in eukaryotic cells/organisms, cell reproduction/cell cycle, cell walls and plasma membranes, chloroplasts and mitochondria, golgi bodies and lysosomes, endoplasmic reticulum and ribosomes, cytoskeleton, cell communication, and the basic genetics of life. In addition, students will undertake collaborative and project-based learning to understand DNA technology. The results of student designs will be presented in the form of group discussions and presentations</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to master cell structure and function, cell reproduction, bioenergetics • Able to understand gene structure and expression, DNA technology, recombinant and human genome
Content	<ol style="list-style-type: none"> 1. Introduction, course contract, history and development of cell and molecular biology 2. Cells and living organisms



	<ol style="list-style-type: none"> 3. Basic material of life/organisms 4. Observation techniques and applications of cell and molecular biology 5. Cell structure and parts and functions in prokaryotic cells/organisms 6. Cell structure, parts and functions in eukaryotic cells/organisms 7. Cell reproduction/cell cycle 8. Cell wall and plasma membrane 9. Chloroplasts and mitochondria 10. Golgi apparatus and lysosomes 11. Endoplasmic reticulum and ribosomes 12. Cytoskeleton 13. Cell communication 14. The genetic basis of life
Examination form	<ul style="list-style-type: none"> • Quiz (0%) • Assignment (15%) • Midterm exam (0%) • Final exam (25%) • Project base learning (30%) • Case methods (30%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Clark, D. P., Pazdernik, N. J. (2012). Molecular biology. Elsevier.</p> <p>Karp, G. (2009). Cell and molecular biology: concepts and experiments. John Wiley & Sons.</p> <p>Lodish, H.F. (2008). Molecular cell biology. Macmillan.</p> <p>Nurhayati, B. (2017). Cell and molecular biology. In Yuliana, A., Fathurohman, M. (2020). Basic Theory and Implementation of the Development of Cell and Molecular Biology. Jakad Media Publishing.</p>
Last date of update	July 2025



ITP1201 AGROINDUSTRY

Course Name	Agroindustry
Code	ITP1201
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	The Agroindustry course provides basic and applied knowledge about management, production processes, and challenges in agriculture-based industries. In this lecture, students will learn the process of converting raw materials from the agricultural sector into semi-finished products or finished products with added value. The focus of the discussion includes the rubber, palm oil, cocoa, coffee, tea, tobacco, food, and horticulture industries. Students are expected to understand the agroindustry supply chain, technological innovation, and sustainability aspects in natural resource management and their applications in facing global economic challenges.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to describe agro-industry development strategies • Able to identify agro-industry development strategies including rubber, palm oil/coconut, cocoa, coffee, tea, tobacco, food and horticulture agro-industries. • Able to relate the contribution of local agro-industries including rubber, palm oil/coconut, cocoa, coffee, tea, tobacco, food and horticulture, to the national economy.
Content	<ol style="list-style-type: none"> 1. Introduction to Agroindustry 2. Agroindustrial supply chain 3. Rubber industry 4. Palm oil industry



	<ol style="list-style-type: none">5. Coconut industry6. Cocoa industry7. Coffee industry8. Tea industry9. Tobacco industry10. Horticultural industry11. Technological innovation in agroindustry12. Sustainability aspects in agroindustry13. Economic and social aspects of agroindustry
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Handoko, H. T. 1996. Dasar Dasar Manajemen Produksi dan Operasi. BPFE. Yogyakarta. Santoso, I. 2013. Pengantar Agroindustri. Universitas Brawijaya Press. Soekartawi. 2000. Pengantar Agroindustri. Raja Grafindo Persada. Jakarta Mayers, R. 1982. Production and Operation Management. McGraw-Hill. New York. Said, E.G dan A.H. Intan. 2001. Manajemen Agribisnis. Ghalia Indonesia. Jakarta.
Last date of update	July 2025



ITP1202 BASIC UNIT OF OPERATION

Course Name	Basic Unit of Operation
Code	ITP1202
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses the transfer of mass, heat, momentum in food production, analyzes the types of operating units and equipment components in the food industry process.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze mass, heat and momentum transfer in food production • Able to analyze types of unit operations in food processing • Able to analyze equipment components in the food industry process
Content	<ol style="list-style-type: none"> 1. Principles and Basics of Operating Units in the Processing of Agroindustrial Products 2. Blansing in the food industry 3. Pasteurization in the food industry 4. Sterilization in the food industry 5. Refrigeration in agroindustrial products 6. Freezing in psngsn products 7. Evaporation in the psngsn industry 8. Drying in the food industry 9. Extrusion in the agricultural products industry 10. Mixing of food ingredients
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%)



	<ul style="list-style-type: none"> • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49</p>
Reading list	<p>Main:</p> <p>Purwiyatno Hariyadi, Nugraha E. Suyatma, dan Ariyanti Hartari. 2016. Satuan Operasi Industri Pangan. Universitas Terbuka</p> <p>Soekarto S. 2020. Teknologi Hasil Ternak. Bogor: IPB Press 10</p> <p>Waziroh E, Ali D, dan Istianah N. 2017. Proses Termal Pada Pengolahan Pangan. Malang: UB Press</p> <p>Asep Nurhikmat, Bandul Suratmo, Nursigit Bintoro, dan Suharwadji. 2016. Pengaruh Suhu dan Waktu Sterilisasi Terhadap Nilai F dan Kondisi Fisik Kaleng Kemasan Pada Pengalengan Gudeg. AGRITECH, Vol. 36 No. 1</p> <p>Hafziaman, Feri Kusnandar, dan Eko Hari Purnomo. 2014. Evaluasi Kecukupan Panas Proses Pasteurisasi NataDe Coco Dalam Kemasan Plastik Polietilen. Jurnal Mutu Pangan, Vol. 1 (1) : 33-39</p> <p>Syamsul Huda. 2020. Efek Evaporasi dan Suhu Pengeringan Spraydrying Terhadap Karakteristik Fisik dan Kimia Whey Bubuk. Jurnal Teknologi Hasil Pertanian, Vol. 13 No. 2</p>
Last date of update	July 2025



ITP1203 BASIC UNIT OF OPERATION LABORATORY

Course Name	Basic Unit of Operation Laboratory
Code	ITP1203
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Mimi Nurminah S.TP. M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Practicum in the laboratory • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Proses study: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Implementation of practicum: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course studies sedimentation, centrifuges, mixing, psychometrics, advances in fruit and vegetable post-harvest technology, heat transfer, drying, size reduction and mechanisms, cooling and freezing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply mass, heat, and momentum transfer in food production • Able to apply types of unit operations in food processing • Able to practice equipment components in the food industry process
Content	<ol style="list-style-type: none"> 1. Introduction, Practicum Briefing 2. Advances in Fruit and Vegetable Postharvest Technology 3. Advances in Fruit and Vegetable Postharvest Technology (Continued) 4. Sedimentation, Heat transfer 5. Drying 6. Drying (Continued) 7. Mixing, size reduction and mechanism 8. Mixing, size reduction and mechanism (continued) 9. Psychometrics, cooling 10. Freezing 11. Lab Sanitization 12. Practical Test
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%)



	<ul style="list-style-type: none"> • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Laboratory Report (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Brennan, J.G. Food Processing Handbook. 2000. Elsevier Publ. Co., Ltd. N.Y.</p> <p>Earle. R.L. Unit Operations in Food Processing. 1983. Pergamon Press</p> <p>Ibaz, A. and Barbosa-Canovas, G.V., 2003. Unit Operation in Food Engineering. CRC Press. Boca Raton. Washington, D.C.</p> <p>Fellows P. J. 2000. Food Processing Technology: Principles and Practice. Second Edition. CRC Press, Boca Raton. Washington, D.C.</p> <p>[Agro-Food Waste Minimization and Reduction Network], 2000. Handbook for the Prevention and Minimization of Waste and Valorisation of By-Products in European Agro-Food Industries. Published by Awarnet Consortium, EU.</p>
Last date of update	July 2025



ITP1204 GENERAL MICROBIOLOGY

Course Name	General Microbiology
Code	ITP1204
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Dr NDM Romauli, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project based learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ETCS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the definition of Microbiology, history, Microbiology and the use of venic bodies, classification and characteristics of microscopic bodies including cell structure, metabolism, growth genetics, and factors that affect growth. Also understand microscopy and the properties of bacteria, molds and yeasts that play a role in food spoilage and that are useful in the food industry, the role of microbes in waste treatment.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to describe the classification and characteristics of microorganisms including cell structure, metabolism, growth genetics, and factors that affect growth related to microscopy and the properties of bacteria, molds, and yeasts.• Able to detail the factors that affect the growth of bacteria, molds, yeasts that play a role in food spoilage and those that are useful in the food industry, as well as the role of microbes in waste treatment.
Content	<ol style="list-style-type: none">1. Basics & roles of microorganisms,2. Classification of microscopic bodies, anatomical structure, and microbial cell metabolism,3. Growth ecological factors,4. Abiotic factors & biotic microorganisms,5. Morphology & anatomical structure of prokaryotic protists of bacterial cells,



	<ol style="list-style-type: none"> 6. Physiology of cultivation, reproduction, and grouping of bacteria, 7. eukaryotic protists of fungal cells, protozoa, and algae, 8. Morphology & anatomical structure of fungi, fungal grouping, 9. Metabolism, photosynthesis, respiration, dissimilation reactions, energy release, and enzymatic systems, 10. Assimilation reactions and energy use, 11. Microbial genetics, genetic material properties, and bacterial genetics, 12. Characteristic of microorganisms and bacteria, 13. Mushrooms & Yeasts, 14. The role of microorganisms in various fields, microbes that cause plant diseases, aquatic microbes, 15. Soil microbes and their application, 16. Cultivation of yeast and mushroom cell biomass
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Broek, T.D. (1979), Basic Microbiology With Applications Brek, T.D, Katherine M. Band David M. Ward (1979). Basic Microbiology With Applications, Prentice - Hall Engelwood Cliffs, New, Jersey.</p> <p>Agrios, G.N. (1980) Plant Pathology 2 nd edition. Academic Press New York.</p> <p>Alexander, M. (1976) Introduction to Soil Microbiology, 2 nd edition. John wiley & Sons, New York.</p> <p>Haynes, N.B. (1976) Keeping animals healthy Garden Way Publishing charlone</p> <p>Hungate, R.E. (1966) The Rumen and its microbes, academic press, newyork.</p>



	<p>Frazier, W.C. and Dennis C.W. (1988). Food Microbiology Mcgraw - Hill Book Company.</p> <p>Schlegel, H.G. (1986) General Microbiology Cambridge university Press.</p> <p>Pelezar, M.J. and E.C.S. of Microbiology, Mc Graw - Hill book Company.</p> <p>Bridges, B.A (1976) Survival of Bacteria Following Exposure to Ultraviolet and ionizing radiation.</p> <p>Broek, T.D. (1976) Microbial Growth under Exterm Conditions Canbridge University Press, New York.</p> <p>Jutomo (1973) Pengaruh Unsur Ekologi Terhadap Pertumbuhan Bakteri. Departemen Mikrobiologi Fakultas pertanian UGM Yogyakarta.</p> <p>Hadioetomo, R.S, S. Sutarmi T. dan Sri Sulastri Angka (1986), Dasar – dasar Mikrobiologi 122, UI – Press, Jakarta.</p> <p>Abbas, A. (1987), Mikrob di dalam persekitarannya didalam buku ” Biologi Mikroorganisme kuala Lumpur”.</p> <p>Dwidjoseputro, D (1978) pengantar Mikologi penerbit Alumni Bandung.</p> <p>Chapman, V.J. and D.J. Chapman (1973) The Algae the macmillan Press LTD. London & Basing Stokc.</p> <p>Ainsworth, GC. And. Alfred, S.S. (1965) The Fungi An Advanced Treatise Academic Press New York and London.</p> <p>Adisoemitro, S. (1984) Genetika, Penerbit Erlangga, Jakarta.</p> <p>Winarno, F.G dan Srikandi Fardiaz (1981) Biofermentasi & Biosintesa Protein, Angkasa , Bandung</p> <p>Rose, A.H. and J.S. Harrison (1969) The Yeasts Volume 1, Biology of Yeasts, Volume 2, physiology and Biochemistry of Yeast, Volume 3, Yeast Technology</p>
Last date of update	July 2025



ITP1205 GENERAL MICROBIOLOGY LABORATORY

Course Name	General Microbiology Laboratory
Code	ITP1205
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Dr NDM Romauli, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (i.e.: case method or project based learning) The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course studies simple and negative checking, Retting, Gram checking, Morphology of Thread Fungus, Milk Microbiology, Agar Media Preparation and Microbial Isolation, Industrial Microbiology, Yeast Morphology, Hygiene Test.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to identify the classification and characteristics of microorganisms related to microscopy and forms of bacteria, molds, and yeasts. Able to identify types of microbes from bacteria, molds, and yeasts that play a role in food damage and those that are useful in the food industry, as well as the role of microbes in waste treatment.
Content	<ol style="list-style-type: none"> 1. Introduction, initial practicum sanitization 2. Simple checking, negative checking 3. Simple checking, negative checking (continued) 4. Retting 5. Gram Check 6. Morphology of Thread Fungus 7. Milk Microbiology 8. Agar Media Preparation and Microbial Isolation 9. Microbiology Industry 10. Yeast Morphology 11. Water Hygiene Test 12. Final Sanitization, Practical Test
Examination form	<ul style="list-style-type: none"> Quiz (5%)



	<ul style="list-style-type: none">• Assignment (5%)• Midterm exam (20%)• Final exam (20%)• Project base learning (30%)• Laboratory Report (20%)
Learning media	Whiteboard and lab guide
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Madigan et al., 2015, Brock Biology of Microorganisms 14th edition, Pearson Education. Jacquelyn G. Black and Laura J. Black, 2017, Microbiology: Principles and Explorations, 10th Edition, Wiley Publishers. Suharjono et al., 2020, Pedoman Praktikum Mikrobiologi Umum, Jurusan Biologi – Universitas Brawijaya
Last date of update	July 2025



ITP1206 FERMENTATION TECHNOLOGY

Course Name	Fermentation Technology
Code	ITP1206
Semester(s) in which the module is taught	II
Lecturer (Person Responsible)	Karina Nola Sinamo, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the history and development of fermentation, isolation and selection of microbes for fermentation, mechanisms of metabolic regularity and their manipulation for industrial fermentation products, fermentation kinetics, traditional food fermentation processes, secondary biosynthesis products and bioconversion based on agricultural products.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the principles of traditional and non-traditional food fermentation processes • Able to analyze the growth factors of microorganisms during the fermentation process, fermentation fungi, the mechanism of microbial metabolic regularity and its manipulation for the production of industrial fermentation products.
Content	<ol style="list-style-type: none"> 1. History of the Development of Fermentation Technology 2. Microbes that Play a Role in Food Fermentation 3. Fermentation Media 4. Sterilization in the Fermentation Process 5. Inoculum Development for Fermentation Process 6. Biosynthesis of microbial metabolites 7. Microbial Growth Kinetics 8. Fermentation Kinetics



	<p>9. Aeration in the Fermentation Process 10. Fermentation Product Download and Fermentation Product Purification 11. Fermentation Product Download and Fermentation Product Purification (Continued) 12. Bioreactors used in the Fermentation Process 13. Traditional Food Fermentation Process 14. Non-traditional Food Fermentation</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main: Fellows, P.J., 2000. Food Processing Technology. Principles and Practice. 2nd Eds. Woodhead Publishing Ltd., Cambridge England. Judoamidjojo, M., A.A. Darwis, E.G. Said, 1990. Teknologi Fermentasi. CV. Rajawali Jakarta. Prosiding pertemuan ilmiah tahunan : Peranan Mikrobiologi dalam Industri pangan. Perhimpunan Mikrobiologi Indonesia, Bogor 10 Desember 1994. Prosiding seminar pengembangan pengolahan dan penggunaan kedele selain tempe. Kerjasama Pusat Studi Pangan dan Gizi dengan American Soybean Association, Bogor 1998. Wang, D.I.C., C.L. Cooney, A.L. Demai, P. Dunnill, A.E. Humphrey and M.D. Lilly, 1979. Fermentation and Enzyme Technology. John Wiley & Sons, New York. Wibowo, D., Sardjono, B. Haryono, D. Wiyono, 1998. Prinsip-Prinsip Teknologi Fermentasi. PAU Pangan dan Gizi UGM Yogyakarta..</p>
Last date of update	July 2025



3rd Semester



SAI3102 LITERATURE AND FILM

Course Name	Literature and Film
Code	SAI3102
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Bambang Riyanto, S.S., M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	<p>This Literature and Film course is a course that forms the basis of students' knowledge and understanding of literature and literature (including the core group). Students will get a general and comprehensive overview of the meaning of encranization research (Literature and Film). In addition to knowledge about the variety (genre) of literary works as material for study, students will also gain knowledge about the production process of filmmaking and conduct literary research in order to understand the relationship between literature and film. This course is an application of the basics of literary science developed theoretically and practically.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the influence of art and fitness on improving the quality of human life • Able to apply the principles of art and fitness in the development of self-management
Content	<ol style="list-style-type: none"> 1. Definition and Nature of Literary Substitution 2. The Development of Literature and Film in Indonesia 3. Movies and Their Relation to Literary Works 4. The Concept of Narrative in Film 5. Short Films Based on Short Stories 6. Feature-length Movie Based on a Novel



	<p>7. Documentary Films Based on Poetry or Biography of an Author</p> <p>8. Organization of Filmmaking</p> <p>9. Script Review, Budget and Production Management</p> <p>10. Planning, Editing and Promotion</p> <p>11. Film Appreciation in the Form of Scientific Research Encranization</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm exam (20%) • Final exam (20%) • Project base learning (30%) • Case methods (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Main:</p> <p>Damono, Sapardi Djoko. 2012. Alih Wahana. Jakarta: Editum.</p> <p>Hutcheon, Linda. 2006. A Theory of Adaptation. New York: Routledge</p> <p>Supporters:</p> <p>Andrew, Dudley. 1984. Concepts in Film Theory. Oxford: Oxford University Press.</p> <p>Endraswara, Suwardi. 2013. Metode Penelitian Sastra. Yogyakarta: CAPS.</p> <p>Eneste, Pamusuk. 1991. Novel dan Film. Yogyakarta: Kanisius.</p> <p>Pratista, Himawan. (2008). Memahami Film. Jakarta: Homerian Pustaka.</p> <p>Semi, M. Atar. 1984. Anatomi Sastra. Padang: FPBS IKIP Padang.</p> <p>Junus, Umar. 1985. Resepsi Sastra. Jakarta: Gramedia.</p> <p>Wellek, Rene, dan Austin Warren. 1990. Teori Kesusastraan (diindonesiakan oleh Melani Budianta). Jakarta: Gramedia</p>
Last date of update	July 2025



ITP2101 FOODPRENEURSHIP

Course Name	Foodpreneurship
Code	ITP2101
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Nauas Domu Marihot Romauli, Dr, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours • Structured Assignments: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Self-study: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a compulsory course for third semester students of the Food Technology Study Program. The Foodpreneurship course discusses material about becoming an entrepreneur, thinking change, creative and innovative thinking, action-oriented, risk-taking, leadership, business ethics, creating products, marketing brands and packaging, marketing strategies, competitor analysis, making business models and business plans and expos to introduce and sell entrepreneurial products.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to express starting from the definition, ins and outs, the principles of building an entrepreneurial spirit • Able to develop business plans • Able to evaluate business feasibility so that students are able to do entrepreneurship
Content	<ol style="list-style-type: none"> 1. Becoming an Entrepreneur, 2. Thinking Change, 3. Business Model, 4. Business Plan, 5. Design Thinking, 6. Action-oriented, 7. Risk Taking, 8. Leadership, 9. Business Ethics and Business Legality,



	<p>10. Creating Products, Brands and Packaging, 11. Marketing, Marketing Strategy, Competitor Analysis, 12. Branding, 13. Financial management and business financing 14. Expo</p>
Examination form	<ul style="list-style-type: none"> • Project Base Learning (50%) • Assignment (15%) • Quiz (10%) • Final examination (25%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Main: Rhenald Kasai, dkk; Modul Kewirausahaan untuk Program Strata 1, Penerbit Hikmah, Cetakan 1, April 2010</p> <p>Supporters: Kasmir (2014), Kewirausahaan , edisi revisi, PT Grafindo Persada, Jakarta Hisrich Robert D (2017) Entrepreneurship, 10 th Edition, Mc Graw Hill Education Scarborough Norman M (2016) Essential of Entrepreneurship and Small Business Management, 8 th Edition, Pearson Aeker David (2014) Aeker on Branding, MJ New York Brown Tim (2009) Change by Design. Harper Collins</p>
Last date of update	July 2025



KIM2112 BIOCHEMISTRY

Course Name	Biochemistry
Code	KIM2112
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Dr. Rini Hardianti, S.TP.
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project based learning)• The class size is 40-50 students per class .
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (3 sch x 50 minutes) x 14 weeks = 2100 minutes = 35 hours• Structured Assignments: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours• Self-study: (3 sch x 60 minutes) x 14 weeks = 2520 minutes = 42 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	3 credits (equivalent with 4.8 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	In this course, students will learn about the biomolecular constituents of living things including understanding, division, properties and specific reactions of carbohydrates, proteins, amino acids to enzyme activity.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the biochemical processes that make up living things• Able to analyze accurately and critically the biochemical processes that compose living things with the theory of biomolecular compounds, carbohydrates, lipids, amino acids, proteins, enzymes and nucleic acids.
Content	<ol style="list-style-type: none">1. Fundamentals of biochemistry and biomolecules that form living things2. Definition, division, properties and specific reactions of carbohydrates3. Basics of metabolism, temperature changes in metabolic processes and how energy is calculated4. Definition, division, structure and properties of lipids5. Metabolism of lipid compounds and calculation of energy efficiency in metabolism6. Citric acid cycle and conversion of energy into the form of ATP7. Electron transport chain and oxidation-reduction reactions in mitochondria



	<ol style="list-style-type: none">8. Definition, division, structure, isolation and purification of proteins9. Definition, classification, properties, isolation, purification and identification of amino acids10. Fractionation and characterization of proteins by centrifugation, precipitation, and electrophoresis methods11. Fractionation and protein characterization of membrane dialysis method, ion exchange chromatography, using enzymes12. Terminology, names and enzyme catalysis reactions13. Substrate concentration and enzyme activity14. Speed of enzyme-catalyzed reaction
Examination form	<ul style="list-style-type: none">• Project Base Learning (30%)• Case Method (20%)• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Zubay G.L. Parson W.W. and Vance D.E. (2002). "Principles of Biochemistry". Vol III WMC. Brown Publisher Inc. Englang Lehniger A.L. (2000) Principles of Biochemistry, The John Hopkins University School of Medicine. Worth Publisher Inc. Hawab,H.M. 2004."Pengantar Biokimia". EdisiRevisi. Bayu Media Publishing. Malang – JawaTimur Campebell P,N; Smith A,D. (2001), "Biochemistry Illustratech". Fourth Edition Edinburgh London Conn E.E: Stumpf P.K (2001). Outline Biochemistry. John Willey & Sons Inc. New York.
Last updated date	July 2025



ITP2102 QUALITY CONTROL

Course Name	Quality Control
Code	ITP2102
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, MPhil Mimi Nurminah, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After taking the Quality Control course, students of the Food Science and Technology study program in the 4th semester are able to use the information obtained for simple applications in quality control of agricultural products, including understanding the meaning of quality and quality control, the position of the quality control section in a processing unit, quality determinants and its measurement principles objectively with tools and subjectively with sensory tests, quality standards and their development, quality control methods and development of process implementation in processing units.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to use the information obtained for simple applications in quality control of agricultural products including understanding the meaning of quality and quality control, the position of the quality control section in a processing unit, • Able to apply quality determining factors and measurement principles objectively with tools and subjectively with sensory tests, quality standards and their development, quality control methods. • Able to develop the implementation of quality control processes in processing units.



Content	<ol style="list-style-type: none">1. Scope, objectives and benefits of Quality Control of Agricultural Products2. The Role of quality control and standardization3. Quality of agricultural commodities4. Factors affecting the quality of agricultural products5. Changes in the quality of agricultural products6. Testing techniques/quality factors in agricultural quality control7. Objective and subjective sample testing methods8. Definition of specifications and standardization of SNI and ISO 9000 series9. Application of SNI and ISO 9000 series specifications and standardization10. HACCP (Hazard Analysis and Critical Control Point)11. TQM (Total Quality Management)12. Pollution and adulteration Sanitary aspects in food quality Clipping or writing assignments on toxic additives in agricultural processing13. Sanitation aspects in food quality14. Sampling method15. Quality standardization system16. Standardization of agricultural products Process control in the food industry17. Quality assurance and legislation
Examination form	<ul style="list-style-type: none">• Project Base Learning (30%)• Case Method (20%)• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Kramer, A. and Twigg, B.A. 1970. Quality Control for the food industry. Volume 1 - Fundamentals. The Avi Publishing Company, Inc. Westport, Connecticut. Soekarto, S.T. 1990. Basics of Food Quality Supervision and Standardization. IPB Press, Bogor.



	<p>Syarif, H. and Dradjat, U.S. 1978. Agricultural Product Quality Supervision I. Ministry of Education and Culture, Directorate of Vocational Secondary Education, Jakarta.</p> <p>Alli, I. 2003. Food Quality Assurance: Principles and Practices. CRC Press, Boca Raton.</p> <p>Soekarto, S.T. 1990. Dasar-dasar Pengawasan dan Standarisasi Mutu Pangan. IPB Press, Bogor.</p> <p>Galanakis, C.M. 2019. Food Quality and Shelf Life. Academic Press.</p> <p>Luning, P.A. and Marcelis, W.J. 2020. Food Quality Management: Technological and Managerial Principles and Practices. Wageningen Academic Publishers, Wageningen.</p> <p>Supporters: Supporting journals</p>
Last updated date	July 2025



ITP2103 FOOD PROCESSING TECHNOLOGY

Course Name	Food Processing Technology
Code	ITP2103
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	Application of chemical, microbiological and engineering principles in processing and preservation by considering quality factors (physical, chemical, microbiological and nutritional) and product acceptability. The material includes fresh preservation technology, low temperature preservation, high temperature processing (drying, canning process, microwave application); chemical preservation, semi-wet products (IMF), extrusion, and the use of supercritical fluid extraction.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the basic principles of chemistry, microbiology and engineering in processing and preservation by considering quality factors (physical, chemical, microbiological, and nutritional) and product acceptability.• Able to analyze the application of chemistry and physics in food processing and processed derivatives• Able to analyze the processing process, including the introduction of process control tools in food processing, high acid food canning technology, drying technology (ordinary / vacuum oven, drum dryer, sun drying), fruit cooling technology (minimal process technology), heat penetration, high pressure cooking and material processing.



	<ul style="list-style-type: none">• Able to analyze the use of technological tools in the food processing process by utilizing local raw materials as a form of resource development and entrepreneurial spirit.
Content	<ol style="list-style-type: none">1. Properties of food ingredients and processing theory2. Process control3. Raw material handling4. Separation of food components5. Novel process6. Heating process technology7. Food processing with radiant energy8. Drying process technology9. Cooling process technology10. Freezing process technology11. Freeze drying12. Liquid concentration13. Minimal processing technology14. Extrusion process technology and extraction process with supercritical fluid
Examination form	<ul style="list-style-type: none">• Project Base Learning (30%)• Case Method (20%)• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Berk, Z. 2018. Food Process Engineering and Technology. 3 rd Eds. Academic Press, Elsevier. Jeantet, R., Croguennec, T., Shuck, P., and Brule, G. 2016. Handbook of Food Science and Technology, ISTE and John Wiley & Sons, Breat Britain. Holdsworth, D., and Simpson, R. 2007. Thermal Processing of Packaged Foods 2 nd Ed. Springer - London, UK. Fellows, P.J. Food Processing Technology. 2000. Principles and practice. Woodhead Publishing Ltd,



	<p>Cambridge, England. Heldman, D. R. and R.P. Singh. 1981. Food Process Engineering. AVI Publishing Company, USA Desrosier, N.W. 1988. Food Preservation Technology. Translation by M. Muljohardjo. University of Indonesia Press, Jakarta. Fellows, P.J. Food Processing Technology. 2000. Principles and practice. Woodhead Publishing Ltd, Cambridge, England. Muchtadi, T.R. 1989. Food Processing Process Technology. Laboratory instructions of the Inter-University Center, IPB. Bogor.</p> <p>Supporters: Articles from Journal Food Technology, Food Science, International Food Reseach Journal</p>
Last date of update	July 2025



ITP2104 FOOD PROCESSING TECHNOLOGY LABORATORY

Course Name	Food Processing Technology Laboratory
Code	ITP2104
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, Msi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (i.e.: case method or project base learning)• The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours• Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses the application of food processing technology. Students will gain mastery of mixing technology, blanching process on fruits and vegetables, heat penetration process, sterilization and pasteurization process, food product processing drying method, use of hot temperature measuring instruments, food drying practice process, bread processing technology, and dry noodle processing. Students will practice product processing in the laboratory. Before starting the practicum, students will be equipped with basic knowledge about laboratory rules and will take quizzes at each meeting. The results of the practicum will be interpreted in the form of a report
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to evaluate food processing techniques based on the technological principles used• Able to evaluate the use of food processing technology tools in the process of making food products• Able to evaluate the principles of using food production processing technology tools• Able to evaluate and apply the principles of using food processing technology tools
Content	<ol style="list-style-type: none">1. Mixing technology2. Blansing on fruits and vegetables3. Heat penetration4. Sterilization: Canning of fruits and vegetables5. Pasteurization



	<p>6. Processing of food by drying method 7. Thermomhygrometer <i>and</i> Digital Thermometer <i>Measuring Instruments</i> 8. Food Drying Rate 9. Bread processing technology 10. Dry noodle processing process</p>
Examination form	<ul style="list-style-type: none"> • Project Base Learning (30%) • Laboratory Report (20%) • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%)
Learning media	Practicum Guide
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main Julianti, E., Karo-Karo, T. 2023. Practicum Module of Food Processing Technology, Food Technology Study Program, Faculty of Agriculture USU Berk, Z. 2018. Food Process Engineering and Technology. 3rd Eds. Academic Press, Elsevier. Jeantet, R., Croguennec, T., Shuck, P., and Brule, G. 2016. Handbook of Food Science and Technology, ISTE and John Wiley & Sons, Breat Britain. Holdsworth, D., and Simpson, R. 2007. Thermal Processing of Packaged Foods 2 nd Ed. Springer - London, UK. Fellows, P.J. Food Processing Technology. 2000. Principles and practice. Woodhead Publishing Ltd, Cambridge, England. Heldman, D. R. and R.P. Singh. 1981. Food Process Engineering. AVI Publishing Company, USA Supporters: Journal of Food Properties, Food Science, Food Chemistry, Journal of Agricultural and Food Chemistry</p>
Last date of update	July 2025



ITP2105 FOOD CHEMISTRY

Course Name	Food Chemistry
Code	ITP2105
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course is a compulsory course for third semester students of the Food Technology Study Program. It covers the chemistry of agricultural products such as constituents of agricultural products in general, constituents of water, carbohydrates, proteins, lipids, enzymes, pigments, vitamins and minerals, flavors and food additives.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the chemical components of food ingredients, the reactions that occur and the changes that occur from water in food ingredients, lipids, carbohydrates, proteins, minerals, vitamins, flavors, food additives, pigments during processing.• Able to analyze the role, physical and chemical properties, chemical structure, functional properties and changes that occur from water and ice, fats and fat classification, protein and amino acid classification, carbohydrate classification and its derivatives.• Able to analyze the chemical properties of food additives and minerals, pigments and their properties, flavors, the effect of processing on functional and nutritional properties.
Content	<ol style="list-style-type: none">1. Water in Food,2. Water activity of foodstuffs,3. Carbohydrates, monosaccharides,4. Oligosaccharides,



	<ol style="list-style-type: none">5. Polysaccharides,6. Amino Acids,7. Protein,8. Lipids,9. Oils and Fats,10. Oils and Fats (Continued),11. Fat Soluble Vitamins,12. Water Soluble Vitamins,13. Food Additive,14. Minerals.
Examination form	<ul style="list-style-type: none">• Project Base Learning (30%)• Case Method (20%)• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Apriyantono, A. 2006. Kimia Flavor. Di dalam: Dedi F., Laula N., Anton A., Kuswaya W. Kimia Pangan. Bogor: Pusat Penerbitan Universitas Terbuka. Hlm. 7.2-7.49. Belitz, H.D., W. Grosch, and P. Schieberle. 2009. Food Chemistry: 4th th Revised and Extended Edition. Springer, Germany. DeMan, J. M. 1999. Principle of Food Chemistry. Aspen Publishers, Inc, USA. Fardiaz, D. 2006. Karbohidrat. Di dalam: Dedi F., Laula N., Anton A., Kuswaya W. Kimia Pangan. Bogor: Pusat Penerbitan Universitas Terbuka. Hlm. 2.2-2.38. Fennema, O.R. 1996. Food Chemistry. 3rd Edition. New York: Marcel Dekker Inc. Kusnandar, F. 2010. Kimia Pangan Komponen Makro. PT Dian Rakyat. Jakarta. Lehninger, A.L. 1982. Dasar-dasar Biokimia. Maggy T, penerjemah. Jakarta: Erlangga. Terjemahan dari: <i>Principle of Biochemistry</i> . Muchtadi, T. dan Budiartman. 1991. Teknologi Pangan



	<p>Lanjut. Bogor: Pusat Universitas Pangan dan Gizi Institut Pertanian Bogor.</p> <p>Suryani, A. dan D. Mangunwidjaja. 2002. Rekayasa Proses. Bogor: Departemen Teknologi Industri Pertanian, Institut Pertanian Bogor.</p> <p>Wihardit, K. 2006. Enzim. Di dalam: Dedi F., Laula N., Anton A., Kuswaya W. Kimia Pangan. Bogor: Pusat Penerbitan Universitas Terbuka. Hlm. 8.2-8.46.</p> <p>Winarno, F.G. 2002. Kimia Flavor. Jakarta: PT. Gramedia Pustaka Utama.</p> <p>Winarno, F.G. 1997. Kimia Pangan dan Gizi. Jakarta: PT. Gramedia Pustaka Utama.</p> <p>Winarno, F.G. 1983. Enzim Pangan. Jakarta: PT. Gramedia</p> <p>Supporters: Articles from Journal Food Technology, Food Science, International Food Research Journal</p>
Last date of update	July 2025



ITP2106 FOOD CHEMISTRY LABORATORY

Course Name	Food Chemistry Laboratory
Code	ITP2106
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (i.e.: case method or project base learning)• The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours• Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses practices including analyzing the content of water, carbohydrates, proteins, lipids, enzymes, pigments, vitamins and minerals, flavors and food additives.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to comprehensively understand the structure and function of the main constituent substances of food ingredients• Able to evaluate the character and properties of chemicals used in everyday life
Content	<ol style="list-style-type: none">1. Water absorption2. Oil absorbency3. Acroline testing4. Browning reaction5. Total acid testing6. Formaldehyde testing7. Borax testing8. Pectin content9. Determination of Vitamin C content10. Protein testing
Examination form	<ul style="list-style-type: none">• Project Base Learning (30%)• Laboratory Report (20%)• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)
Learning media	Lab manual, whiteboard



Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Apriyantono, A. 2006. Kimia Flavor. Di dalam: Dedi F., Laula N., Anton A., Kuswaya W. Kimia Pangan. Bogor: Pusat Penerbitan Universitas Terbuka. Hlm. 7.2-7.49. Belitz, H.D., W. Grosch, and P. Schieberle. 2009. Food Chemistry: 4th th Revised and Extended Edition. Springer, Germany. DeMan, J. M. 1999. Principle of Food Chemistry. Aspen Publishers, Inc, USA. Fardiaz, D. 2006. Karbohidrat. Di dalam: Dedi F., Laula N., Anton A., Kuswaya W. Kimia Pangan. Bogor: Pusat Penerbitan Universitas Terbuka. Hlm. 2.2-2.38. Fennema, O.R. 1996. Food Chemistry. 3rd Edition. New York: Marcel Dekker Inc. Kusnandar, F. 2010. Kimia Pangan Komponen Makro. PT Dian Rakyat. Jakarta. Lehninger, A.L. 1982. Dasar-dasar Biokimia. Maggy T, penerjemah. Jakarta: Erlangga. Terjemahan dari: <i>Principle of Biochemistry</i> . Muchtadi, T. dan Budiartman. 1991. Teknologi Pangan Lanjut. Bogor: Pusat Universitas Pangan dan Gizi Institut Pertanian Bogor. Suryani, A. dan D. Mangunwidjaja. 2002. Rekayasa Proses. Bogor: Departemen Teknologi Industri Pertanian, Institut Pertanian Bogor. Wihardit, K. 2006. Enzim. Di dalam: Dedi F., Laula N., Anton A., Kuswaya W. Kimia Pangan. Bogor: Pusat Penerbitan Universitas Terbuka. Hlm. 8.2-8.46. Winarno, F.G. 2002. Kimia Flavor. Jakarta: PT. Gramedia Pustaka Utama. Winarno, F.G. 1997. Kimia Pangan dan Gizi. Jakarta: PT. Gramedia Pustaka Utama. Winarno, F.G. 1983. Enzim Pangan. Jakarta: PT. Gramedia Supporters: Related journals
Last date of update	July 2025



ITP2107 FOOD BIOCHEMISTRY

Course Name	Food Biochemistry
Code	ITP2107
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.4 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Third semester ITP students are able to study carbohydrate formation and breakdown and absorption of carbohydrates, lipid metabolism, protein metabolism, and nucleic acid metabolism in the body.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the formation of carbohydrates and the breakdown and absorption of carbohydrates in the body • Able to analyze lipid metabolism in the body • Able to analyze protein metabolism in the body • Able to analyze nucleic acid metabolism in the body
Content	<ol style="list-style-type: none"> 1. Carbohydrate formation 2. Carbohydrate formation (Continued) 3. Glycolysis and alcohol fermentation 4. Tricarboxylic acid cycle and oxidative phosphorylation 5. Pentose phosphate pathway and gluconeogenesis 6. Carbohydrate absorption 7. Carbohydrate absorption (Continued) 8. Lipid turnover 9. Lipid biosynthesis 10. Protein turnover 11. Amino acid biosynthesis 12. Protein biosynthesis 13. Nucleic acid turnover



	14. Nucleic acid biosynthesis
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Girindra, A., 1986. Biokimia 1. Penerbit PT Gramedia, Jakarta. Martoharsono, S., 1984. Biokimia, Jilid I dan II. Gadjah Mada University Press, Yogyakarta. Panji, Ch., 1989. Biosintesis dan Biogenesis Turunan Alkaloid. PAU Bioteknologi, IPB, Bogor. Schumm, D.E., 1993. Intisari Biokimia, terjemahan M. Sadikin. Binarupa Aksara, Jakarta. Stryer, L., 1981. Biochemistry, 2nd Edn. W.H. Freeman and Co., San Fransisco. Sulaiman, A.H., 1996. Dasar-Dasar Biokimia untuk Pertanian. Universitas Sumatera Utara Press, Medan. Wood, E.J. and W.R.Pickering, 1987. Introducing Biochemistry. Jhon Murray Publ., Ltd., London Supporters: Related journals
Last date of update	July 2025



ITP2108 PACKAGING AND STORAGE TECHNOLOGY

Course Name	Packaging and Storage Technology
Code	ITP2108
Semester(s) in which the module is taught	III
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	<p>This course discusses the application of packaging technology for packaging various food products. Students will gain mastery of the purpose and function of packaging, the interaction of food and packaging materials, knowledge of the types of packaging materials and the ability to select, use and test packaging materials, edible films and active packaging, determination of the shelf life of food products, food storage techniques and aspects that need to be considered during food storage. In addition, students will conduct collaborative and project-based learning to apply their knowledge of packaging technology to design food product packaging by taking into account the characteristics of each food ingredient. The results of student designs will be presented in the form of group discussions, presentations, and product advertising videos. The language of instruction in this course is Indonesian.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to understand knowledge about the uses and properties of packaging materials in food products• Able to analyze chemical and physical interactions of food ingredients with packaging materials• Able to implement food product storage technology and aspects that affect food products during storage



	<ul style="list-style-type: none">• Able to implement modern packaging techniques in designing food product packaging with packaging technology -food products with packaging and sealing technology for various food products according to the characteristics of each food ingredient appropriately and creatively
Content	<ol style="list-style-type: none">1. Food packaging,2. Paper packaging,3. Packaging, plastic,4. Glass and metal packaging,5. Interaction between food and packaging materials,6. Active packaging,7. Edible packaging,8. Aseptic packaging,9. Food storage techniques,10. Arrhenius shelf life estimation11. Estimated shelf life of Pumpkinza12. Shelf life estimation application13. Insect warehouse pests and their control14. Rodenta barnyard pests and their control
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Hadiwiyoto, S., 1980. Pengolahan Hasil Pertanian. Bagian Pengolahan Pangan UGM, Yogyakarta. Hulme, A.G., 1970. The Biochemistry of Fruits and Their Products. Volume 1&2. Academic Press, London. Soewarno T dan Yuliatmoko W. Teknologi Penyimpanan dan Penggudangan Produk Pangan. Intimedia, Malang Peleg, M. and E.B. Bagley, 1983. Physical Properties of Foods. AI Publishing Company, Inc. Westpor, Connecticut.



	<p>Syarief, R. dan Irawati. 1988. Pengetahuan Bahan untuk Industri Pertanian. Mediatama Sarana Perkasa, Jakarta.</p> <p>Wirakartakusumah, M.A., K. Abdullah dan A.M. Syarief, 1992. Sifat Fisik Pangan. PAU Pangan dan Gizi IPB, Bogor.</p> <p>Julianti E dan Nurminah M. 2006. Teknologi Pengemasan. Program Studi Teknologi Pangan, Fakultas Pertanian. Universitas Sumatera Utara</p> <p>Jurnal Food Properties, Food Science, Food Chemistry, Journal of Agricultural and Food Chemistry</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



4th Semester



ITP2201 FOOD MICROBIOLOGY AND PROCESSING

Course Name	Food Microbiology and Processing
Code	ITP2201
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Karina Nola Sinamo, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	<p>This course discusses changes in the physical, chemical, and microbiological properties of food products due to the presence of beneficial and harmful microorganisms. This course studies the desired use of microbes in producing fermented food products that have good quality for health, microbiological food spoilage during processing and storage, and food poisoning by pathogenic microorganisms. Fermented food can be produced inspontaneously, namely by adding microbial inoculums (bacteria, mold, and yeast) that are beneficial or can be done spontaneously, namely without the addition of microbial inoculums but by creating an environmental atmosphere that is preferred by these microorganisms. Observation of food spoilage and food poisoning can be done by enumerating or calculating the number of microbes. In addition, several food processing processes can be carried out to reduce or prevent the growth of harmful microbes so that healthy and safe food is obtained.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to evaluate the role of microorganisms in processing food products so that they are safe for consumption• Able to apply the principles of microbial control in food processing during the production process



	<ul style="list-style-type: none">• Able to analyze and control the causes of damage to food products• Able to evaluate the causes of food damage due to food microbes
Content	<ol style="list-style-type: none">1. Scope of food microbiology and processing2. Classes, types, and properties of beneficial and harmful microorganisms in foodstuffs,3. Intrinsic, extrinsic, implicit, and processing factors that affect microbial growth on food,4. Utilization of microbes in processed plant and animal food products,5. Microorganisms are indicators of safety, processing sanitation, and spoilage of processed food products,6. Enumeration of microbes in processed food products,7. Microbial processing of foodstuffs,8. Microbial spoilage of plant and animal foods,9. Physical and chemical processing factors on microbes,10. Food poisoning by microorganisms
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Fardiaz, S. 1992. Mikrobiologi Pangan I. Jakarta (ID): Gramedia Pustaka Utama. Frazier, W. C dan Westhoff, D. C. 1998. Food Microbiology. Edisi ke-4. New Delhi: McGraw Hill Publisihing Company Limited. Jay, J. M., Loessner, M.J., Golden, D.A. 2005. Modern Food Microbiology. New York (US): Springer. Rahayu WP. Nurwitri CC. 2012. Mikrobiologi Pangan. Bogor (ID): IPB Press.



	Trickett, J. 2001. The Prevention of Food Poisoning, Fourth Edition. Great Britain (UK): Nelson Thornes Ltd Supporters: Related journals
Last date of update	July 2025



ITP2202 FOOD AND PROCESSING MICROBIOLOGY LABORATORY

Course Name	Food And Processing Microbiology Laboratory
Code	ITP2202
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Karina Nola Sinamo, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project based learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course studies the utilization of molds from the Rizhopus genus for making tempeh, Acetobacterxyllnum bacteria; making nata decoco, Lactic Acid Bacteria; making yogurt, yeast in bread, spontaneous fermentation in making kimchi.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply the principles of microbial control in food processing during the production process • Able to evaluate the causes of food damage due to microbes
Content	<ol style="list-style-type: none"> 1. Introduction, Practicum Briefing 2. Utilization of Fungi from the Genus Rizhopus to Make Tempeh 3. Observation and Testing of Tempeh Results 4. Utilization of Acetobacterxyllnum Bacteria; making nata decoco 5. Observation and Testing of Nata de Coco Results 6. Utilization of Lactic Acid Bacteria; making yogurt 7. Yoghurt Observation and Testing Results 8. Utilization of yeast in bread 9. Observation of bread practicum results 10. Testing the moisture and ash content of bread 11. Spontaneous fermentation in kimchi making 12. Test Results on Kimchi
Examination form	<ul style="list-style-type: none"> • Quiz (5%)



	<ul style="list-style-type: none">• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning Media	Lab manual, whiteboard
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Buckle K.A., 1987. Ilmu Pangan. Jakarta : UI Press Direktorat GIZI – DEPKES RI. Tanpa tahun. Susunan Hidangan Sehari-hari 4 Sehat 5 Sempurna. Jakarta : DEPKES RI. Fardiaz, Srikandi, .1992. Mikrobiologi Pangan. Jakarta : Gramedia . Handayanu , U. 1987.Pengaruh Kadar Gula dan pH Dalam Medium Fermentasi. Air Kelapa pada Pembuatan Nata de Coco. Proposal Thesis. FP-UNEJ. Suhardijono, L. 1988. Tanaman Kelapa Budidaya dan Pemanfaatannya. Yogyakarta : Penerbit Kanisius. Susanto , Tri, 2002. Ilmu Pangan dan Gizi dan permasalahannya. Malang : Fakultas Pertanian Universitas Brawijaya. Tarigan, J, 1988. Pengantar Mikribiologi. Jakarta : Depdikbud DIKTI PPLPT
Last date of update	July 2025



ITP2203 HALAL FOOD

Course Name	Halal Food
Code	ITP2203
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Prof. Dr. Ir. Elisa Julianti
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses halal product assurance, halal system regulations, halal certification bodies, halal supervisors, halal auditors, halal critical points accompanied by halal food product document analysis activities, simulations of supervisors and auditors of halal food products so that students are able to master concepts, be able to work together and be responsible and be able to communicate their knowledge and skills scientifically.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the halalness of a raw material for food products • Able to analyze the processing of food products in accordance with halal standards • Able to evaluate food product processing systems according to Indonesian halal standards • Able to analyze the control of food additives • Able to apply halal assurance system in all food products
Content	<ol style="list-style-type: none"> 1. Principles of Halal and Haram Food Based on Islamic Law 2. Characteristics of Haram and Shubhat Food Ingredients 3. Principles of Halal Food Production



	<ol style="list-style-type: none">4. Hazard and Haram Analysis Critical Control Point (HACCP)5. Principles of Halal Assurance System6. Halal Authentication7. Traceability System for Halal Food8. Halal Certification9. Characteristics of Halal Food Production
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	<p>Main:</p> <p>Adam P. 2017. Kedudukan sertifikasi halal dalam sistem hukum nasional sebagai Upaya perlindungan konsumen dalam hukum islam. Amwaluna, Vol. 1 No. 1 Hal 150-165.</p> <p>Mahmudatussa'adah A. Pentingnya Jaminan Pangan Halal dan Baik Untuk Meningkatkan Daya Saing Pangan Lokal Indonesia. Bandung: Universitas Pendidikan Indonesia.</p> <p>Panduan Umum Sistem Jaminan Halal LPPOM – MUI. 2011</p> <p>Badan Penyelenggara Jaminan Produk Halal. 2018. Undang-Undang RI No 33 Tahun 2014 Tentang Jaminan Produk Halal, Jakarta: Kemenag RI</p> <p>Lembaga Pengkajian Pangan Obat-obatan dan Kosmetika MUI, 2014. Halal LPPOM MUI Halal is My Life, Bogor: LPPOM MUI.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP2204 LABORATORY INSTRUMENTATION

Course Name	Laboratory Instrumentation
Code	ITP2204
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses techniques and methods in the context of analysis and authentication using instrumentation in the laboratory, including mastery of the theory of various instruments, sample preparation, instrument operation, knowledge of reading results / output from laboratory instrumentation, understanding of laboratory management and laboratory safety.
Module objectives/intended learning outcomes	Able to analyze the principles and use of various types of laboratory equipment
Content	<ol style="list-style-type: none">1. Introduction.2. Introduction to various types of lab instrumentation.3. Equipment and analysis method 1.4. Equipment and analysis methods 2.5. Advanced analysis.6. Laboratory Management7. Chromatography8. Gas chromatography (GLC) instrument9. Gas chromatography analysis (GLC.)10. Spectroscopy. electromagnetic Transmittance percent (%T)11. InfraRed Spectroscopy12. Nuclear Magnetic Resonance Spectroscopy (NMR-S13. NMR-S



	14. Analysis.1H NMR-S
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%) Project Base Learning (30%)• Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Clark, D. V., and Wither, M (ed), 1971. An Aproach to Gas Chromatography. Analchem Consultant Pty.Ltd., Sydney. Dilts, R. V., 1974. Analytical Chemistry. Methods of Separation. D. Van Nostrand Co., New York. Donald, L.P., Garry M. P., George S. K., 1980. Introduction to Spectroscopy. Saunders College, Philadelphia. Fessenden, R.J. dan J.S. Fessenden, 1986. Kimia Organik, Edisi Ketiga, Jilid 1 dan 2, terjemahan A.H. Pudjaatmka. Penerbit Erlangga, Jakarta. Soleh Kosela. 1998. Managemen Laboratorium. FMIPA UI. Jakarta. Sanusi Ibrahim. 1994. Laboratory Safety and Security. Universitas Andalas. Padang Indrawati. 2008. Penataan Dan Pengadministrasian Alat Dan Bahan Laboratorium Kimia Supporters: Supporting journals
Last date of update	July 2025



ITP2205 LABORATORY INSTRUMENTATION LABORATORY

Course Name	Laboratory Instrumentation Laboratory
Code	ITP2205
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (i.e.: case method or project base learning)• The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours• Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses developing competence in understanding techniques and methods in the context of analysis and authentication using instrumentation in the laboratory, including mastery of the theory of various instruments, sample preparation, instrument operation, knowledge of reading results / output from laboratory instrumentation.
Module objectives/intended learning outcomes	Able to apply various types of laboratory equipment methods
Content	<ol style="list-style-type: none">1. Determination of Sucrose and Glucose Content Using Anthrone Method in Dragon Fruit (1,2)2. Determination of Sucrose and Glucose Content Using Anthrone Method in Watermelon Fruit (3,4)3. Determination of Sucrose and Glucose Content Using Anthrone Method in Mango Fruit (5,6)4. Determination of Sucrose and Glucose Content Using Anthrone Method in Citrus Fruit (7,8)5. Determination of Sucrose and Glucose Content Using Anthrone Method in Sugarcane Fruit (9,10)6. <i>Total Suspense Solid</i> test using a <i>handrefractometer</i> (11)
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)



	<ul style="list-style-type: none">• Project Base Learning (30%)• Laboratory Report (20%)
Learning Media	Whiteboard, lab manual
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Clark, D. V., and Wither, M (ed), 1971. An Aproach to Gas Chromatography. Analchem Consultant Pty.Ltd., Sydney. Dilts, R. V., 1974. Analytical Chemistry. Methods of Separation. D. Van Nostrand Co., New York. Donald, L.P., Garry M. P., George S. K., 1980. Introduction to Spectroscopy. Saunders College, Philadelphia. Fessenden, R.J. dan J.S. Fessenden, 1986. Kimia Organik, Edisi Ketiga, Jilid 1 dan 2, terjemahan A.H. Pudjaatmka. Penerbit Erlangga, Jakarta. Soleh Kosela. 1998. Managemen Laboratorium. FMIPA UI. Jakarta Sanusi Ibrahim. 1994. Laboratory Safety and Security. Universitas Andalas. Padang. Indrawati. 2008 .Penataan Dan Pengadministrasian Alat Dan Bahan Laboratorium Kimia.
Last date of update	July 2025



ITP2206 HYGIENE, SANITATION AND POISONING

Course Name	Hygiene, Sanitation and Poisoning
Code	ITP2206
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, M.Phil
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses the correct handling of food, from handling raw materials to processing and serving, types of hazardous substances in food, carcinogens that cause degenerative diseases, and risk classification of microorganisms and control of food safety and processing, HACCP principles in food safety control and application of HACCP in the food industry.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze food handling correctly, from handling raw materials to processing and serving, types of hazardous substances in food.• Able to analyze the classification of risks to microorganisms and control food safety and processing, the principles of HACCP in food safety control and the application of HACCP in the food industry.
Content	<ol style="list-style-type: none">1. Food toxicology orientation Toxicants in food2. Classification of food toxicants3. Dosage and response4. Toxicant change: safe to dangerous5. distribution and function of water in the body6. Types of toxic food7. Factors that influence and inhibit the growth of microorganisms



	<ol style="list-style-type: none">8. Bacteria that cause food poisoning9. Bacterial contamination10. Sanitation and hygiene of food and beverages in food processing places (TPM)11. Food preparation process Foods that require special attention12. Independent Quality Control/ HACCP and CCPs13. Process tool sanitization Food ingredient sanitization14. Drinking water and industrial water standards
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Hobbs, B.C and Roberts, D. 1993. Food Poisoning and Food Hygiene. Edward Arnold, London. Makfoeld, D. 1976. Pengantar Toksikologi Bahan Makanan. Fakultas Teknologi Pertanian, UGM, Yogyakarta. Minor, L.J. 1983. Sanitation, Safety and Environmental Standards. AVI Pubs Co, Inc, Westport, Connecticut
Last date of update	July 2025



ITP2207 INDUSTRIAL STATISTICS (LITERACY SKILL)

Course Name	Industrial Statistics (Literacy skill)
Code	ITP2207
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project base learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course provides a basic understanding of statistical concepts and methods used in industrial data analysis. This course covers the principles of data collection, processing, analysis, and interpretation of results for decision-making in an industry context. Students will learn how to use statistical tools such as probability distribution, hypothesis testing, variance analysis, and statistical quality control to improve the efficiency and effectiveness of industrial processes. After completing this course, students are expected to be able to apply statistical techniques in various industrial problems to improve quality and productivity.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to apply statistical calculations to industrial material sample data for estimation of population conditions. Able to describe statistical principles on sample data of industrial materials including those related to Lot and process, Hypothesis Test (t test and z test), Chi-Square Test, Linear Regression, Multiple Linear Regression and multiple random design and ANOVA group (one way and two way).



	<ul style="list-style-type: none"> • Able to solve calculations in writing related to the use of statistical principles on sample data of industrial materials to estimate population conditions.
Content	<ol style="list-style-type: none"> 1. Scope of industry statistics 2. Average values and standard deviations 3. Test the difference 4. Hypothesis Test 5. Analysis of Variance (ANOVA) one way 6. Analysis of Variance (ANOVA) two ways 7. Experimental Design 8. Non-Factorial Complete Random Design 9. Non-Factorial Complete Randomized Design Exercise 10. Factorial Complete Random Design 11. Factorial Complete Random Design Exercise 12. Group Random Design (GRD) 13. Factorial RACK 14. Group Random Design Exercise
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Montgomery, D.C., 2008. Design and Analysis of Experiments. 7th Edition. John Wiley and Sons Inc, New York.</p> <p>Montgomery, Douglas C. 2009. Introduction to Statistical Quality Control. John Wiley & Sons, New Jersey.</p> <p>Wiyono, Judi Al Hilman, Hermita Dyah. 2011. Textbook of Industrial Statistics. Faculty of Industrial Engineering. Telkom Institute of Technology.</p> <p>Akhmad Fauzy. 2009. Industrial Statistics. Erlangga</p> <p>Johan Harlan. 2018. Variance Analysis. Publisher Guna Darma. Depok</p>



	Supporters: Related Journal
Last date of update	July 2025



ITP2208 INDUSTRIAL STATISTICS PRACTICE (LITERACY SKILL)

Course Name	Industrial Statistics Practice (Literacy Skill)
Code	ITP2208
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project base learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	The Industrial Statistics Practicum course is designed to provide students with an understanding of the application of statistical techniques in an industrial context. This course emphasizes practical skills in analyzing industrial data through statistical software as well as the use of statistical methods for quality control, production process optimization, and data-driven decision-making. Through a series of practicums, students are expected to be able to interpret the results of statistical analysis and recommend appropriate actions based on the processed data.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply statistical calculations on sample data of industrial materials to estimate population conditions. • Able to analyze statistical calculations including Hypothesis Test (t test and z test), Chi-Square test, linear regression, multiple linear regression and multiple random design and ANOVA groups (one way and two way). • Able to operate computer applications used in statistical calculations on sample data of industrial materials for estimating population conditions.
Content	<ol style="list-style-type: none"> 1. Introduction of software (SPSS, Minitab) 2. Avarage 3. Test the Difference 4. Standard deviation 5. Frequency test



	<ol style="list-style-type: none">6. Variant Analysis (ANOVA)7. Research Design and Complete Random Design8. Non-Factorial CRD and CRD-Factorial9. Factorial and Non-Factorial CRD Exercises10. GRD (Group Random Design) Training
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning Media	Lab manual, whiteboard
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Wiyono, Judi Al Hilman, Hermita Dyah. 2011. Textbook of Industrial Statistics. Faculty of Industrial Engineering. Telkom Institute of Technology. Akhmad Fauzy. 2009. Industrial Statistics. Erlangga Johan Harlan. 2018. Variance Analysis. Publisher Guna Darma. Depok Montgomery, D.C., 2008. Design and Analysis of Experiments. 7th Edition. John Wiley and Sons Inc, New York. Montgomery, Douglas C. 2009. Introduction to Statistical Quality Control. John Wiley & Sons, New Jersey Supporters: Related Journal
Last date of update	July 2025



ITP2209 ORGANOLEPTIC EVALUATION

Course Name	Organoleptic Evaluation
Code	ITP2209
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Linda Masniary Lubis, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project based learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course studies about sensory testing of food ingredients and analyzing the quality of an ingredient using sensory testing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to describe the advantages of sensory testing of food ingredients Able to statistically analyze the quality of a food ingredient by using sensory
Content	<ol style="list-style-type: none"> History and definition of sensory testing Human sensory organs Analysis of stimuli and impressions Panel Panel (Continued) Sensory testing laboratory Test preparation Discrimination testing Discrimination testing (continued) Acceptance Test Scalar test Scoring test and descriptive analysis Selection of test type Key differences of different test types, organoleptic test examples of different test types



Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Soekarto, ST. 1985. Penilaian Organoleptik untuk industri pangan dan hasil pertanian., IPB-Press. Bogor Meilgaard, M., G.V. Civille, B.T. Carr, 1999. Sensory Evaluation Techniques. CRC Press Soekarto, ST dan M. Hubets, 2010. Metodologi Penelitian Organoleptik. IPB Garnida, Y. 2020. Uji Inderawi dan Sensori pada Industri Pangan. Manggu Makmur Tanjung Lestari. Bandung Supporters: Articles from Journal Food Technology, Food Science, International Food Reseachr Journal
Last date of update	July 2025



ITP2210 ORGANOLEPTIC EVALUATION LABORATORY

Course Name	Organoleptic Evaluation Laboratory
Code	ITP2210
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Linda Masniary Lubis, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (i.e.: case method or project base learning) The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credits (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course studies the application of sensory testing of food ingredients.
Module objectives/intended learning outcomes	Able to apply sensory testing to various types of food ingredients
Content	<ol style="list-style-type: none"> Testing with the sense of sight Test with the sense of hearing Testing with the sense of touch Smell test Tester testing Rank test Panelis selection with threshold Panelis selection with range test method
Examination form	<ul style="list-style-type: none"> Quiz (5%) Assignment (5%) Midterm examination (20%) Final examination (20%) Project Base Learning (30%) Laboratory Report (20%)
Learning Media	Lab manual, whiteboard
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$</p>



	C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Soekarto, ST. 1985. Penilaian Organoleptik untuk industri pangan dan hasil pertanian., IPB-Press. Bogor Meilgaard, M., G.V. Civille, B.T. Carr, 1999. Sensory Evaluation Techniques. CRC Press Soekarto, ST dan M. Hubets, 2010. Metodologi Penelitian Organoleptik. IPB Garnida, Y. 2020. Uji Inderawi dan Sensori pada Industri Pangan. Manggu Makmur Tanjung Lestari. Bandung Practical guide Supporters: Articles from Journal Food Technology, Food Science, International Food Research Journal
Last date of update	July 2025



ITP2211 NORTH SUMATRA TRADITIONAL FOOD

Course Name	North Sumatra Traditional Food
Code	ITP2211
Semester(s) in which the module is taught	IV
Lectures (Person Responsible)	Prof. Dr. Ir. Elisa Julianti
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, foodcase method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	The course material consists of mastering the concepts and skillfully processing typical North Sumatra dishes including: Types of traditional food of North Sumatra: staple foods, influencing factors, processing techniques and innovations in typical North Sumatra food and serving procedures.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the production process and innovative development of traditional food based on food science principles • Able to analyze the nutritional content of traditional North Sumatra foods
Content	<ol style="list-style-type: none"> 1. Introduction 2. Types of traditional food 3. Factors affecting traditional food types 4. Traditional Malay food (Deli Serdang and Langkat) 5. Traditional Malay food (Asam & Batubara) 6. Traditional Food Product Innovation 7. Task Presentation 8. Introduction to Traditional Food of North Sumatra 9. Introduction to Traditional Malay Food 10. Introduction to Traditional Batak Food (Toba, Karo, Simalungun) 11. Introduction to Traditional Batak Food (Mandailing,



	Angkola, Pak-pak) 12. Traditional Food of Nias 13. Task Presentation 14. Task Presentation (Continued once)
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning Media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Dwi Kristiastuti, 2015, Hand Out Bahan Ajar Pengelolaan Makanan Indonesia. Siahaan E. K. 1983. Makanan, Tubuh, Variasi, dan Fungsinya serta Cara Penyajiannya Daerah Sumatera Utara. Departemen Pendidikan dan Kebudayaan Direktorat Sejarah dan Nilai Tradisional Proyek Inventarisasi dan Dokumentasi Kebudayaan Daerah. Sri Owen. 1990. Indonesian Food and Cookery. Jakarta: Indah Grafika Abdi, H. (2020, September 9). 10 Makanan Lezat Khas Sumatera Utara yang Terkenal Lezat, Tak Cuma Bika Ambon. Retrieved from hot.liputan6.com: Supporters: Articles from Journal Food Technology, Food Science, International Food Research Journal
Last date of update	July 2025



5th Semester



ITP3101 FOOD ANALYSIS

Course Name	Food Analysis
Code	ITP3101
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Linda Masniary Lubis, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project based learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	After attending this course, students are expected to understand what is meant by Food Analysis, how to make chemical solutions, standard solutions, formulation of chemical composition of food ingredients, standard curves, use of tools and working principles, water chemistry, determination of water content, carbohydrates and ways of determining them, fat and ways of analyzing fat, protein and ways of analyzing them, ash and ways of analyzing them, vitamins and additives and ways of analyzing them. After attending the lecture, students are expected to be able to explain how to make chemical solutions, standard solutions, standard curves and their benefits, make formulations of content in food, use tools for analysis and ways to analyze and take correct samples made of food.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the content of food ingredients, including the determination of macro and micro nutrient content in food ingredients• Able to comprehensively analyze microbiological characterization methods of food ingredients• Able to evaluate the basic principles in the preparation of chemical solutions, standard solutions, formulation of chemical composition in food ingredients, principles of correct sampling of food ingredients and understand



	<p>their benefits in ensuring the representativeness of analytical results.</p> <p>Able to analyze the principles of chemical analysis and the work of tools, and can interpret the results of the analysis with reference to the standard curve.</p>
Content	<ol style="list-style-type: none">1. Purpose and role of food analysis2. Preparation of chemical solution3. Determination of moisture content4. Determination of ash content5. Determination of fat content6. Determination of oil quality7. Determination of total acid and pH8. Determination of carbohydrate content I9. Determination of carbohydrate content II10. Determination of dietary fiber content11. Determination of protein content12. Determination of vitamin C content13. Determination of food additives14. Microbiological determination of food ingredients
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Sudarmadji, S., B. Haryono, dan Suhardi, 1989. Analisa Bahan Makanan dan Pertanian, Penerbit Liberty, Yogyakarta.</p> <p>Harini, N., R. Marianty dan V.A.Wahyudi, 2019. Analisa Pangan, Penerbit Zifatama Jawara, Surabaya.</p> <p>Analisis Pangan, 2011. Andarwulan, N., F. Kunandar, D. Herawati, Penerbit Dian Rakyat, Jakarta.</p> <p>Yerina, R. 2015. Metode Analisis Bahan Pangan dan Komponen Bioaktif, Andalas University Press, Padang</p>
Last date of update	July 2025



ITP3102 FOOD ANALYSIS LABORATORY

Course Name	Food Analysis Laboratory
Code	ITP3102
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Linda Masniary Lubis, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project based learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course discusses the analysis of food and agricultural products, how to make chemical solutions, standard solutions, formulation of chemical composition of food ingredients, standard curves, use of tools and their working principles, water chemistry, determination of water content, carbohydrates and methods of determination, fat and ways of analyzing fat, protein and ways of analyzing it, ash and ways of analyzing it, vitamins and additives and how to analyze them.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the content of food ingredients, including the determination of macro and micro nutrient content in food ingredients • Able to comprehensively perform microbiological characterization methods of food ingredients • Able to practice the basic principles in the preparation of chemical solutions, standard solutions, formulation of chemical composition in food ingredients, principles of correct sampling of food ingredients and understand their benefits in ensuring the representativeness of the analysis results. • Able to use chemical analyzers and work tools, and be able to interpret analysis results with reference to standard curves.
Content	<ol style="list-style-type: none"> 1. Determination of moisture content in various food ingredients 2. Determination of Ash Content in Various Food



	<p>Ingredients</p> <ol style="list-style-type: none"> 3. Determination of Protein Content in Various Food Ingredients 4. Determination of Fat Content in Various Food Ingredients 5. Determination of Carbohydrate Content in Various Food Ingredients 6. Determination of NaCl Content in Various Foodstuffs 7. Determination of Fiber Content in Various Food Ingredients 8. Determination of Total Sugar in Various Food Ingredients 9. Determination of reducing sugar content in various food ingredients 10. Determination of Vitamin C Content in Various Food Ingredients
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Laboratory Report (20%)
Learning media	Whiteboard and lab guide
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Sudarmadji, S., B. Haryono, dan Suhardi, 1989. Analisa Bahan Makanan dan Pertanian, Penerbit Liberty, Yogyakarta.</p> <p>Harini, N., R. Marianty dan V.A.Wahyudi, 2019. Analisa Pangan, Penerbit Zifatama Jawara, Surabaya.</p> <p>Analisis Pangan, 2011. Andarwulan, N., F. Kunandar, D. Herawati, Penerbit Dian Rakyat, Jakarta.</p> <p>Yerina, R. 2015. Metode Analisis Bahan Pangan dan Komponen Bioaktif, Andalas University Press, Padang</p> <p>James, C.S., 1995 Analytical Chemistry of Foods, Blackie Academic and Professional</p> <p>Current journals with the theme of analyzing various food ingredients.</p>
Last date of update	July 2025



ITP3103 PLANTATION CROP PROCESSING TECHNOLOGY

Course Name	Plantation Crop Processing Technology
Code	ITP3103
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Nauas Domu Marihot Romauli, Dr, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project based learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a compulsory course for fifth semester students of the Food Technology Study Program. Processing of palm oil, rubber and cocoa. Harvesting, processing, changes that occur during processing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to utilize the concept of food science and food process engineering as well as design agricultural food products creatively and innovatively as well as utilize local Indonesian food ingredients that are good for public health.• Able to implement the principles of developing new food products by maximizing soft skills, entrepreneurial spirit and cooperation in terms of tenacity, creativity and innovation in formulating Indonesian local food ingredients in accordance with the principles of TALENTA's superior processing technology
Content	<ol style="list-style-type: none">1. Oil Palm Plants2. Growth and Development of Oil Palm Fruits3. Harvesting and Transportation4. Processing of Oil Palm Crop Products5. Primary Cocoa Plant Processing6. Secondary Cocoa Plant Processing7. Coconut plants8. Coconut processing technology



	<p>9. Sugarcane Processing Technology 10. Sugarcane sap purification</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Main:</p> <p>Naibaho, P.M. 2018. Teknologi Pengolahan Kelapa Sawit. Pusat Penelitian Kelapa Sawit, Medan.</p> <p>Sulistyo B, A. Purba, D. Siahaan dan R. Harahap. 2006. Teknologi Pengolahan Kelapa Sawit dan Produk Turunannya. Pusat Penelitian Kelapa Sawit, Medan.</p> <p>Muchtadi, T.R dan M. A. Aziz. 2016. Industri Produk Hilir Kelapa Sawit. Penerbit Alfabeta Bandung.</p> <p>Haryadi dan Supriyanto. 2017. Teknologi Cokelat. Gadjah Mada University Press, Yogyakarta.</p> <p>Basri, H. D. 2004. Guidelines for Coconut Processing Technology. Edition 2. Directorate of Processing and Marketing of Plantation Products, Jakarta.</p> <p>Bahrn, A.H., A. A. Sulaiman, F. Djufry, S. Karouw, L. Trivana, Y. Matana, Nasaruddin, Rafiuddin, and Nurfaida. 2024. Coconut Cultivation and Processing. Agriculture Press, Jakarta.</p> <p>Indrawanto, C, Purwono, Siswanto, M. Syakir, and W. Rumini. 2010. Sugarcane Cultivation and Post-harvest. Eska Media, Jakarta.</p> <p>Djuneidi, I. 2003. Guidelines for Sugarcane Technology. Directorate of Processing and Marketing of Plantation Products, Jakarta</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3104 PLANTATION CROPS PROCESSING TECHNOLOGY LABORATORY

Course Name	Plantation Crops Processing Technology Laboratory
Code	ITP3104
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Nauas Domu Marihot Romauli, Dr, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project base learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a mandatory course for students in the fifth semester of the Food Technology Study Program. Practices include determining the quality of palm oil including moisture content, free fatty acids (ALB), peroxide number and acid number). Coconut sugar manufacturing. Purification of sugarcane sap. Determination of slaty seed percentage. Manufacturing of processed products (processed palm oil and processed dried cocoa beans)
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to utilize the concept of food science and food process engineering as well as design agricultural food products creatively and innovatively as well as utilize local Indonesian food ingredients that are good for public health. • Able to implement the principles of developing new food products by maximizing soft skills, entrepreneurial spirit and cooperation in terms of tenacity, creativity and innovation in formulating Indonesian local food ingredients in accordance with the principles of TALENTA's superior processing technology
Content	<ol style="list-style-type: none"> 1. Observation of the physical properties of 3 types of oil palm fruits 2. Determination of moisture content and free fatty acid content of CPO



	<ol style="list-style-type: none">3. Determination of peroxide number and acid number of CPO4. Determination of moisture content, free fatty acids and acid number of Palm Oil5. Manufacturing of palm oil products6. Processing of coconut sap into coconut sugar7. Sugarcane sap purification8. Processing cocoa beans into dried cocoa beans9. Manufacturing of processed chocolate products from dried cocoa beans
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Practicum Guide and whiteboard
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Practical Guide Supporters: Related journals
Last date of update	July 2025



ITP3105 PROCESSING TECHNOLOGY OF REFRESHING CROPS

Course Name	Processing Technology of Refreshing Crops
Code	ITP3105
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Edy Syahputra Harahap, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course description	This course studies the causes of changes in the nutritional components of food during pre-harvest, harvest and post-harvest of fresh plants, the chemical content of fresh plants, types of fresh plants, utilization of fresh plants, how to process fresh plant materials, as well as processing methods, factors that affect the quality of fresh plant products and create innovative fresh plant products.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the causes of changes in the nutritional components of food ingredients during pre-harvest, harvest and post-harvest of refreshing plants, the chemical content of refreshing plants, types of refreshing plants, the use of refreshing plants, how to process refreshing plant ingredients, and processing methods. • Able to analyze the factors that affect the quality of refreshing crops and create new product innovations.
Content	<ol style="list-style-type: none"> 1. Definition of Refreshing Plants 2. Cocoa and Cocoa Postharvest 3. Coffee characteristics 4. Coffee postharvest 5. Coffee processing 6. Handling and postharvest of ginger and turmeric 7. Handling of curcuma, kencur and galangal 8. Types of tea and processing



	<ol style="list-style-type: none">9. Tea leaf processing plant10. Changes in the chemical makeup of tea leaves11. Relationship of rolling and grinding characteristics to tea quality12. Effect of Fermentation13. Tea Leaf Drying14. Tea leaf storage and Black Tea Quality
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Nehlig, A. 2004. Coffee, Tea, Chocolate, and The Brain. CRC Press, New York. McKinley, H and M. Jamieson. 2009. Handbook of Green Tea and Health Research. Nova Science Publishers, Inc, New York. AlMuhdhar, M. H. I, F. Rochman, M. N. Tamalene, Wawan, S. N, dan Alfian, D. 2018. Keanekaragaman Tumbuhan Rempah dan Pangan Unggulan Lokal. Universitas Negeri Malang, Malang
Last date of update	July 2025



ITP3106 PROCESSING TECHNOLOGY OF REFRESHING CROPS LABORATORY

Course Name	Processing Technology Of Refreshing Crops Laboratory
Code	ITP3106
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Edy Syahputra Harahap, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project based learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course studies the application of technology in the process of making products from refreshing plants with good quality by utilizing local raw materials.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply technology in the process of making products from refreshing plants creatively and innovatively • Able to apply and develop refreshing plant products with good quality through the utilization of local raw materials.
Content	<ol style="list-style-type: none"> 1. Practicum Briefing by Subject Lecturer 2. Preparation of Sour Turmeric Juice 3. Temulawak juice making 4. Wedang Ronde Cider / Ginger Cider Making 5. Making Kencur Rice Cider 6. Tea Processing 7. Test Analysis of Tea content 8. Coffee Processing 9. Coffee Analysis Test 10. Chocolate Processing 11. Chocolate Product Manufacturing 12. Final Sanitization, Practical Test
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%)



	<ul style="list-style-type: none">• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	whiteboard, lab manual
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Practical guide Supporters: Related journals
Last date of update	July 2025



ITP3107 SCIENTIFIC WRITING AND ORAL PRESENTATION

Course Name	Scientific Writing and Oral Presentation
Code	ITP3107
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, M.Phil
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course studies the making of research proposals; writing scientific reports, observing and formulating problems, formulating hypotheses, collecting data, designing experiments and presenting the results that have been obtained.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply scientific writing procedures in preparing the results of the final project analysis • Able to apply the processes and ethics of writing the final project in accordance with scientific principles and existing regulations.
Content	<ol style="list-style-type: none"> 1. Definition of Scientific Method and Science 2. Types of Research 3. Research stages 4. Writing Initial Draft 5. Tables and Graphs 6. Abstract and Introduction 7. References and Acknowledgments 8. Oral presentation 9. Keep the speech simple 10. Using PowerPoint for presenting oral presentations 11. Oral presentation 12. Effective Presentation 13. Scientific Writing and Oral Presentation



Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Supporters: Related journals
Last date of update	July 2025



ITP3108 NEW FOOD PRODUCT DEVELOPMENT

Course Name	New Food Product Development
Code	ITP3108
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MSi
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignment (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Background of new food product development, product idea development, product idea screening, product design (including technology and engineering in product development), prototype development, consumer behavior study and its role in food product development, market evaluation, marketing planning, product production and launch, legal protection of new products and new food product development trends.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the process of making new food products made from local food and evaluate the systematic development of new food products and prototypes.• Able to analyze the application of technology in making new food products• Able to analyze the process of using funds in the manufacture of new food products to determine the selling price of products and implement the process of promoting food products.
Content	<ol style="list-style-type: none">1. Introduction2. Food Product Development Systematics3. Principal Foundations of Product Development4. Product Idea Development5. Idea Generation Technique6. Product Idea Screening



	<p>7. PBL presentation 8. Product Design Concept, Profile, and Specifications 9. Product Prototype Development 10. Product Prototype Development (Continued) 11. Consumer's Role in Food Product Development 12. Market Evaluation in Product Development 13. Marketing Planning, Production and Product Launch 14. Legal protection of new products</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49</p>
Reading list	<p>Main: Beckley, J.H. 2007. Accelerating new food product design and development. Blackwell Pub. (e resrouce). Carpenter, R.P., Lyon, D.H. and Hadsell, T.A. 2000. Guidelines for sensory analysis in food product development and quality control. Aspen Pub. Gaithersburg, MD. Sci and Tech TP 372.5G85 2000. Cooper, R.G. 1993. Winning at new products: accelerating the process from idea to launch. Addison-Wesley, Reading Mass. Management Library. HF 5415.153 C65</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3109 NEW FOOD PRODUCT DEVELOPMENT LABORATORY

Course Name	New Food Product Development Laboratory
Code	ITP3109
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MS
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project based learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credits (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses how to develop food products so that they can produce food products with higher nutritional value using existing technology and innovation.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to innovate and design new product formulations made from local food. • Able to analyze material production control • Able to evaluate the process of making new food products based on market analysis, consumer analysis and product promotion models
Content	<ol style="list-style-type: none"> 1. Product Idea Development 2. Product Idea Screening 3. Idea Realization: Prototype Making 4. Idea realization: Product Creation 5. Market Test of New Food Products 6. Business analysis of new food products 7. Formulation of New Food Product Marketing Strategy 8. Analysis of moisture content and ash content of new food products 9. TSS & sensory Analysis of New Food Products 10. Creation of new food product development poster 11. Poster Presentation 12. Practical Test
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%)



	<ul style="list-style-type: none">• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Whiteboard, Lab manual
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Ulrich Karl. T. and Eppinger Steven D. Product Desingn and Development. 5th edition. 2011. Mc. Graw Hill. Ariadne. C. Teknik Mengelola Produk dan Merek. 2017. Jakarta : Gramedia Pustaka Utama. Purnomo, D dan Sukarti, T. Teknik Pengembangan Produk Pangan Baru. 2010. Bandung : Widya Padjajaran Supporters: Related journals
Last date of update	July 2025



ITP3110 FUNCTIONAL FOOD

Course Name	Functional food
Code	ITP3110
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MS Syahira Addina, S.Pi.,
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project based learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the health attributes of functional foods including: Cancer risk reduction; Obesity control; Dietary factors in aging and Energy boosting foods. Functionality of food components such as fiber, probiotics, prebiotics, vitamins, macro and micro-minerals and antioxidants. Functional food processing, active component analysis, basic opportunities and consumer views on functional food are also discussed.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to describe certain active components contained in food ingredients that are useful for health (preventive and curative functions against a disease). Able to apply the principles of processing functional food products and testing methods for functional ingredients in food
Content	<ol style="list-style-type: none"> Introduction Health attributes of functional foods Health attributes of functional foods (continued) Health attributes of functional foods (continued) Food components that act as functional foods (oligosaccharides and dietary fiber) Food components that act as functional foods (sugar alcohols) Food components that act as functional foods (fatty



	<p>acids)</p> <ol style="list-style-type: none">8. Food components that act as functional foods (amino acids and peptides)9. Food components that act as functional foods (phytochemicals and antioxidants)10. Food components that act as functional foods (probiotics)11. Food components that act as functional foods (vitamins, macrominerals, and trace elements)12. Functional food processing13. Functional food bioactive component testing14. Functional food bioactive component testing
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Goldberg, I. 1994. Functional Foods. Chapman & Hall, Inc. New York.</p> <p>Gibson, G.R. 2000. Functional Foods: Concept to Produce. CRC Press</p> <p>Hurst, W.J. 2000. Methods of Analysis for Functional Foods and Nutraceuticals. CRC Press.</p> <p>Shi, J. 2000. Functional Foods: Biochemical and Processing Aspects. Vol.II CRC Press.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3111 FIELDWORK PRACTICE

Course Name	Fieldwork Practice
Code	ITP3111
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ol style="list-style-type: none"> 1. Lectures (explanation, discussion) 2. Structured assignment (i.e.: article reading and review, case method, project based learning) 3. The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.4 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	No requirement to have passed in other courses
Course Description	Field Work Practice (PKL) is an activity for students to practice the Food Technology Science that they have obtained, at a company/factory, UMKMs, research centers within a certain period of time.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to implement food technology sciences in commercial business units in solving technical and quality problems that occur • Able to analyze quality problems that arise in commercial business units by utilizing food quality analysis knowledge and compiling the results of the quality analysis in the form of a systematic and thorough implementation report. • Able to provide solutions to problems that arise in commercial business units by applying food technology sciences that are innovative, wise and with integrity • Able to apply food sciences in self-development in the world of the food industry
Content	<ol style="list-style-type: none"> 1. Preparation: search for street vendor partners, street vendor administration management, communication with partners, street vendor debriefing 2. The search for scientific literature as a theoretical basis in the implementation of street vendors 3. Preparation of street vendor proposals 4. Implementation of street vendors in partners



	<ol style="list-style-type: none">5. Interpretation and analysis of the results of observations and special Assignment at street vendor partners6. Presentation of street vendors in scientific writings7. Oral presentation of street vendor results
Examination form	<ul style="list-style-type: none">• Attendance 5%• Survey Results 5%• Implementation of fieldwork practice 40%• Fieldwork practice proposal 15%• Exam (presentation) 30%
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Field Work Practice Guide for S-1 Technology Study Program ARIFIN, Muhammad. Analisa dan perancangan Sistem informasi praktek kerja lapangan pada instansi/perusahaan. Simetris: Jurnal Teknik Mesin, Elektro dan Ilmu Komputer, 2014, 5.1: 49-56.
Last date of update	July 2025



**KES2205 COMMUNITY ORGANIZATION AND COMMUNITY DEVELOPMENT
(INTERNATIONALIZATION II)**

Course Name	Community Organization and Community Development (Internationalization II)
Code	KES2205
Semester(s) in which the module is taught	V
Lecturer (Person Responsible)	Agus Suryadi, S.Sos., M.Si
Language	Indonesian or English
Relation to curriculum	Compulsory Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Course discussions include understanding, community empowerment, community organizing, community needs, the role and function of CO Workers, and how to organize the community. Then the definition of community development, participation, development issues, several development theories, and stages of community empowerment.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply community empowerment, community organizing, community needs, roles and functions of CO Workers, and how to organize communities. • Able to propose social work methods by focusing on community and development with all the problems and problem-solving techniques and strategies found in the community.
Content	<ol style="list-style-type: none"> 1. Social Development of Social Welfare perspective (Social Work, Social Development and Development Studies) 2. Community Intervention and Community Development 3. Community Development, Developing Communities for the future



	<ol style="list-style-type: none"> 4. Community Development, Developing Communities for the future 5. Development Perspectives in Social Welfare 6. Analyzing Community Work 7. Community Development 8. Developing Communities for the future 9. Community Organization Theory, Principles and Practice 10. Developing Communities for the future 11. Community Organization Theory, Principles and Practice and Community Intervention 12. Community Intervention 13. Community Intervention 14. Community Intervention
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Jim ife & Frank tesoriero, 2008. Community Development. Yogyakarta: Pustaka Pelajar</p> <p>James midgley, 2005. Pembangunan Sosial perspektif Kesejahteraan Sosial. Jakarta: Diperta Depag RI</p> <p>Isbandi R.Adi, 2008. Intervensi Komunitas Pengembangan Masyarakat sebagai Upaya Pemberdayaan Masyarakat. Jakarta: Rajawali Pres</p> <p>Susan Kenny, 2006. Developing Communities for the future. Australia: Thomson</p> <p>Murray G, Ross & B.W.Lappin, 1967. Community Organization Theory, Principles and Practice. Singapore: Times Printers</p> <p>Keith Popple, 1996. Analysing Community Work. Hongkong: Binddles</p> <p>Totok Mardikanto & poerwoko soebiato, 2015. Pemberdayaan masyarakat. Bandung: Alfabeta</p>



	Edi Suharto, 1997. Pembangunan, kebijakan sosial & pekerjaan sosial. Bandung: LSP STKS Isbandi R. Adi, 2015. Kesejahteraan Sosial (Pekerjaan Sosial, Pembangunan Sosial dan Kajian Pembangunan). Jakarta: Rajawali PresSupporters: Related journals
Last date of update	July 2025



6th Semester



ITP 3103 LIVESTOCK PRODUCT KNOWLEDGE

Course Name	Livestock Product Knowledge
Code	ITP 3103
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Dr. Ir. Nevy Diana Hanafi, S.Pt., M.Si., IPM
Language	Indonesian or English
Relation to curriculum	Elective Courses Outside The Study Program
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project based learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	No requirement to have passed in other courses
Course Description	A course that studies various products and products that can be obtained from livestock, be it the main product such as meat, milk, eggs, or by-products such as leather, fur, and livestock manure. This course aims to provide knowledge to students about the nature, quality, processing process, and management of livestock products to ensure safe, quality, and industry standards. In addition, this course also discusses the use of livestock products in various industries, including food, cosmetics, pharmaceuticals, and other industrial raw materials.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Students are able to explain the basics of livestock product technology which includes composition, physical properties and chemical properties as well as measuring the quality of livestock products and their accompanying Students explain the basics of the processes needed in the process of handling, preserving and processing livestock/their products Students are able to apply the basics of handling, preserving and processing livestock/their products Students are able to develop the best and latest techniques in livestock product science
Content	<ol style="list-style-type: none"> Introduction Basics of meat technology



	<ol style="list-style-type: none"> 3. Basics of meat technology (Advanced) 4. Basics of meat technology (Advanced) 5. Basics of dairy technology 6. Basics of dairy technology (Advanced) 7. Basics of dairy technology (Advanced) 8. Basics of egg technology 9. Basics of egg technology (Advanced) 10. Basics of livestock follow-up technology 11. Basics of Livestock Derivative Technology (Advanced) 12. Basics of Livestock Derivative Technology (Advanced) 13. Basics of Processing Livestock Products and Their Followers 14. Basics of Processing Livestock Products and Their 15. Participation (Continued)
Examination form	<ul style="list-style-type: none"> • Quizzes (5%) • Assignment (5%) • Midterm exams (20%) • Final exams (20%) • Project-Based Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Soeparno. 2016. Meat Science and Technology 2nd Edition, Gajah Mada University Press</p> <p>Imam Thohari. 2018. Egg Preservation and Processing Technology. UB Press: Malang</p> <p>Tridjoko Wisnu Murti. 2021. Food, Nutrition and Milk Technology. UGM Press: Yogyakarta</p> <p>Soewarno T. Soekarto. 2008. Handling and Processing of Livestock Products. Universitas</p>
Last date of update	July 2025



AGT3175 POST-HARVEST PESTS AND DISEASES

Course Name	Post-Harvest Pests And Diseases
Code	AGT 3175
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Dr. Lisnawita SP. M.Si
Language	Indonesian or English
Relation to curriculum	Elective Courses Outside The Study Program
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	The post-harvest pests and diseases course discusses in depth the various pests and diseases that attack agricultural products after harvest. In this context, students will learn the characteristics, biology, and behavior of pests and pathogens that can affect the quality and durability of post-harvest products. held in 14 face-to-face meetings, structured assignments, Case Method and Project-based learning, midterm exams, and semester exams.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply agrotechnology theory to create a sustainable agricultural system • Able to solve problems in the field of agrotechnology by taking into account economic, public health and safety, socio-cultural and environmental factors. • Students are able to apply the theory of plant pests and diseases • Students are able to solve problems in the field of agrotechnology by taking into account environmental factors
Content	<ol style="list-style-type: none"> 1. Characteristics of post-harvest products and their problems 2. Ecological factors that affect the abundance of warehouse pest populations 3. Ecological factors that affect the abundance of warehouse pest populations



	<ol style="list-style-type: none"> 4. Microclimate dynamics that affect pest development 5. Post-harvest pests of the beetle type (coleoptera) 6. Post-harvest pests of the type of moth (lepidoptera), psocid, termites 7. Biology and behavior of rats as warehouse pests 8. Good warehouse management and pest management techniques 9. Causes of post-harvest diseases 10. Appropriate seed health test methods 11. The effect of pathogens (especially fungi) of the warehouse on animals and humans 12. Post-harvest diseases of fruits and vegetables 13. Factors that influence the outbreak of post-harvest diseases 14. Post-harvest disease control techniques
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Dobie, P., Haines, C. P., Hodges, R. J., & Pevett, R. F. (1984). <i>Insects and Arachnids of Tropical Stored Products, Their Biology and Identification</i>. Storage Dept Development and Research Institute, Slough, England.</p> <p>Mardinus. (2003). <i>Patologi Benih dan Jamur Gudang</i>. Andalas University Press.</p> <p>Meaney, P. (1998). <i>Insect Pest Food Premises</i>.</p> <p>National Britannia Ltd. Soewarno T. Soekarto. 2008. <i>Handling and Processing of Livestock Products</i>. Universitas</p> <p>Martoredjo, T. (1986). <i>Ilmu Penyakit Lepas Panen</i>. Ghalia Indonesia, Yogyakarta.</p> <p>Neergard, P. (1997). <i>Seed Pathology</i>. The Maxmillan Press Ltd, London University Press.</p>



	Semangun, H. (1996). Pengantar Ilmu Penyakit Tumbuhan. Gajah Mada University Press. Wagiman, F. X. (2014). Hama Pasca Panen dan Pengelolaannya. Gajah Mada University Press.
Last date of update	July 2025



ITP 3201 FISHERY PRODUCTS TECHNOLOGY

Course Name	Fishery Products Technology
Code	ITP 3201
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the classification of fishery products, their nutritional content, the causes of changes in the nutritional components of food ingredients after post-harvest, handling fresh forms, various processing methods for both fresh forms and finished products, storage of fresh forms and finished products, problems that often arise after processing or preservation, how to overcome and maintain and improve the nutritional content of fishery products, factors that can reduce nutritional components both fresh forms and finished products.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to implement the principles of fishery product processing and handling technology by taking into account the characteristics of fishery product commodities• Able to describe changes in quality characteristics and factors that cause them during the processing or handling of fishery products.
Content	<ol style="list-style-type: none">1. Scope of fisheries technology2. Structure and properties of fish tissues3. Post mortem changes of fish4. Forms of fishery products5. Methods of handling fresh fish manually or electrically, and post mortem



	<ol style="list-style-type: none"> 6. Low temperature and high temperature preservation technology 7. History of surimi and world surimi demand 8. Traditional and modern surimi processing methods 9. Processing technology of fermented products both traditionally and modernly 10. Factors affecting the failure of fermented fish products 11. Fish cake processing technology and uses 12. Silage processing technology and its application 13. Seaweed classification and world demand 14. Seaweed processing technology
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>E Suprayitno. 2017. Basic Preservation. Brawijaya University Press</p> <p>Alexandru Grumezescu. 2016. Book Preservation. Academic Press</p> <p>Wheaton, Fredrick W. and Lawson, Thomas B. 1985. Processing Aquatic Food Products. Published simultaneously: Canada.</p> <p>Gisslen, W. 2011. Professional Cooking 7th Edition. USA: John Wiley & Sons, Inc.</p> <p>Boziaris, I., S. 2014. Seafood Processing: Technology, Quality and Safety. UK: John Wiley and Sons, Ltd.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3202 BREAD AND CAKE TECHNOLOGY

Course Name	Bread and Cake Technology
Code	ITP3202
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MS
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the application of bread and cake production process engineering including the introduction of basic material quality. Carbohydrates (wheat flour, rice, corn, sago, tapioca and others). Formulation changes, emulsifiers, additives and preservatives. Gluten dough process (glutan development). Processing (baking) and product standardization, FR product packaging process and storage
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to identify problems in bread processing• Able to make and develop bread and cake products with good quality through the utilization of local raw materials.
Content	<ol style="list-style-type: none">1. Introduction2. Properties and Functions of Basic Bread and Cake Making Ingredients (wheat flour, rice, tapioca, sago, corn, etc.) and Other Additives3. Baking Principles4. Equipment in Bakery Product Manufacturing and Baking Ovens5. Bread6. Cake7. Biscuits and Cookies8. Crackers9. Wafer Biscuits



	<p>10. Pies and Pastries 11. Traditional Cake 12. Icing and Toppings 13. Bakery Products for Specific Diets 14. Unconventional Bakery Products and Bakery Products from Leguminous Flour Raw Materials</p>
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main: Zhou, W. 2014. Bakery Products Science and Technology, 2nd Ed. Wiley Blackwell. Edward, W.P. 2007. The Science of Bakery Products. The Royal Society of Chemistry, UK. Cauvain SP and Young LS. 2008. Bakery Food Manufacture and Quality Water Control and Effect. Wiley Blackwell. Journal of Food Science, Food Science and Technology, Starch. Supporters: Related journals</p>
Last date of update	July 2025



ITP3203 BREAD AND CAKE TECHNOLOGY LABORATORY

Course Name	Bread and Cake Technology Laboratory
Code	ITP3203
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MS
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (i.e.: case method or project base learning) The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the making of bread and cakes and the utilization of local raw materials for making bread and cakes.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to apply bread and cake making Able to apply the manufacture of bread and cake products with good quality through the utilization of local raw materials.
Content	<ol style="list-style-type: none"> 1. Cookies Making 2. Biscuit Making 3. Cake Making 4. Fresh Bread Making 5. Sweet Bread Making 6. Icing Making 7. Cream Making 8. Vegan Bakery Maker 9. Making Bakery Products Using Composite Flour 10. Making gluten-free bakery products
Examination form	<ul style="list-style-type: none"> Quiz (5%) Assignment (5%) Midterm examination (20%) Final examination (20%) Project Base Learning (30%) Laboratory Report (20%)
Learning media	Practicum guide and whiteboard
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric:



	A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Zhou, W. 2014. Bakery Products Science and Technology, 2nd Ed. Wiley Blackwell. Edward, W.P. 2007. The Science of Bakery Products. The Royal Society of Chemistry, UK. Cauvain SP and Young LS. 2008. Bakery Food Manufacture and Quality Water Control and Effect. Wiley Blackwell. Food Science, Food Science and Technology, Starch, and other relevant journals. Practical guide Supporters: Related journals
Last date of update	July 2025



ITP3204 ENGINEERING ECONOMICS

Course Name	Engineering Economics
Code	ITP3204
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Edy Syahputra Harahap, S.TP, M.Si
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project base learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course provides the theory and application of decision making that considers economic aspects in engineering, business, and personal contexts. In decision making there will be several alternative solutions considered and evaluated. This course also discusses break even points, depreciation, taxes, and inflation.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to analyze calculations in the agriculture and food processing industry Able to analyze project analysis problem solving especially agricultural projects economically
Content	<ol style="list-style-type: none"> Principles of Engineering Economics Production Cost Concept of Value of Money over time Engineering Economics Methods Introduction to Engineering Economics and Module Interest Analysis Diagram and Value for Money over Time Money Value Equalization I Regression Analysis Single Method Regression Analysis BEP Projection Analysis I Projection Analysis II



	13. Case Study of Instant Koption Economic Techniques 14. Engine Replacement and Islamic Banking
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Sullivan, W. G., Wicks, Elin M., Koelling, C. Patrick, 'Engineering Economy', 14th edition, Prentice Hall 2009. Giatman, "Ekonomi Teknik", Edition 1; PT Raja Grafindo Persada, Jakarta 2006. Tarquin, Blank, "Engineering Economy", Mc. Graw Hill, New York 2006 Grant, Eugene L., "Ekonomi Teknik", Cetakan kelima., Rineka Cipta., Jakarta 1996. Supporters: Related journals
Last date of update	July 2025



ITP3205 PROCESS CONTROL AND AUTOMATION

Course Name	Process Control and Automation
Code	ITP3205
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Edy Syahputra Harahap, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project base learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses how to implement production system automation technology, starting from planning to process engineering by integrating mechanical, electronic and computerized technology in an integrated computer system management on a production line or part of its support system.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to describe critical points in the process and their control factors. Able to describe process quantities, detection methods, transduction and representation of measurement results. Able to analyze the integration process of automation systems and analytical process technicians as a whole in food production. Able to analyze the program for the use of industrial automation system tools in Diagram (LD), Function Block Diagram (FBD), Structured Tect (ST), Instruction List (IL), and Sequential Function Chart (SFC).
Content	<ol style="list-style-type: none"> Basic concepts and models of Automation System Support system and automation system design principles Digital system and electrical circuit of Food industry Elements of automation system (transducer, sensor,



	<p>control and actuator)</p> <ol style="list-style-type: none"> 5. Basic theory and controller systems 6. Programming logic control (PLC) and numeric control (NC). 7. Midterm Assignment Presentation 8. Industrial automation process control and its applications. 9. Industrial automation Process Control and its applications. (Continued) 10. Material handling and transportation system 11. Automated data storage and identification system. 12. Supporting elements of the manufacturing system. 13. Recent development of production system automation and its influence and future trends 14. Task Presentation
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Groover, M.P. (2014). Automation, Production Systems, and Computer-Integrated Manufacturing, 3rd edition, Pearson, Harlow, New Jersey.</p> <p>Alciatore, D.G. and Histan, M.B. (2003) Introduction to Mechatronics and Measurement Systems, 2nd edition, McGraw-Hill series in Mechanical Engineering, McGraw-Hill, Boston.</p> <p>Boucher, T.O (1996) Computer Automation in Manufacturing: An Introduction, Chapman & Hall, London.</p> <p>Fu, K.S., Gonzalez, R.C. and Lee, C.S.G. (1987) Robotics: Control, Sensing, Vision, and Intelligence, McGraw-Hill Publishing, New York.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3206 FOOD LEGISLATION

Course Name	Food Legislation
Code	ITP3206
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class• Contact hours for lecture are 23.3 hours per semester
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses Food Legislation. Students will gain mastery of the definition and regulations on food in law, food regulation and supervision systems, food problems in society, food safety management systems, food quality standards and their regulations, risk analysis in food safety systems, food nutritional safety, food promotion, GMP in the food industry, regulations and requirements for the use of raw materials and BTP in genetic engineering processes, and regulations for packaging requirements, labels, and food advertising. In addition, students will undertake collaborative and project-based learning to design and analyze food quality problems in the free market and their impact on domestic and global trade. The results of student designs will be presented in the form of group discussions and presentations.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to communicate orally and in writing about the Food Law that regulates all activities related to food that can provide health protection for the benefit of the community.• Able to analyze everything related to the nutrient content of food ingredients,• Able to analyze food ingredients from genetic engineering



	<ul style="list-style-type: none">• Able to analyze food ingredients in terms of storage and packaging• Able to analyze food ingredients in terms of transportation.
Content	<ol style="list-style-type: none">1. Definition and Regulations on Food in Law2. Food Regulation and Supervision System3. Food Problems in Society4. Food Safety Management System5. Food Safety Management System (Continued)6. Food Quality Standards and Legislation7. Risk Analysis In Food Safety System8. Food Nutrition Safety9. Food Promotion10. GMP in the Food Industry11. Regulations and Requirements for the Use of Raw Materials and BTP in Genetic Engineering Processes12. Regulations and Requirements for the Use of Raw Materials and BTP in Genetic Engineering Processes (Continued)13. Regulations on Food Packaging, Labeling and Advertising Requirements14. Food Quality Problems in the Free Market and Their Impact on Domestic and Global Trade
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Fortin, N.D. (2022). Food regulation: law, science, policy, and practice. John Wiley & Sons. Henson, S., Caswell, J. (1999). Food safety regulation: an overview of contemporary issues. Food policy, 24(6), 589-603. Wijaya, H., Kristanto, A., Indriastanti, F., YK, A. (2009). Food Standardization and Legislation. Main Material Book Pang4413/2sks/Module, 1-6.



	Wijaya, ICH (2011). Scope of Food Regulation and Its Uses. Module, 1, 1-27. Supporters: Related journals
Last date of update	July 2025



ITP3207 FOOD INDUSTRY WASTE PROCESSING TECHNOLOGY

Course Name	Food Industry Waste Processing Technology
Code	ITP3207
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Ir. Ismed Suhaidi, Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Food industry Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.4 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course studies ecology and ecosystems, environment, environmental pollution, water pollution, BOD and COD, food industry waste, microorganisms that decompose organic components of waste, food industry waste management (primary, secondary, tertiary handling), and several examples of food industry waste management: palm oil industry waste, sugar industry waste, tapioca flour industry waste, tofu processing industry waste, fruit industry waste.
Module objectives/intended learning outcomes	Able to analyze ecology and ecosystems, environment, environmental pollution, water pollution, BOD and COD, food industry waste, microorganisms that decompose organic components of waste, food industry waste management (primary, secondary, tertiary handling).
Content	<ol style="list-style-type: none"> 1. Ecology, ecosystems and the environment 2. Environmental pollution 3. Water pollution 4. BOD and COD 5. Food industry waste 6. Microorganisms that decompose the organic components of waste 7. Food industry waste management: primary handling 8. Secondary treatment: Pond and lagoon system 9. Secondary handling: Aerobic and anaerobic systems 10. Palm oil industry waste management



	<p>11. Sugar industry waste management 12. Waste management of the tapioca starch industry 13. Tofu processing industry waste management 14. Fruit industry waste management</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Fardiaz S., 1992. Polusi Air & Udara. Penerbit Kanisius, Yogyakarta Ginting P, 2007. Sistem Pengelolaan Lingkungan dan Limbah Industri. Penerbit Yrama Widya, Bandung.</p> <p>Jenie B.S.L. dan Winiati P.R., 1993. Penanganan Limbah Industri Pangan. Penerbit Kanisius, Yogyakarta.</p> <p>Soemarwoto O, 1994. Ekologi, Lingkungan Hidup dan Pembangunan. Penerbit Djambatan, Jakarta.</p> <p>Soerjani M., Rofiq A, dan Rozy M, 1987. Lingkungan: Sumberdaya Alam dan Kependudukan dalam Pembangunan. Penerbit UI-Press.</p> <p>Undang-Undang Republik Indonesia No. 23 Tahun 1997 : Pengelolaan Lingkungan Hidup</p> <p>Wardhana W. A., 1995. Dampak Pencemaran Lingkungan. Penerbit Andi Offset, Yogyakarta.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3208 HORTICULTURAL PROCESSING TECHNOLOGY

Course Name	Horticultural Processing Technology
Code	ITP3208
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Dr. Nauas Domu Marihot Romauli, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Horticultural processing technologies (fruits, vegetables, flowers) that are widely applied in daily life, SMEs and industry. Introduction to commodity characteristics, quality and standardization, pre- and post-harvest handling, post-harvest <i>handling</i> and processing, packaging, distribution, quality certification and marketing. Application of chemical, microbiological and engineering principles in processing and preservation by considering quality factors (physical, chemical, microbiological and nutritional) and product acceptability. The material covers fresh handling technology, fresh preservation, low temperature preservation, preservation with modification and atmospheric control, high temperature processing, fermentation processing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to identify the application of simple / appropriate and modern technology in handling and processing horticultural commodities in everyday life• Able to make decisions appropriately in the context of problem solving in the field of horticultural processing technology, based on the results of information and data analysis.
Content	<ol style="list-style-type: none">1. Groups and properties of horticultural commodities2. Fresh handling of horticultural commodities3. Fresh Material Storage



	<ol style="list-style-type: none"> 4. Fresh Material Engineering 5. Raw Material Preparation 6. Manufacturing Process Technology (Cider, Juice, Jam, Jelly, Syrup and Candy) 7. Manufacturing Process Technology (Wet sweets, dry sweets, pickles, pickles and saurkraut) 8. Fermentation Technology 9. Heat Processing and Canning 10. Drying Process Technology 11. Vacuum Technology 12. Vacuum drying and frying 13. Freezing and Freeze-Drying Process Technology 14. Packaging Technology, Marketing, transportation and distribution
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Luh, B. .S, WooRoof, J.G. 1988. Commercial Vegetable Processing. 2nd. Eds. Van Nostrand Reinhold. New York,</p> <p>Fellows, P.J. Food Processing Technology. 2000. Principles and practice. Woodhead Publishing Ltd, Cambridge, England.</p> <p>Heldman, D. R. and R.P. Singh. 1981. Food Process Engineering. AVI Publishing Company, USA</p> <p>Muchtadi, T.R. 1989. Teknologi Proses Pengolahan Pangan. Petunjuk laboratorium Pusat Antar Universitas, IPB. Bogor.</p> <p>Desrosier, N.W., 1988. <i>Teknologi Pengawetan Pangan; Edisi Ketiga, penerjemah: Muchji Muljohardjo.</i> Penerbit Universitas Indonesia – Press, Jakarta</p> <p>Diane, M. Barrett, Laszlo Somogy, Hosahalli S. Ramaswamy. 2004. Processing Fruit: Science and Technology. Second Edition. Taylor & Prancis</p>



	Supporters: Related journals
Last date of update	July 2025



ITP3209 HORTICULTURAL PROCESSING TECHNOLOGY LABORATORY

Course Name	Horticultural Processing Technology Laboratory
Code	ITP3209
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Dr. Nauas Domu Marihot Romauli, S.TP, M.Eng
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: case method or project based learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a compulsory course for VI semester students Food Technology Study Program. The practice of food processing technology derived from horticulture includes dried sweets, fruit chips, jam, jelly, jelly candy, syrup, sauce, and marshmallows.
Module objectives/intended learning outcomes	Able to apply appropriate technology in handling and processing horticultural commodities
Content	<ol style="list-style-type: none"> 1. Making dried sweets 2. Fruit chips making 3. Jam making 4. Jelly making 5. Jelly candy making 6. Syrup making 7. Sauce making 8. Marshmallow making 9. PPA
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Laboratory Report (20%)
Learning media	Whiteboard and lab guide
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric:



	A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	<p>Main:</p> <p>Luh, B. .S, WooRoof, J.G. 1988. Commercial Vegetable Processing. 2nd. Eds. Van Nostrand Reinhold. New York,</p> <p>Fellows, P.J. Food Processing Technology. 2000. Principles and practice. Woodhead Publishing Ltd, Cambridge, England.</p> <p>Heldman, D. R. and R.P. Singh. 1981. Food Process Engineering. AVI Publishing Company, USA</p> <p>Muchtadi, T.R. 1989. Teknologi Proses Pengolahan Pangan. Petunjuk laboratorium Pusat Antar Universitas, IPB. Bogor.</p> <p>Desrosier, N.W., 1988. <i>Teknologi Pengawetan Pangan; Edisi Ketiga, penerjemah: Muchji Muljohardjo.</i> Penerbit Universitas Indonesia – Press, Jakarta.</p> <p>Diane, M. Barrett, Laszlo Somogy, Hosahalli S. Ramaswamy. 2004. Processing Fruit: Science and Technology. Second Edition. Taylor & Prancis Practical guide</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3210 ANIMAL FOOD INGREDIENT TECHNOLOGY

Course Name	Animal Food Ingredient Technology
Code	ITP3210
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, M.Phil
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses animal and fish product handling techniques, physical, chemical, microbiological properties, biochemical changes that occur such as in meat, eggs, milk and fish with processed products from post-harvest to processing / utilization as food products.
Module objectives/intended learning outcomes	Able to analyze physical, chemical, microbiological properties, biochemical changes that occur in meat, eggs, milk, fish
Content	<ol style="list-style-type: none"> 1. Milk composition and components 2. Physical and chemical properties of milk 3. Physical and chemical properties of milk (continued) 4. Handling of milk and dairy products 5. Handling of milk and dairy products (continued) 6. Definition, types and functions, composition, quality standards and beef preparations 7. Understanding, types and functions, composition, quality standards and processed poultry 8. Classifying the properties, preservation and processing of fish 9. Classifying the properties, preservation and processing of fish (continued) 10. Methods of smoking, salting and drying fish meat 11. Ways of smoking, salting and drying fish meat (continued)



	<p>12. Chemical composition and nutritional value of eggs</p> <p>13. Structure and methods of egg quality assessment</p> <p>14. Functional properties of eggs and egg products</p>
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Main:</p> <p>Espejo, J.M. and Magno-Orejana, F. 1980. Philippine Handbook on Fish Processing Technology. National Science Development Board (NSDB) Philippines. Hal 1 - 19.</p> <p>Potter, N.N. 1986. Food Science. Van Nostrand Reinhold, New York.</p> <p>Murtidjo, B.A., Daryanto, A. dan Sarwono, B. 1986. Telur Pengawetan dan Manfaatnya. PT Penebar Swadaya, Jakarta.</p> <p>Purnomo, H. dan Adiono. 1987. Ilmu Pangan. Buckle, K.A., Edwards, R.A, Fleet, G.H and Wootton, M. UI Press, Jakarta</p>
Last date of update	July 2025



ITP3211 ANIMAL FOOD INGREDIENT TECHNOLOGY LABORATORY

Course Name	Animal Food Ingredient Technology Laboratory
Code	ITP3211
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, M.Phil
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours• Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course practice of food processing technology of animal origin includes making meatballs, sausages, lasagna, nuggets, dimsum, wet noodles, salted eggs, shredded fish, and crackers.
Module objectives/intended learning outcomes	Able to analyze processed animal and fish products and able to use information for simple applications in the field of animal food technology.
Content	<ol style="list-style-type: none">1. Making meatballs from various types of fish2. Sausage making from different types of fish3. Making lasagna from beef4. Making nuggets from shrimp meat5. Making dim sum from fish, beef, chicken, shrimp and crab meat.6. Making wet noodles with the ratio of the number of eggs7. Making salted eggs from various eggs8. Making shredded fish from various types of fish9. Making crackers from different types of fish
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Whiteboard and practical guide
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions.



	<p>Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49</p>
Reading list	<p>Main: Soeparno, 1992. Ilmu dan Teknologi Daging. Gama-Press, Yogyakarta. Lawrie, R.A., 1995. Meat Science. Penterjemah: A. Parakkasi. UI-Press, Jakarta. Mountney, G.J., 1976. Poultry Product Tecnology. The AVI Pub., Co., Inc., Westport, Connecticut. Astawan, M.W. dan M. Astawan, 1989. Teknologi Pengolahan Pangan Hewani Tepat Guna. C.V. Akademika Pressindo, Jakarta. Hadiwiyoto, S., 1983. Hasil-hasil Olahan Susu, Ikan, Daging dan Telur. Penerbit Liberty, Yogyakarta. Soeparno, 1995. Ilmu dan Teknologi Susu. Fakultas Peternakan, UGM, Yogyakarta Practical guide</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3212 FAT AND OIL TECHNOLOGY

Course Name	Fat and Oil Technology
Code	ITP3212
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, M. Phil
Language	Bahasa Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the sources of oil/fat; chemical-physical properties of fat, oil/fat deterioration, the role of fat in food, oil processing, transesterification and interesterification of fat/oil, the effect of processing on the composition of oil/fat, making margarine from oil, oil quality requirements and how to determine its quality, processing fat/oil rich in omega-3 fatty acids and the role of omega-3 fatty acids for humans. Application of fatty oil in the food & non-food sector. Field trip to CPO oil processing plant.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to evaluate oil/fat sources, chemical-physical properties of fats and oils, oil/fat damage, the role of fats in foodstuffs, oil processing, transesterification and interesterification of fats/oils, and making margarine from oil.• Able to analyze oil quality requirements and how to determine its quality, processing of fats / oils rich in omega-3 fatty acids and the role of omega-3 fatty acids and applications of fatty oils in food and non-food fields.
Content	<ol style="list-style-type: none">1. Sources of fatty oils and uses of fatty oils2. Physical properties of oil3. Oil deterioration due to oxidation and hydrolysis Oil damage from frying



	<ol style="list-style-type: none">4. Oil extraction process5. Oil refining process6. Hydrogenation and Inter-esterification process7. Winterization process and fatty acid fractionation process8. Preparation and characterization of cooking oil quality9. Blending oil process and characterization of blending oil quality10. Butter making process and butter quality characteristics11. Coconut oil production and quality characteristics of coconut oil12. CBE Manufacturing, CBR Manufacturing, and CBS Manufacturing13. Soap making, Surfactant making, Methyl-ester making, and Emulsifier making
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Bailey, A.E., 2004. Industrial Oil and Fat Products. Volume I: Edible Oil & Fats Products: General Application. 6th Ed. Interscholastic Publishing, New York. Bailey, A.E., 2004. Industrial Oil and Fat Products. Volume II: Edible Oil & Fats Products: Edible Oil. 6th Ed. Interscholastic Publishing, New York. Bailey, A.E., 2004. Industrial Oil and Fat Products. Volume IV: Edible Oil & Fats Products: Application Technology. 6th Ed. Interscholastic Publishing, New York. Bailey, A.E., 2004. Industrial Oil and Fat Products. Volume V: Edible Oil & Fats Products: Processing



	<p>Technology. 6th Ed. Interscholastic Publishing, New York.</p> <p>Brien, R.D.O. 2004. Fats and Oils. Formulating and Processing for Application. 2nd Ed. CRC Press.</p> <p>Ketaren, S. 1986. Pengantar Teknologi Lemak dan Minyak Pangan, UI Press Jakarta</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3213 FAT AND OIL TECHNOLOGY LABORATORY

Course Name	Fat and Oil Technology Laboratory
Code	ITP3213
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Dr. Ir. Hotnida Sinaga, M. Phil
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (i.e.: case method or project base learning) The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours
Credit points	1credits (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the Processing of Fats and Oils to equip students with knowledge and practical skills about vegetable food oil processing technology, oil refining (refining bleaching, deodorizing), oil characterization and quality standards, oil damage (oxidation, hydrolysis) and antioxidants.
Module objectives/intended learning outcomes	Able to evaluate the oil/fat making process and measure fat/oil content, fat/oil impurities, free fatty acid content, melting point of fats and oils.
Content	<ol style="list-style-type: none"> Effect of Oil Type on the Quality of Leather Crackers Determination of Physical Properties of Oil Determination of Chemical Properties of Oil Blending Oil Emulsions (Preparation of Mayonnaise from Coconut Oil) Transparent Soap Making Butter Making Preparation of Desiccated Coconut Coconut Oil Extraction for Coconut Oil Manufacturing Palm Oil Manufacturing Sanitation Practical Test
Examination form	<ul style="list-style-type: none"> Quiz (5%) Assignment (5%) Midterm examination (20%) Final examination (20%)



	<ul style="list-style-type: none">• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Whiteboard and practical guide
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Shahidi, F. 2004. Bailey's industrial oil and fat products. Sixth edition. John Wiley & Sons, Inc. Hoboken, New Jersey. Akoh, CC, and Min, d. B. 2002. Food Lipids: Chemistry, Nutrition, and Biotechnology. Second Edition. Marcel Dekker, Inc. New York Ketaren, S., 1986. Pengantar Teknologi Minyak dan Lemak Pangan. Penerbit Universitas Indonesia, Jakarta Hamm, W., Hamilton, R. J., and Calliauw, G. 2013. Edible Oil Processing. Second Edition. John Wiley & Sons, Ltd, West Sussex United Kingdom. Dijkstra, A. J. 2013. Edible Oil Processing from a Patent Perspective. Springer, New York Heidelberg Dordrecht London. Porta, R. A. D. 2006. Edible Oils Manual. Second Edition. AOCS Press, Urbana, Illinois. Julianti, E., Ridwansyah, 2018. Petunjuk Praktikum Teknologi Lemak dan Minyak. Program Studi Ilmu dan Teknologi Pangan Fakultas Pertanian USU Medan. Supporters: Related journals
Last date of update	July 2025



ITP3214 PRESERVATION TECHNOLOGY

Course Name	Preservation Technology
Code	ITP3214
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Karina Nola Sinamo, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Elective courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Independent Activitie: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the application of preservation technology to foodstuffs. Students will gain mastery of food preservation methods, the selection of food preservation technology, and food storage methods. Students will conduct collaborative and project-based learning to apply their knowledge of preservation technology. Student learning results will be presented in the form of group discussions and presentations.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to express the principles of preservation technology in foodstuffs to extend their shelf life. • Able to determine the appropriate preservation technology for food ingredients to extend their shelf life.
Content	<ol style="list-style-type: none"> 1. Food preservation technology 2. Natural risks of food 3. Selection of food preservation technology 4. Food preservation by drying 5. Low-temperature food preservation 6. Food preservation with semi-wet food technology (IMF) 7. Food preservation with packaging 8. High-temperature food preservation/canning 9. Food preservation by irradiation/ionizing radiation



	<p>10. Food preservation with chemicals 11. Food preservation by fermentation 12. Food preservation by smoking 13. Food preservation with natural preservatives 14. Food preservation with storage and warehousing methods</p>
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49</p>
Reading list	<p>Main: Muchtadi TR, Sugiyono. 2014. Prinsip Proses dan Teknologi Pangan. Bandung : Alfabeta Jun S, JM. Irudayaraj. 2009. Food Processing Operations Modeling Design and Analysis, 2nd. CRC Press Fellows PJ. 2000. Food Processing Technology. CRC Press Desrosier Norman W, 1988, Teknologi Pengawetan Pangan, Universitas Indonesia Press, Jakarta Winarno F.G., 1984, Pengantar Teknologi Pangan, PT Gramedia, Jakarta</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3215 PRESERVATION TECHNOLOGY LABORATORY

Course Name	Preservation Technology Laboratory
Code	ITP3215
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Karina Nola Sinamo, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignment (i.e.: case method or project based learning) The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the application of food processing technology. Students will gain mastery of mixing technology, blanching process on fruits and vegetables, heat penetration process, sterilization and pasteurization process, food product processing drying method, use of hot temperature measuring instruments, food drying practice process, bread processing technology, and dry noodle processing. Students will practice product processing in the laboratory. Before starting the practicum, students will be equipped with basic knowledge about laboratory rules and will take quizzes at each meeting. The results of the practicum will be interpreted in the form of a report.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to implement the principles of fishery product processing and handling technology by taking into account the characteristics of fishery product commodities Able to describe changes in quality characteristics and factors that cause them during the processing or handling of fishery products.
Content	<ol style="list-style-type: none"> Laboratory Briefing / Introduction Open and <i>vacuum-sealed packaging</i> Storage temperature and effective packaging Temperature and drying time of food Sterilization: Canning of fruits and vegetables Pasteurization Processing of food by drying method



	<p>8. Thermomhygrometer <i>and</i> Digital Thermometer <i>Measuring Instruments</i></p> <p>9. Food Drying Rate</p> <p>10. Bread processing technology</p> <p>11. Dry noodle processing process</p> <p>12. Practical Test</p>
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A \geq 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E \leq 49</p>
Reading list	<p>Main:</p> <p>Buckle, K. A., Edwards, R. A., Fleet, G. H., and Wotton, M. 1987. Ilmu Pangan. Penerjemah Hari Purnomo dan Adiono. Jakarta: UI Press.</p> <p>Desrosier, N.W. 1988. Teknologi Pengawetan Pangan. Edisi III. Penerjemah Muchji Mulyohardjo. Jakarta.: UI Press.</p> <p>Gould, G.W. 1995. New Methods of Food Preservation. London: Springer US Publisher.</p> <p>Supporters:</p> <p>Related journals</p> <p>Practicum Guide</p>
Last date of update	July 2025



ITP3216 NUTRITIONAL EVALUATION OF FOOD AND AGRICULTURAL
PRODUCTS PROCESSING

Course Name	Nutritional Evaluation of Food and Agricultural Products Processing
Code	ITP3216
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the causes of changes in the nutritional components of food during pre-harvest, harvest and post-harvest, how to overcome and maintain and increase nutrients in food and food ingredients, processing methods, factors that can reduce and increase nutrients.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the causes of changes in the nutritional components of food during pre-harvest, harvest and post-harvest. • Able to analyze how to overcome and maintain and increase nutrients in food and food ingredients • Able to analyze processing methods, factors that can reduce and increase nutrients
Content	<ol style="list-style-type: none"> 1. factors affecting the nutritional content of foodstuffs: pre-harvest, harvest and post-harvest intensification of processing and the time/length of the processing process can reduce the nutritional value of foodstuffs. 2. Factors that can affect the degree of deterioration, the decrease of nutritional components in foodstuffs and the stability of nutrients in foodstuffs 3. ways to increase nutrient levels during the growing period



	<ol style="list-style-type: none"> 4. The role of genetic factors, environmental factors (amount and intensity of light, temperature, season), soil fertility and fertilization, fruit/vegetable size, degree of maturity and the role of genetics (genetic differences in livestock species) on meat quality, egg composition, milk composition. 5. Effect of age, sex and season on meat composition in various livestock 6. Effect of harvesting and handling on fruits and vegetables 7. Effect of controlled atmosphere storage on vegetable/animal components 8. Factors causing the decline of nutritional value in various livestock products 9. Effect of refining/processing on cereals (rice, wheat, maize, oats, barley, sorghum) and their products and ways to maintain their quality. 10. Effect of refining/processing on legumes (soybeans, capri, ercis, chickpeas), nutrient composition, compounds in ingredients that can reduce their quality. 11. Effect of heat treatment on nutrients 12. preservation by freezing can reduce some nutritional components 13. factors that play a role in reducing the moisture content of a material 14. Some examples of fermented food, nutritional changes compared to fresh ingredients, advantages and disadvantages.
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	Main:



	<p>Harris RS, Karmas E. 1989. Evaluasi Gizi pada Pengolahan Bahan Pangan, Terbitan Kedua. Achmadi S : Penerjemah. Bandung: ITB Bandung</p> <p>Winarno F.G. 2002. Kimia Pangan dan Gizi. Jakarta: Gramedia Pustaka Utama</p> <p>Lean M.E.J.,2013. Ilmu Pangan, Gizi, dan Kesehatan, Edisi ke-7. Nilamsari N, Fajriyah A, Penerjemah; Yogyakarta: Pustaka Pelajar. Terjemahan dari : Food Science, Nutrition, and Health</p> <p>Fennema O.R. 1996. Food Chemistry Third Edition. New York: Marcel Dekker</p> <p>DeMan JM. 1999. Principles of Food Chemistry Third Edition. Maryland: Aspen Publisher, Inc</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP3217 ENZYMOLOGY

Course Name	Enzymology
Code	ITP3217
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Prof. Ir. Elisa Julianti, MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.30 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	No requirement to have passed in other courses
Course Description	This course discusses the application of technology in the utilization of enzymes in fishery product processing. Students will gain mastery of the history of discovery, understanding, and function of enzymes, enzyme naming and role as biocatalysts, characteristics and properties of enzymes, assessment of reaction rates and factors that influence them, sources and production of enzymes, enzyme purification and assessment of the amount of enzyme activity, and enzyme immobilization. In addition, students will conduct collaborative and project-based learning to apply their knowledge of enzyme utilization in Aqua Feed and enzyme utilization from fishery product processing. The results of student designs will be presented in the form of group discussions and presentations.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to calculate the amount of enzyme activity.• Able to analyze food processing processes that use enzymes
Content	<ol style="list-style-type: none">1. Introduction,2. Nomenclature and classification,3. Characteristics and properties of enzymes,4. Enzyme reaction kinetics (1),5. Enzyme reaction kinetics (2),6. Enzyme sources,



	<ol style="list-style-type: none">7. Enzyme production,8. Enzyme purification (1),9. Enzyme purification (2),10. Enzyme immobilization,11. Utilization of enzymes in Aqua Feed (1),12. Utilization of enzymes in Aqua Feed (2),13. Utilization of enzymes and processing of fishery products,14. Presentation of problem based learning
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Nelson, DL and Cox, MM. 2004. Lehninger Principles of Biochemistry. University of Wisconsin, Madison Berg, JM, Tymoczko JL, Stryer L. Biochemistry. Freeman and Company and Sumanas, Inc., Michigan-Dearborn Supporters: Related journals
Last date of update	July 2025



ITP3218 FOOD ENGINEERING

Course Name	Food Engineering
Code	ITP3218
Semester(s) in which the module is taught	VI
Lecturer (Person Responsible)	Edy Syahputra Harahap, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	The course discusses the discussion of dimensions and units, mass transfer, mass balance, flow charts, heat, heat transfer, gas and steam, material handling, size reduction, fluid flow, mixing, proesthermal, types of pumps, how pumps work, axial fans, fluid mechanics, statics. dynamics.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to apply it to the search for the rate of change of a variable and the search for the area of an area in various fields of science and technology. logical, critical and systematic in the context of developing or implementing science and technology.• Able to analyze and apply the principles and techniques of using food processing equipment into a final document.• Able to analyze thermodynamic calculations, fluid flow, dehydration, evaporation, mixing and extrusion. Moving process (heat in pipe and mass), thermal process, heat equilibrium and water vapor equilibrium (steam).
Content	<ol style="list-style-type: none">1. Qualitative flow chart, Quantitative flow chart2. Mass transfer (Understanding, Drying and packaging)3. Mass transfer (Understanding, Drying and packaging)



	<ol style="list-style-type: none">4. Mass balance in the processing process,5. Heat (Definition of heat, Specific heat, Enthalpy of black principle)6. Heat (Definition of heat, Specific heat, Enthalpy of black principle)7. Heat transfer (Conduction, Convection, Radiation, Heat exchanger)8. Heat transfer (Conduction, Convection, Radiation, Heat exchanger)9. Gas and Vapor10. Fluid flow, Pump, Piping11. Measurement and Sifting12. Measurement and Sifting13. Runner
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Albert Ibarz and Gustavo V. Barbosa-Canovas, 2003, Unit Operations in Food Engineering, CRC Press Zeki Berg, 2009, Food Process Engineering and Technology, Elsevier Romeo T Toledo, 2007, Food Process Engineering 3 rd Edition, Springer Related journals
Last date of update	July 2025



7th Semester



ITP4101 CANDY AND CHOCOLATE PROCESSING TECHNOLOGY

Course Name	Candy and Chocolate Processing Technology
Code	ITP4101
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Sugar and sugar-based confectionary, types of sweets, their characteristics and manufacturing processes. Cocoa bean processing, roasting, chocolate liquor, cocoa powder, cocoa butter as ingredients for the food, pharmaceutical and cosmetic industries. Product development of confectionary sugar, chocolate bars, coatings and vermicelli with various formulations and process methods.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the physical and chemical characteristics of candy and chocolate products • Able to apply the principles of process engineering of candy and chocolate product processing • Able to apply the principles of processing technology in the development of new candy and chocolate products
Content	<ol style="list-style-type: none"> 1. Introduction, Definition, Primary Knowledge 2. Cocoa Bean Processing 3. Downstream Roasting Cocoa Butter and Cocoa Powder 4. Cocoa Butter and Cocoa Powder 5. Tempiring and Molding 6. Coating and Rubbing & Cacao Quality Characteristics 7. Task Presentation 8. Sugar Based Sweets



	<p>9. Hard Candy 10. Fondand Cream and Fudge 11. Aerated Confectionary 12. Bummy Jelly 13. Chocolate Cristalization 14. Chocolate Cristalization (Continued)</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main: Richard W. Hartel, Joachim H. von Elbe, Randy Hofberger. 2018. Confectionery Science and Technology, Springer Publs. Minifie, B.W. 1989. Chocolate, Cocoa, and Confectionary: Science and Technology. 3rd Ed. AVI Book Publs. New York 6 Greweling, Peter P. 2013. Chocolates and confections : formulas, theory, and technique for the artisan confectioner / Peter P. Greweling ; the Culinary Institute of America. -- 2nd ed. John Wiley & Sons, Inc. Hoboken, New Jersey. Elizabeth LaBau, 2012. The Sweet Book of Candy making. From the Simple to the Spectacular - How to Make Caramels, Fudge, Hard Candy, Fondant, Toffee, and More. Quarry Books, USA</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP4102 OPERATIONAL RESEARCH

Course Name	Operational Research
Code	ITP4102
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Edy Syahputra Harahap, S.TP, M.Si
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses Operational Research. Students will gain mastery of the scope of operational research, development of operational research, operational research models, linear programming, transportation/distribution models, game theory and its pure strategy, anality and sensivity, integral programming, queuing theory, and network analysis. In addition, students will undertake collaborative and project-based learning to design and analyze operational research based on network analysis
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the principles of optimal decision making in modeling both deterministic and probabilistic systems. • Able to analyze the principles and use of various types of models in operation research • Able to evaluate the conclusions drawn from the results of operations research calculations
Content	<ol style="list-style-type: none"> 1. Scope of Operational Research 2. Development of Operational Research 3. Operational Research Model 4. Linear Program 5. Transportation/Distribution Model 6. Game Theory 7. Game Theory Pure Strategy 8. Advanced Linear Program



	<p>9. Anality and Sesentivity 10. Advanced Anality and Sesentivity 11. Integral Program 12. Queuing Theory 13. Advanced Queuing Theory 14. Network Analysis</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Main: Duckworth, W.E. (2012). A guide to operational research. Springer Science & Business Media. Johnes, J. (2015). Operational research in education. European journal of operational research, 243(3), 683-696. Introduction to Operations Research. Cipta Media Nusantara. Syaifuddin, DT, SE, M., Syaifuddin, DT, SE, M. (2011). Operations research. In: CV CITRA MALANG PRINTING.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP4103 ESSENTIAL OIL TECHNOLOGY

Course Name	Essential Oil Technology
Code	ITP4103
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	Background on the importance of essential oils, processing technology of essential plant products by chemical methods, processing techniques, refining and development, handling and utilization of essential oils.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to describe the extraction methods of essential oils from their sources. • Able to analyze essential oil quality
Content	<ol style="list-style-type: none"> 1. Development of the Essential Oil Industry 2. Chemical makeup of essential oils 3. Source of Essential Oil 4. How to Produce Essential Oil 5. Distillation Equipment 6. Distillation and Extraction of Essential Oils 7. Hydrodistillation of Plant Materials at High and Low Pressure and Superheated Steam 8. Essential Oil Rectification and Fractionation 9. Essential Oil Extraction With Fat 10. Essential Oil Extraction with Solvents 11. Essential Oil Extraction with Solvents (continued) 12. Essential Oil Testing 13. Essential Oil Testing (Continued) 14. Essential Oil Specialty Test and Counterfeit Detection
Examination form	<ul style="list-style-type: none"> • Quiz (5%)



	<ul style="list-style-type: none">• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Guenther, E. 1990. Essential Oils. Volume I. Translation: S.Ketaren. UI Press Jakarta. Guenther, E. 1990. Essential Oils. Volume II. Translation: S.Ketaren. UI Press Jakarta. Guenther, E. 1990. Essential Oils. Volume III. Translation: S.Ketaren. UI Press Jakarta. Guenther, E. 1990. Essential Oils. Volume IV. Translation: S.Ketaren. UI Press Jakarta. Ketaren, S. 1985. Introduction to Essential Oil Technology. Balai Pustaka, Jakarta Supporters: Related journals
Last date of update	July 2025



ITP4104 FOOD QUALITY ASSURANCE

Course Name	Food Quality Assurance
Code	ITP4104
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MS
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses Food Quality Assurance. Students will gain mastery of food quality, food damage and quality degradation, food quality supervision, quality control and standardization, food quality control and safety programs. In addition, students will undertake collaborative and project-based learning to design and compile Hazard Analysis Critical Control Point (HACCP), appropriate food regulations for food quality, and Quality Certification and Halal Assurance Systems for food products. The results of student designs will be presented in the form of group discussions and presentations
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to analyze the concept and definition of quality • Able to analyze the scope of quality control operations • Able to analyze problem solving and quality control tools • Able to analyze statistical reviews, quality control statistics • Able to analyze process evaluation and quality improvement • Able to analyze quality performance measurement and customer satisfaction.
Content	<ol style="list-style-type: none"> 1. Introduction, lecture contract 2. Food Quality 3. Food Quality (Continued)



	<ol style="list-style-type: none"> 4. Food spoilage and deterioration 5. Food Quality Supervision 6. Quality Control and Standardization 7. Food Quality and Safety Control Program 8. Hazard Analysis Critical Control Point (HACCP) 9. Hazard Analysis Critical Control Point (HACCP) (Continued) 10. Hazard Analysis Critical Control Point (HACCP) (Continued) 11. Food Regulation 12. Quality Certification and Halal Assurance System 13. Quality Certification and Halal Assurance System (Continued) 14. Quality Certification and Halal Assurance System (Continued)
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Muhandri, T., Kadarisman, D. (2012). Food Industry Quality Assurance System. PT Penerbit IPB Press.</p> <p>Apriyantono, A. (2007). Production guidelines: halal food. LPPOM MUI. (2008). General Guidelines for the LPPOM–MUI Halal Assurance System. Jakarta: LPPOM-MUI.</p> <p>Al-Teinaz, Y.R., Spear, S., Abd El-Rahim, I.H. (2020). The halal food handbook. John Wiley & Sons.</p> <p>Fortin, N.D. (2022). Food regulation: law, science, policy, and practice. John Wiley & Sons.</p> <p>Mortimore, S., Wallace, C. (2013). HACCP: A practical approach. Springer Science & Business Media.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP4105 FOOD ADDITIVES

Course Name	Food Additives
Code	ITP4105
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Linda Masniary Lubis, S.TP., MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses the type, classification, function, chemical structure, physicochemical characteristics, reaction mechanism, and application of food additives. Food safety aspects and national regulations of food additives.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to describe the meaning, types, functions, physical and chemical properties of Food Additives • Able to apply food additives in controlling microbiological characteristics in food in accordance with applicable regulations • Able to describe the safety limits of safety aspects and controversies in the use of BTPs • Able to analyze safety aspects and controversies in the use of Food Additives
Content	<ol style="list-style-type: none"> 1. Introduction 2. Preservatives 3. Coloring Materials 4. Sweetener Ingredients 5. Flavoring and Aroma 6. Antikempal 7. Antioxidants 8. Emulsifier, Solidifier, Thickener 9. Acidity Regulator 10. Bleach, Flour Starter, and Hardener



	11. Sequestrant 12. Prohibited BTPs 13. Alternatives to banned BTPs 14. Presentation
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Branen AL, Davidson PM, Salminen S, Thorngate III JH. 2002. Food Additives. Marcel Dekker, New York, USA Cahyadi, W. 2010. Analisis dan Aspek kesehatan Bahan Tambahan Pangan. Bumi Aksara: Bandung Wijaya, C., Mulyono, N., Afandi FA. 2012. Bahan Tambahan Pangan: Pengawet. IPB Press: Bogor Wijaya, C., Mulyono, N.. 2012. Bahan Tambahan Pangan: Pewarna. IPB Press: Bogor Wijaya, C., Mulyono, N.. 2012. Bahan Tambahan Pangan: Pemanis. IPB Press: Bogor Perka BPOM No 11 Tahun 2019 Tentang Bahan Tambahan Pangan Standar Nasional Indonesia tentang Berbagai Macam Pangan Supporters: Related journals
Last date of update	July 2025



ITP4106 POST-HARVEST TECHNOLOGY

Course Name	Post-harvest Technology
Code	ITP4106
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses post-harvest decline of fresh agricultural products and their causes. Post-harvest physiology and chemical changes that include transpiration, changes, aromas, tastes, textures etc., damage due to cold temperatures. Post-harvest technologies and ways to optimize products from harvest to consumer (harvesting systems, physical and chemical handling, packaging and storage and preparation of fresh produce.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply postharvest handling technology based on the principles of postharvest physiology of these products • Able to analyze changes in physical and chemical structures in post-harvest handling
Content	<ol style="list-style-type: none"> 1. Horticultural Post-Harvest Physiology 2. Chemical makeup of horticultural products 3. Metabolic Activity of Horticultural Products 4. Physiological Grade of Horticultural Products 5. Climacteric in Horticultural Products 6. Role of Ethylene in Ripening 7. Physicochemical and Chemical Changes in Ripening 8. Post-Harvest Handling Technology of Horticultural Products 9. Low Temperature Storage Technology



	<p>10. Usage Materials Chemicals in Fresh Storage of Horticultural Products</p> <p>11. Controlled Atmosphere Storage (CAS)</p> <p>12. Modified Atmosphere Packaging (MAP)</p> <p>13. Humidity Control in Storage</p> <p>14. Minimal Processing Technology</p> <p>15. Minimal Processing Technology</p> <p>16. Storage of Horticultural Products in Practice</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80</p> <p>B+ = 75-79</p> <p>B = 70-74</p> <p>C+ = 65-69</p> <p>C = 60-64</p> <p>D = 50-59</p> <p>E ≤ 49</p>
Reading list	<p>Main:</p> <p>A.K. Sharp, 1986. Humidity: Measurement and control during the storage and transport of fruits and vegetable. CSIRO Food Res. Q. 46: 79-84.</p> <p>Exama,A., J.Arul, R.W.Lencki, L.Z.Lee dan C.Toupin, 1993. Suitability of plastic films for modified atmosphere packaging of fruits and vegetables. J.of Food Sci. 58 (6) ; 1365-1370.</p> <p>Gunadnya,I.B.P., 1993. Pengkajian penyimpanan salak segar (Sallaca edulis Reinw) dalam kemasan film dengan “Modified Atmosphere”. Tesis MS Program Studi Teknologi Pasca Panen IPB, Bogor.</p> <p>Hotchkiss, J.H., 1988. Experimental approaches to determining the safety of food packaged in modified atmosphere. Food Technology Sept: 55-64.</p> <p>Hurme,E., T.Sipiläinen-Malm and R.Ahvenainen, 2002. Active and Intelligent Packaging In : Minimal Processing Technology in the Food Industry. T.Ohlsson and N.Bengtsson (ed). Woodhead Publishing Ltd, Cambridge England.</p> <p>Jamieson, W. 1980. Use of hypobaric conditions for refrigerated storage of meats, fruits and vegetables. Food Technology March: 64-70.</p> <p>Kader, A.A., 1986. Biochemical and physiological basis</p>



	<p>for effect of controlled and modified atmosphere on fruits and vegetables. Food Technology, May: 99-104.</p> <p>Laurila,E. and R.Ahvenainen. 2002. Minimal Processing in Practice: Fresh Fruits and Vegetables. In: Minimal Processing Technology in the Food Industry. T.Ohlsson and N.Bengtsson (ed). Woodhead Publishing Ltd, Cambridge England.</p> <p>Mannapperuma, J.D. and R.P.Singh. 1990. Modelling of Gas Exchange in Polimeric Packages of Fresh Fruits and Vegetables. Paper for ASAE Winter Meeting, Chicago, December.</p> <p>M.Siverstvik, J.T.Rosnes and H.Bergslien, 2002. Modified Atmosphere Packaging. In: Minimal Processing Technology in the Food Industry. T.Ohlsson and N.Bengtsson (ed). Woodhead Publishing Ltd, Cambridge England.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP4107 POST-HARVEST TECHNOLOGY LABORATORY

Course Name	Post-harvest Technology Laboratory
Code	ITP4107
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Ir. Ismed Suhaidi, MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project base learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practicum implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses post-harvest shrinkage of fresh agricultural products and its causes. Physiology and post-harvest chemical changes which include transpiration, changes, aroma, flavor, texture etc., damage due to cold temperatures. Post-harvest technology and ways to optimize products from harvesting to consumers (harvesting systems, physical and chemical handling, packaging and storage and preparation for fresh products.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply postharvest handling technology based on the principles of postharvest physiology of the product • Able to measure physical and chemical characteristics of postharvest agricultural products
Content	<ol style="list-style-type: none"> 1. Effect of Packaging on Ripe Banana fruit (1,2) 2. Observation of Banana Fruit that has been packaged (3,4) 3. Banana Fruit Testing after expiration of shelf life (5, 6) 4. Effect of Packaging on Spinach (7,8) 5. Observation of spinach vegetables that have been packaged (9,10) 6. Spinach testing after shelf life(11) 7. Practical Test (12)
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%)



	<ul style="list-style-type: none">• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Pantastico, Er.B., 1989. Postharvest Physiology, Handling and Utilization of Tropical and Subtropical Fruits and Vegetables. Burton, W.G. 1982. Postharvest Physiology of Food Crops Pantastico Will, R.H.H., Lee T.H., Graham D., McGlasson W.B. and E.G. Hall, 1981. Postharvest, An Introduction to the Physiology and Handling of Fruit and Vegetables. Tranggono dan Sutardi, 1989. Biokimia dan Teknologi Pasca Panen Hosahalli S.R. 2015. Post Harvest Technologies of Fruits and Vegetables. Destech. Publishing. Inc. Supporters: Related journals
Last date of update	July 2025



ITP4108 FOOD INDUSTRY MANAGEMENT

Course Name	Food Industry Management
Code	ITP4108
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses Food Industry Management. Students will gain mastery of the scope of food industry management, describe various types of organizational structures, manual coordination and types of organizations, types of advanced organizations, producers, and product quality control and standardization, mip-related systems, food industry groups, capital levels & development systems, human resource management, technology, design, and engineering, managerial skill concepts, implementation of management principles, product functions, marketing finance, and time and motion studies. In addition, students will undertake collaborative and project-based learning to design and analyze food products with a food industry management system. The results of student designs will be presented in the form of group discussions and presentations.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze the communication process orally and in writing on the discussion of food laws that regulate all activities related to food processing and quality.• Able to analyze the nutritional content of food ingredients, food ingredients from genetic engineering, food safety, processing, storage, packaging and transportation.



	<ul style="list-style-type: none"> • Able to analyze health protection laws for the benefit of the community related to food issues • Able to analyze food ingredients from genetic engineering, food safety, processing, storage, packaging and transportation.
Content	<ol style="list-style-type: none"> 1. Scope of food industry management, Introduction 2. Describes various types of organizational structures 3. Describes different types of organizational structures (continued) 4. Manual Coordination and Types of Organization 5. Manual Coordination and Types of Organizations (continued) 6. Types of Advanced Organizations, Manufacturers, and Product Quality Standardization and Control 7. Types of Advanced Organizations, Manufacturers, and Product Quality Control and Standardization (continued) 8. MIP related systems 9. Food Industry Group 10. Capital Level & Development System 11. Human Resource Management, Technology, Design, Engineering 12. The Concept of Managerial Skills 13. Implementation of Management Principles, Product Functions, Marketing Finance 14. Time and Motion Study
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Early, R. (2012). Guide to quality management systems for the food industry. Springer Science & Business Media.</p>



	<p>Haque, MG (2023). Journey of Industrial Management & Halal Product Assurance in Indonesia. PT. Sonpedia Publishing Indonesia.</p> <p>Paiva, C. L. (2013). Quality management: Important aspects for the food industry. Food industry, 9, 191-192.</p> <p>Rina, A. (2008). Quality management system and food safety in catering companies. Kesmas, 2(6), 4.</p> <p>Surono, IS, Sudiby, A., Wasposito, P. (2016). An introduction to food safety for the food industry. Deepublish.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



ITP4109 INTERNATIONAL TRADE

Course Name	International Trade
Code	ITP4109
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	RB M Ibrahim Fatoni
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignment (i.e.: article reading and review, case method, project based learning) • The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours • Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses international trade theories, solves hypothetical problems mathematically and graphically and applies international trade theories in hypothetical and empirical cases.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to describe the concept and economics of International trade • Able to classify the factors driving international trade • Able to describe technical forms of cooperation between countries related to International Trade
Content	<ol style="list-style-type: none"> 1. Definition, issues and development of theory 2. Absolute advantage and comparative advantage 3. Comparative advantage, specialization and trade 4. Specific factor model (Samuelson and Jones) 5. Heckser and Ohlin models 6. General Trading Model 7. General Trading Model (continued) 8. Effects of economic growth on international trade 9. Source of economic growth and international trade 10. Sources of economic growth and international trade (continued) 11. Short-run equilibrium in a simple open economy 12. Long-run equilibrium in a simple open economy 13. Comparative static in a simple open economy



	14. Changes in average propensity to save and terms of trade in a simple open economy
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Chacholiades, M, 1978, "International Trade Theory and Policy" Krugman dan Obstfeld, 2000, Ekonomi Internasional, Teori dan Kebijakan Chalil, D, 2009. Bahan Ajar Kuliah, Program Studi Agribisnis USU, Medan Supporters: Related journals
Last date of update	July 2025



ITP4110 CEREALS AND TUBERS TECHNOLOGY

Course Name	Cereals and Tubers Technology
Code	ITP4110
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> Lectures (explanation, discussion) Structured assignments (i.e.: article reading and review, case method, project base learning) The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	<p>This course discusses Cereal and Tubers Technology. Students will gain mastery of cereals, cereal grain structure, cereal grain chemical composition, and tuber technology. In addition, students will be able to describe and analyze drying, storage, and processing technology for rice, corn, sorghum, wheat, barley, cassava, potatoes, sweet potatoes, taro, arrowroot, and porang plants. Students will also undertake collaborative and project-based learning to design and analyze new product development for tubers. The results of student designs will be presented in the form of group discussions and presentations.</p>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> Able to describe the structure of cereal seeds (grains), and the chemical composition of cereal seeds Able to describe the technology of drying, storage and processing of cereal seeds (rice, corn, wheat), as well as storage and processing of tubers (cassava, potatoes, sweet potatoes and taro). Able to analyze the appropriate drying, storage and processing technology of cereal seeds (rice, corn, wheat), tubers (cassava, potatoes, sweet potatoes and taro) in the development of new products.
Content	<ol style="list-style-type: none"> Introduction to Cereal Structure and Composition of Cereal Seeds



	<ol style="list-style-type: none">3. Rice Processing4. Corn Processing5. Sorghum Processing6. Wheat Processing7. Barley Processing8. Tuber Technology9. Cassava Processing10. Potato Processing11. Sweet Potato Processing12. Taro Processing13. Garut Processing14. Porang Plant Processing
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49
Reading list	Main: Bangar, S.P., Siroha, A., Kumar, M. (2021). Handbook of cereals, pulses, roots, and tubers: functionality, health benefits, and applications. CRC Press. Estiasih, T., Putri, WDR, Waziroh, E. (2017). Tubers and Their Processing. Brawijaya University Press. Murtini, ES (2007). Tubers and Cereals Processing Technology. Faculty of Agricultural Technology. Brawijaya University. Malang. Nurainy, F. (2018). Knowledge of plant materials I: Vegetables, Fruits, Nuts, Cereals and Tubers. In: Faculty of Agriculture, University of Lampung Related journals
Last date of update	July 2025



ITP4111 CEREALS AND TUBER TECHNOLOGY LABORATORY

Course Name	Cereals and Tuber Technology Laboratory
Code	ITP4111
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Prof. Dr. Ir. Elisa Julianti, MSi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none"> • Lectures (explanation, discussion) • Structured assignments (i.e.: article reading and review, case method, project based learning) • The class size is 25-30 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none"> • Practical implementation: (1 sch x 100 minutes) x 12 weeks = 1200 minutes = 20 hours • Structured assignment: (1 sch x 70 minutes) x 12 weeks = 840 minutes = 14 hours • Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	1 credit (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course is a practical course that discusses cereal and tuber technology. Practices include parboiling, separation, consistency of rice in situ bagendid, making flour from tubers and testing flour, processing flour and making cake products from grains, making lumpia (tuber creations), and making corn chips.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to classify the structure of cereal seeds (grains), and the chemical composition of cereal seeds • Able to implement drying technology, storage and processing of cereal seeds (rice, corn, wheat), as well as storage and processing of tubers. • Able to implement appropriate drying, storage and processing technology of cereal seeds (rice, corn, wheat), tubers in the development of new products.
Content	<ol style="list-style-type: none"> 1. Laboratory Sanitation Practical Instructions 2. Parboiling, Separation, Consistency of Rice in Situ Bagendid 3. Parboiling, Separation, Consistency of Rice in Situ Bagendid (Continued) 4. Making Flour from Tubers 5. Flour Testing 6. Flour Processing and Making Cake Products from Grains 7. Flour Processing and Baking Products from Grains (Continued) 8. Making spring rolls (Tuber creations)



	9. Making spring rolls (Tuber creations) (continued) 10. Making Corn Chips 11. Making Corn Chips (Continued)
Examination form	<ul style="list-style-type: none">• Quiz (5%)• Assignment (5%)• Midterm examination (20%)• Final examination (20%)• Project Base Learning (30%)• Laboratory Report (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Students can take the exam if they attend at least 80% of the 14 course sessions. Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Practical guide Supporters: Related journals
Last date of update	July 2025



ITP4112 APPLIED OPERATIONS UNIT

Course Name	Applied Operations Unit
Code	ITP4112
Semester(s) in which the module is taught	VII
Lecturer (Person Responsible)	Mimi Nurminah, S.TP., Msi
Language	Indonesian or English
Relation to curriculum	Elective Courses
Teaching methods	<ul style="list-style-type: none">• Lectures (explanation, discussion)• Structured assignments (i.e.: article reading and review, case method, project base learning)• The class size is 40-50 students per class
Workload (inc. Contact hours, self-study hours)	<ul style="list-style-type: none">• Learning Process: (2 sch x 50 minutes) x 14 weeks = 1400 minutes = 23.3 hours• Structured Assignments: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Self-study: (2 sch x 60 minutes) x 14 weeks = 1680 minutes = 28 hours• Test: 120 minutes x 2 times = 240 minutes = 4 hours
Credit points	2 credits (equivalent with 3.2 ECTS)
Required and recommended prerequisites for joining the module	-
Course Description	This course discusses Applied Unit Operations. Students will gain mastery of crystallization, distillation, extraction, evaporation, drying, and freezing in food processing operations. In addition, students will undertake collaborative and project-based learning to design and analyze the application of heat, psychometric applications, and operational research in food processing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none">• Able to analyze food processing operation units• Able to analyze equipment and methods in food processing operation units• Able to analyze heating and drying techniques in food processing operations• Able to analyze cooling and freezing techniques in food processing operations• Able to analyze separation operation units in food processing
Content	<ol style="list-style-type: none">1. Crystallization2. Distillation3. Application of Heat4. Psychometric Cart5. Calculating Air Magnitude + Applications, Psychometrics6. Drying7. Drying Equipment



	<p>8. Freezing 9. Extraction 10. Extraction (Continued) 11. Evaporation 12. Evaporation (Continued) 13. Operational Research 14. Operational Research (Continued)</p>
Examination form	<ul style="list-style-type: none"> • Quiz (5%) • Assignment (5%) • Midterm examination (20%) • Final examination (20%) • Project Base Learning (30%) • Case Method (20%)
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Students can take the exam if they attend at least 80% of the 14 course sessions.</p> <p>Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$</p>
Reading list	<p>Main:</p> <p>Clark, S., Jung, S., Lamsal, B. (2014). Food processing: principles and applications. John Wiley & Sons.</p> <p>Hariyadi, P. (2019). Basic of Food Engineering. PT Penerbit IPB Press.</p> <p>Heldman, D.R., Lund, D.B., Sabliov, C. (2018). Handbook of food engineering. CRC press.</p> <p>Singh, R.P., Heldman, D.R. (2014). Heat transfer in food processing. Introduction to food engineering, 5, 265-417.</p> <p>Syah, D. (2018). Introduction to food technology. PT Penerbit IPB Press.</p> <p>Supporters: Related journals</p>
Last date of update	July 2025



8th Semester



ITP4297 SEMINAR PROPOSAL

Course Name	Seminar Proposal
Code	ITP4297
Semester(s) in which the module is taught	VIII
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)
Workload (inc. Contact hours, self-study hours)	
Credit points	1 credits (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none"> • Be enrolled in this course • Have passed courses with a total weight of 100 credits
Course Description	This course provides experience for students to submit their research proposals in front of the forum, which is intended to improve the proposed research methodology so that research can be carried out properly and appropriately in accordance with scientific principles
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply the principles of food analysis and laboratory instrumentation and compile a scientific description of the results of the analysis into a scientific work in accordance with academic norms and ethics that can be utilized by the community in their daily lives. • Able to think logically and critically in identifying and presenting alternative solutions related to food problems that occur in society by upholding the value of BINTANG (Fearing God Almighty in accordance with the frame of diversity, Innovative with integrity, and Tough and Arif) • Able to implement the principles of developing new food products by maximizing soft skills, entrepreneurial spirit and cooperation in terms of tenacity, creativity and innovation in formulating Indonesian local food ingredients according to the principles of TALENTA (Tropical Science and Medicine, Agroindustry, Local Wisdom, Energy (sustainable), Natural Resources (biodiversity, forest, marine, mine, tourism), Technology (appropriate) and Arts (ethnic)).
Content	<ol style="list-style-type: none"> 1. Introduction to Research and the Role of Research Proposals 2. Selection and Formulation of Research Problems 3. Literature Search and Theoretical Foundations 4. Formulation of Research Objectives and Benefits 5. Research Approach and Design



	<ol style="list-style-type: none"> 6. Population, Samples, and Sampling Techniques 7. Data Collection: Techniques and Instruments 8. Data Analysis and Interpretation of Results \ 9. Research Ethics and Plagiarism 10. Structure and Format of Research Proposal 11. Research Proposal Presentation Preparation Techniques 12. Strategies for Answering Questions and Criticism 13. Proposal Seminar Simulation 14. Proposal Refinement Based on Seminar Input
Examination form	<ul style="list-style-type: none"> • Research Proposal (systematic, conceptual, actuality, analysis/path of thought): 40% • Power Point Research Proposal Seminar (discussion, creativity, student efforts during guidance): 30% • Presentation Proposal Seminar (delivery, answering question, reasoning): 30%
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	<p>Grading rubric:</p> <p>A ≥ 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E ≤ 49</p>
Reading list	<p>Main:</p> <p>Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications.</p> <p>Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). How to design and evaluate research in education (10th ed.). McGraw-Hill Education.</p> <p>Kumar, R. (2019). Research methodology: A step by-step guide for beginners (5th ed.). SAGE Publications.</p> <p>Neuman, W. L. (2020). Social research methods: Qualitative and quantitative approaches (8th ed.). Pearson.</p> <p>Punch, K. F. (2014). Introduction to social research: Quantitative and qualitative approaches (3rd ed.). SAGE Publications.</p>
Last date of update	July 2025



ITP4298 RESULT SEMINAR

Course Name	Result Seminar
Code	ITP4298
Semester(s) in which the module is taught	VIII
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)
Workload (inc. Contact hours, self-study hours)	
Credit points	1 credits (equivalent with 1.6 ECTS)
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none"> • Be enrolled in this course • Have passes courses with a total weight of 140 credits
Course Description	This course provides experience for students to actively participate in scientific seminar forums and train students in writing thesis research results in the form of scientific papers and delivering them in the seminar forum
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to apply the principles of food analysis and laboratory instrumentation and compile a scientific description of the results of the analysis into a scientific work in accordance with academic norms and ethics that can be utilized by the community in their daily lives • Able to think logically and critically in identifying and presenting alternative solutions related to food problems that occur in society by upholding the value of BINTANG (Fearing God Almighty in accordance with the frame of diversity, Innovative with integrity, and Tough and Arif) • Able to implement the principles of developing new food products by maximizing soft skills, entrepreneurial spirit and cooperation in terms of tenacity, creativity and innovation in formulating Indonesian local food ingredients according to the principles of TALENTA (Tropical Science and Medicine, Agroindustry, Local Wisdom, Energy (sustainable), Natural Resources (biodiversity, forest, marine, mine, tourism), Technology (appropriate) and Arts (ethnic)).
Content	<ol style="list-style-type: none"> 1. Introduction to the Seminar on Research Results 2. Preparation of Research Report 3. Use of Scientific Language in Reports 4. Data Processing and Visualization of Research Results 5. Scientific Presentation Techniques 6. Communication Skills in Seminars



	<ol style="list-style-type: none"> 7. Critical Analysis of Self-Research 8. Seminar Simulations and Exercises 9. Research Methodology in Seminars 10. Discussion of Research Results 11. Time Management in Seminars 12. Ethics in Scientific Seminars 13. Seminar Evaluation and Reflection 14. Publication and Development of Research Results
Examination form	<ul style="list-style-type: none"> • Research Result (systematic, conceptual, actuality, analysis/path of thought): 40% • Power Point Research Result Seminar (discussion, creativity, student efforts during guidance): 30% • Presentation Research Result (delivery, answering question, reasoning): 30%
Learning media	Power point (LCD), whiteboard, e-learning (LMS)
Study and examination requirements	Grading rubric: $A \geq 80$ $B+ = 75-79$ $B = 70-74$ $C+ = 65-69$ $C = 60-64$ $D = 50-59$ $E \leq 49$
Reading list	Main: Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). How to design and evaluate research in education (10th ed.). McGraw-Hill Education. Kumar, R. (2019). Research methodology: A step by-step guide for beginners (5th ed.). SAGE Publications. Neuman, W. L. (2020). Social research methods: Qualitative and quantitative approaches (8th ed.). Pearson. Punch, K. F. (2014). Introduction to social research: Quantitative and qualitative approaches (3rd ed.). SAGE Publications.
Last date of update	July 2025



ITP4299 THESIS

Course Name	Thesis
Code	ITP4299
Semester(s) in which the module is taught	VIII
Language	Indonesian or English
Relation to curriculum	Compulsory courses
Teaching methods	Structured assignments (i.e.: reading and reviewing articles, case methods, project-based learning)
Workload (inc. Contact hours, self-study hours)	
Credit points	4 credits (equivalent with 6.4 ECTS)
Required and recommended prerequisites for joining the module	<ul style="list-style-type: none"> • Be enrolled in this course • Have passes courses with a total weight of 140 credits
Course Description	The thesis aims to introduce and train students in applying science and technology and solving problems found in the field. Research is non-experimental in the form of field research, case studies, or literature studies, with non experimental research data can be in the form of primary, secondary, or a combination of primary and secondary data, which is still within the scope of the field of food technology.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to master the basic knowledge required in food technology • Able to apply the principles of food technology effectively and responsively to produce food products with quality in accordance with applicable quality standards and optimal shelf life. • Able to utilize the concepts of food science and food process engineering and design agricultural food products creatively and innovatively and utilize local Indonesian food ingredients that are good for public health. • Able to show independent, quality, and measurable performance in implementing food quality control methods and evaluating food quality characteristics during the production and post-harvest processes so as to produce food products in accordance with applicable regulations and safe for consumption. • Able to control microbes that cause damage and pathogens in food during the production and storage process thoroughly and responsibly based on phenotype characteristics, genotype, growth factors and microbiological analysis with due regard to the safety of the food products produced. • Able to apply lifelong learning of food technology principles intelligently, tenaciously and critically in



	<p>evaluating food quality and safety programs in the food industry.</p> <ul style="list-style-type: none">• Able to apply the principles of food analysis and laboratory instrumentation and compile a scientific description of the results of the analysis into a scientific work in accordance with academic norms and ethics that can be utilized by the community in their daily lives• Able to think logically and critically in identifying and presenting alternative solutions related to food problems that occur in society by upholding the value of BINTANG (Fearing God Almighty in accordance with the frame of diversity, Innovative with integrity, and Tough and Arif)• Able to implement the principles of developing new food products by maximizing soft skills, entrepreneurial spirit and cooperation in terms of tenacity, creativity and innovation in formulating Indonesian local food ingredients according to the principles of TALENTA (Tropical Science and Medicine, Agroindustry, Local Wisdom, Energy (sustainable), Natural Resources (biodiversity, forest, marine, mine, tourism), Technology (appropriate) and Arts (ethnic)).• Able to master knowledge about managerial self-development, professionalism, nationalism and ethics in the food industry and the wider community.
Content	<ol style="list-style-type: none">1. Introduction to Thesis Writing2. Selection of Research Topic3. Problem Formulation and Research Objectives4. Literature Studies and Theoretical Foundations5. Research Methodology6. Data Collection Instruments and Techniques7. Data Processing and Analysis8. Interpretation of Research Results9. Writing a Thesis Report10. Research Ethics and Scientific Writing11. Presentation and Seminar of Research Results12. Time Management in Thesis Writing13. Thesis Review and Revision14. Scientific Publication
Examination form	<ul style="list-style-type: none">• Test value (answering question, reasoning): 10%• Thesis value (systematic, conceptual, actuality, analysis/path of thought, writing technique): 30%• Comparative Value (discussion, creativity, critical thinking, problem solving, attitude, communication): 60%
Learning media	Power point (LCD), whiteboard, e-learning (LMS)



Study and examination requirements	Grading rubric: A \geq 80 B+ = 75-79 B = 70-74 C+ = 65-69 C = 60-64 D = 50-59 E \leq 49
Reading list	Main: Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approach (5th ed.). SAGE Publications. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). How to design and evaluate research in education (10th ed.). McGraw-Hill Education. Kumar, R. (2019). Research methodology: A step by-step guide for beginners (5th ed.). SAGE Publications. Neuman, W. L. (2020). Social research methods: Qualitative and quantitative approaches (8th ed.). Pearson. Punch, K. F. (2014). Introduction to social research: Quantitative and qualitative approaches (3rd ed.). SAGE Publications.
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