

MODULE HANDBOOK

BARCHELOR OF AGROECHOTECHNOLOGY



Faculty Of Agriculture
Mulawarman University

Daftar Isi

Semester I	3
Semester II	22
Semester III	46
Semester IV	61
Semester V	76
Semester VI	97



Semester I



Module name	Religious Education			
Module level	Bachelor Programme			
Code	MU000060W001			
Subtitle, if applicable				
Courses, if applicable	Reguler			
Semester	I (First)			
Person responsible for the module	Muhamad Ridwan, M. SI			
Lecturer	Muhamad Ridwan, M. SI Dr.Ir.Surya Sila,M.P Dr.Ana Margaretta T, S.PAK, M.Si., M.Th Lorensius, S.Pd.,M.Pd Kadek Subagiada, S.Si., M.Si			
Language	Bilingual (Indonesian, English and Arabic)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Lecture and Practical			
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
Credit point	3 SKS (4.8 ECTS)			
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS			
Recommended prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO 1 : explain and analyze religious education material. CLO 2 : apply religius teachings as a source value in professional and personality development			
Content	Materials are adapted to each religion.			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Final semester test	Written test	40
TOTAL			100	
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			

Reading list	1. Anshari, E. S. 1992. Kuliah al-Islam. Rajawali. 2. Hanafi, Y. 2022. Internalisasi Nilai-nilai Moderasi Beragama dalam Perkuliahan Pendidikan Agama Islam pada Perguruan Tinggi. Delta Pijar Khatulistiwa. 3. Husaini, A. 2015. Agama Islam: Panduan menjadi Cendekiawan Mulia dan Bahagia. Pro-U Media. 4. Iberani, J. S. 2003. Mengenal Islam. el-Kahfi. 5. Nurwardani, P. 2016 . Pendidikan Agama Islam Untuk Perguruan Tinggi. Direktorat Pembelajaran dan Kemahasiswaan Dirjen Pendidikan Tinggi Kementerian Pendidikan dan Kebudayaan. 6. Rahmat, Munawar. 2018. Model Perkuliahan Pendidikan Agama Islam yang Damai, Moderat, dan Toleran. Nadwa: Jurnal Pendidikan Islam. , Vol. 12, No. 1. 7. Ramdhani & M. Ali. 2021. Moderasi Beragama Berlandaskan Nilai-nilai Islam. Direktorat Jenderal Pendidikan Agama Islam Kementerian Agama RI. 8. Shihab, M. Q. 1996. Wawasan Al-Quran. Mizan. 9. Shihab, M. Q. 2020. Wasathiyyah Wawasan Islam Tentang Moderasi Beragama. Lentera Hati. 10. Taufiq, A. 2016. Pendidikan Agama Islam: Pendidikan Karakter Berbasis Agama Islam. LPPMP UNS Surakarta.
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MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain and analyze religious education material and personality development.
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	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	3	0	0	0	0	0	0	0



Module name	Pancasila		
Module level	Bachelor Programme		
Code	MU000063W002		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	I (First)		
Person responsible for the module	Nurul Puspita Palupi, S.P.,M.Si		
Lecturer	Dr. Ir. Akhyar Roeslan, M.P		
Language	Bilingual (Indonesian & English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	2 SKS (3.2 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS		
Recommended prerequisites			
Module Objectives/ Intended Learning Outcomes	Student has to explain Pancasila as the basis of the state, national ideology, philosophical system, ethical system and basic values for the development of science.		
Content	This course examines Pancasila in historical studies, as the basis of the state, national ideology, philosophical system, ethical system and basis for the development of science.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University: (Tanpa Praktikum)		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Mid-semester test	Written test
	4	Final semester test	Written test
	TOTAL		100
Media EmILoyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)		
Reading list	Ali, Asa'ad Said. (2009). Negara Pancasila, Jalan Kemaslahatan Bersama. Jakarta: LP3S		

	• Bahar, Saafroedin & Hudawati, Nanie (peny). (1998). Risalah Sidang BPUPKI dan PPKI. Jakarta. Sekretariat Negara RI. • Bouchier, David .(2007). Pancasila Versi Orde Baru dan Asal Muasal Negara Organik. Yogyakarta : Aditya Media dan PSP UGM. • Darmaputra, Eka .(1997). Pancasila antara Identitas dan Modernitas. Tinjauan Etis dan Budaya. Edisi ke-6. Jakarta: Gunung Agung • Darmodihardjo, Darji .(1981). Santiaji Pancasila. Surabaya: Pustaka Nasional • Huzaini, Adian. (2009). Pancasila bukan untuk Menindas Hak Konstitusional Umat Islam. Jakarta: Gema Insani Press. • Kemdiknas. (2010). Pendidikan Budaya dan Karakter Bangsa. Jakarta: Pusat Kurikulum, Balitbang, Kementerian Pendidikan Nasional • Kusuma, Ananda B. 2004. Lahirnya UUD 1945. Jakarta: Fakultas Hukum UI • Latif, Yudi.(2011). Negara Paripurna: Historisitas, Rasionalitas, Aktualitas Pancasila . Jakarta : Gramedia Pustaka Utama. • LPPKB.(2005). Pedoman Umum Implementasi Pancasila dalam kehidupan Bernegara. Jakarta: Cipta Prima Budaya. • Mubyarto .(Eds) (2004). Pancasila Dasar Negara, UGM dan Jati Diri Bangsa Indonesia . Yogyakarta: Pustep UGM • Panitia Lima. (1977). Uraian Pancasila . Jakarta: Penerbit Mutiara. • Pemerintah RI (2010). Desain Induk Pengembangan Karakter Bangsa 2010-2025. Jakarta : Pemerintah Republik Indonesia. • Pranarka, AMW. (1985). Sejarah Pemikiran Pancasila. Jakarta: CSIS. • PSP UGM & Yayasan Tifa.(Peny) (2008). Pancasila Dasar Negara, Kursus Presiden Soekarno tt Pancasila. Yogyakarta: Aditya Media. • Santoso, Listiono, dkk. (2003.) (de) konstruksi Ideologi Negara , Suatu Upaya Membaca Ulang Pancasila . Yogyakarta: ning Rat. • Santoso, Listiono, dkk. (2003.) Filsafat Ilmu Sosial, Ikhtiar Awal Pribumisasi Ilmu Ilmu Sosial . Yogyakarta: Gama Media • Silalahi.(2001). Dasar-Dasar Indonesia Merdeka Versi Para Pendiri Negara. Jakarta : Gramedia • Soeprapto, Maria Fajar Indrati. (1998). Ilmu Perundang-undangan . Yogyakarta : Kanisius • Suryono, Hassan, 2016, Pancasila berbasis Riset Tinjauan aspek historis, yuridis dan filosofis, LPPMP UNS. • Suseno, Franz Magnis. (1999). Etika Politik, Prinsip-Prinsip Moral Dasar Kenegaraan Modern. Jakarta : Gramedia • Suwarno, PJ. (1993). Pancasila Budaya Bangsa Indonesia. Penelitian Pancasila dengan Pendekatan Historis, Filosofis dan Sosio Yuridis • Tilaar, HAR. (2007). Mengindonesia. Etnisitas dan
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	Identitas Bangsa Indonesia . Jakarta: Rineka Cipta. • Tim Penerbit Lima (2006) Memaknai Kembali Pancasila. Yogyakarta: Penerbit Lima. • Tim. 2016. Pendidikan Kewarganegaraan. Dirjen Belmawa Kemenristekdikti. • Usman, Oetojo & Alfian (ed). (1991). Pancasila sebagai ideologi. Jakarta : BP7 Pusat. • Winarno. (2017). Paradigma Baru Pendidikan Pancasila. Jakarta : Bumi Aksara.
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MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students have to explain Pancasila as the basis of the state, national ideology, philosophical system, ethical system and basic values for the development of science.
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	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1		3						



Module name	Indonesian Language
Module level	Bachelor Programme
Code	MU000063W004
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	1
Person responsible for the module	Bayu Aji Nugroho, S.S.,M.HUM
Lecturer	Bayu Aji Nugroho, S.S.,M.HUM
Language	Bilingual (Indonesian & English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	2 SKS (3.2 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS
Recommended prerequisites	
Module Objectives/ Intended Learning Outcomes	1. Mahasiswa mampu membedakan bahasa Indonesia yang baku dan tidak baku 2. Mahasiswa mampu menulis ilmiah sesuai kaidah. 3. Mahasiswa mampu menghasilkan karya ilmiah dengan bahasa Indonesia yang benar
Content	● Pengertian bahasa Indonesia yang baik dan benar, ● Dasar-dasar Bahasa Indonesia baku ● Kaidah ejaan dengan benar (EYD) ● Proses penalaran ilmiah secara memadai (penalaran induktif, deduktif, dan salah nalar ● Penyusunan paragraf dengan benar (pengertian, kegunaan, jenis-jenis, syarat pembentukan, dan letak kalimat topik) ● Pemilihan topik dan judul penulisan ● Kerangka karangan - bentuk kerangka pola Organisasi ● Penyusunan karya tulis ilmiah (makalah/skripsi) dengan tatacara yang benar ● Tata tulis ilmiah dengan benar ● Pembuatan surat resmi secara baik dan benar
Study and Examination	Evaluation and assessment of the learning process are following

Requirements and Forms of Examination	scheme 5 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	20
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	1. Akhadiyah, Sabarti, Maedar G. Arsjad , Sakura H. Ridwan. 1994. Pembinaan Kemampuan Menulis Bahasa Indonesi. Erlangga. 2. Arifin, E. Zaenal dan S. Amran Tasa. 1989. Cermat Berbahasa Indonesia untuk Perguruan Tinggi. PT Mediatama Sarana Perkasa. 3. Darmadi, K. 1996. Meningkatkan Kemampuan Menulis: Panduan untuk Mahasiswa dan Calon Mahasisw, Penerbit Andi. 4. Depdikbud. 1991. Surat-menyurat dalam Bahasa Indonesia, seri penyuluhan 2, Pusat Pembinaan dan Pengembangan Bahasa. 5. FP-UNS. 2021. Buku Pedoman Pembuatan Skripsi di masing-masing Fakultas, FP-UNS. 6. Hanafiah, A. H. 1998 Anda Ingin Jadi Pengarang?. Usaha Nasional. 7. Keraf, Gorys. 1980. Komposisi: Sebuah Pengantar Kemahiran Bahasa. Nusa Indah 34-51. 8. Moeliono, Anton. 1988. Komposisi: Sebuah Pengantar Kemahiran Bahasa. Balai Pustaka. 9. Pedoman Umum Ejaan Bahasa Indonesia yang Disempurnakan 10. Pedoman Umum Pembentukan Istilah 11. Razak, A. 1990. Kalimat Efektif, Struktur, Gaya, dan Variasi, PT Gramedia. 12. Suryawinata, Z. & I. Suyitno. 1991. Bahasa Indonesia untuk Ilmu Pengetahuan & Teknologi, YAS 39-73. 13. Widyamartaya, A. 1990. Seni Menuangkan Gagasan, Kanisius. Hlm. 7--76.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Mahasiswa mampu membedakan bahasa Indonesia yang baku dan tidak baku
CLO 2	Mahasiswa mampu menulis ilmiah sesuai kaidah.
CLO 3	Mahasiswa mampu menghasilkan karya ilmiah dengan bahasa Indonesia yang benar

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	2							
CLO 2			1					
CLO 3						2		



Module name	Introduction of Humid Tropical Agriculture Science		
Module level	Bachelor Programme		
Code	220301612W005		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	I (First)		
Person responsible for the module	Prof. Dr. Ir. Rusdinsyah, M.Si		
Lecturer	Penny Pujowati, S.P., M.Si. Dr. Ir. Akhyar Roeslan, M.P. Dr. Hadi Pranoto, S.P., M.P. Ir. Hj. Susylowati, M.P. Prof. Ir. Suyadi, M.S., Ph.D		
Language	Bilingual (Indonesian & English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	2 SKS (3.2 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS		
Recommended prerequisites			
Module Objectives/ Intended Learning Outcomes	- Students are able to explain the meaning of science, scientific ethics and agriculture broadly - Students are able to explain supporting factors in the agricultural sector (planting media, environment and management)		
Content	This course discusses the meaning of science, scientific ethics; definition of agriculture; crop production and development of agricultural science; sustainable agriculture; branches of agricultural science.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group
			Quantity (%)
			10
			20

			presentations, Q&A	
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	1. Agustina, L., ,Dasar Nutrisi Tanaman,PT Rineka Cipta, Jakarta.,2004 2. Foth, H.D. ,Dasar-dasar Ilmu Tanah,Gadjah Mada University Press,1998 3. Melkote, R.S. ,Everett M Rogers and his contribution to the field of communication and social change in developing countries,Journal of Creative in ACommunication,1,1,2007, 4. Harjadi, Sri Setyati. ,Pengantar Agronomi,PT. Gramedia, Jakarta,1979 5. Sperling, L., J.A. Ashby, M.E. Smith, E. Weltzein dan S. McGuire.,A framework f or analyzing participatory plant breeding approachhes and results. ,Euphytica,1,122,2001, 6.Subejo,Sistem Penyuluhan di jepang: Konsep, Peran dan Perkembangan Penyuluhan Pertanian dan Pedesaan,UGM Press Yogyakarta ,2008.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO) :

CLO 1	Students are able to explain the meaning of science, scientific ethics and agriculture broadly
CLO 2	Students are able to explain supporting factors in the agricultural sector (planting media, environment and management)

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1		3						
CLO 2			2					



Module name	Fundamental of Microbiology		
Module level	Bachelor Programme		
Code	220301613W006		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	I (First)		
Person responsible for the module	Ir. Sopialena, M.P.,Ph.D		
Lecturer	Sofian, S.P.,M.Sc Dr. Ir. Ni'matuljannah Akhsan, M.P Andi Suryadi, S.P.,M.P		
Language	Bilingual (Indonesian & English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson and practical.		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	3 SKS (4.8 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS		
Recommended prerequisites			
Module Objectives/ Intended Learning Outcomes	Be able to explain the role of microorganisms to increase agricultural production in humid tropical regions.		
Content	This course examines the history of the development of microbiology, microbial classification, groups of microorganisms and their main characteristics, the role of microorganisms in human life, structure and function of microbial cells, nutrition and metabolism as well as growth and control of microbial growth, bacterial genetics.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 1 in the Academic Regulations of Mulawarman University: (Berpraktikum)		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	3	Mid-semester test	Written test
	4	Final semester test	Written test
		Quantity (%)	
			10
			10
			20
			20
			40

	TOTAL	100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)	
Reading list	● Atlas, R.M. 1997. Principle of Microbiology, 2nd ed. WC Brown Publisher. USA ● Madigan, M.T., J.M. Martinko, and J.Parker. 2009. Brock Biology of Microorganisms. 12th ed. Prentice Hall International. Inc. USA ● Prescott, L.M., J.P. Harley, and D.A. Klein. 1999. Microbiology. 4th ed. WCB. McGraw-Hill, USA Tortora, G.J., B.R. Funke, and C.L. Case. 2007. Microbiology an introduction, 9th ed. Benjamin Cummings, USA	

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Be able to explain the role of microorganisms to increase agricultural production in humid tropical regions.
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	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1		3						



Module name	Agriculture Biology
Module level	Bachelor Programme
Code	220301612W008
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	I (First)
Person responsible for the module	Prof. Dr.sc.agr. Nurhasanah, SP. M.Si.
Lecturer	Dr. Ir. Syakhril, M.Si. Dr. Rabiatal Jannah, SP. MP. Kadis Mujiono, SP. MSc. PhD. Dr. Rosfiansyah, SP. MSi. Dr. Ir. Rudarmono, MP. Ir. M. Alexander Mirza, MP. Ir. SusyLOWATI, MP. Ali Zainal Abidin Alaydrus, STP. MP.
Language	Bilingual (Indonesian and English Language)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson, and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination) Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	2 SKS (3.2 ECTS) Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS
Recommended prerequisites	
Module Objectives/ Intended Learning Outcomes	1. Students are able to explain the biology of plant cells, tissues and organs. 2. Students are able to explain plant metabolism, plant growth and development. 3. Students are able to apply the plant classification system.
Content	Agricultural Biology lectures study plant cells, tissues and organs. Apart from that, we study the processes of photosynthesis, respiration, growth and development of plants. This course also studies the plant classification system.
Study and Examination Requirements and Forms of	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:

Examination	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	20
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	● Beck, C.B. 2006. An introduction to plant structure and development. Cambridge Univ. Press, Cambridge. ● Dickinson, W. C. 2000. Integrative Plant Anatomy. Harcourt Academic Press, New York. ● Evert, R.F. 2006. Esau's Plant Anatomy. Wiley Interscience. ● Hopkins, W.G. & Huner, N.P.A. 2004. Introduction to Plant Physiology 3rd ed. John Wiley & Sons, Inc. ● Lersten, N.R. 2004. Flowering Plant Embryology. Blackwell Publishing. ● Opick, H. & S.A. Rolfe. 2005. The Physiology of Flowering Plants. Cambridge Univ. Press 7. ● Taiz, L. & Zeiger, E. 2006. Plant Physiology. 4th ed. Sinauer Ass, Inc., Publ. Sunderland, Massachusetts			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the biology of plant cells, tissues and organs.
CLO 2	Students are able to explain plant metabolism, plant growth and development.
CLO 3	Students are able to apply the plant classification system.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	0	2	0	0	0	0	0	0
CLO 2	0	0	3	0	0	0	0	0
CLO 3	0	0	0	2	0	0	0	0



Module name	Agroecology		
Module level	Bachelor Programme		
Code	220301612W007		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	I (First)		
Person responsible for the module	Dr. Ir. Sadaruddin, MP.		
Lecturer	Dr. Ir. Suria Darma Idris, MSi. Dr. Hadi Pranoto, SP. MP. Dr. Ir. Rudarmono, MP. Penny Pujowati, SP. MSi.		
Language	Indonesia		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture and lesson		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	2 SKS (3.2 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS		
Recommended prerequisites			
Module Objectives/ Intended Learning Outcomes	● Students will be able to explain basic ecological concepts ● Students will be able to explain development and evolution of ecosystems.		
Content	Agroecology discusses : ● the relationship between nature, humans, plants and animals; ● ecosystems, energy and biogeochemical cycles; ● population dynamics; ● population interaction in communication; ● development and evolution of ecosystems.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
			Quantity (%)
			10
			20

	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading List	1. Ekologi Dasar I. BKS PTN Intim Halaman 1-12 2. Ekologi Dasar I. BKS PTN Intim Halaman 35-53; 14-35 3. Ekologi Dasar I. BKS PTN Intim Halaman 99-113, 117-157 4. Ekologi Dasar I. BKS PTN Intim Halaman 117-157 5. Ekologi Dasar I. BKS PTN Intim Halaman 159-207 6. Ekologi Dasar I. BKS PTN Intim			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students will be able to explain basic ecological concepts
CLO 2	Students will be able to explain development and evolution of ecosystems.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8



Module name	Information Management System
Module level	Bachelor Programme
Code	220301612W008
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	I (First)
Person responsible for the module	Yoga Toyibulah, S.Si., M.Sc.
Lecturer	Medi Taruk, M.Cs Bambang Firdaus, M.Kom
Language	Indonesia
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	2 SKS (3.2 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS
Recommended prerequisites	
Module Objectives/ Intended Learning Outcomes	Able to explain the concept and scope of management information systems as part of improving the quality of life in society, nation, state and the progress of civilization based on Pancasila; Able to demonstrate a responsible attitude towards the work/assignments assigned independently, with quality and measurability by mastering and utilizing relevant information and communication technology principles and procedures to support the development of learning quality Able to make appropriate decisions in the context of completing independent/group tasks based on the results of information and data analysis and communicating the results both orally and in writing effectively.
Content	In this course, students learn about the scope of basic concepts of Information Systems, information technology for excellence, management strategies that focus on the future, information technology from a company perspective, team frameworks in companies, the role of management information systems in decision making, implementation of Information Management

	Systems , and Information Systems and Technology Audit.			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 5 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	20
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	● Rochaety, Eti. 2017. Sistem Informasi Manajemen. Jakarta: Mitra Wacana Media ● Darmawan, Deni. Fauzi, K. N. 2016. Sistem Informasi Manajemen. Bandung: PT Remaja Rosdakarya ● Zakiyudin, Ais. 2016. Sistem Informasi Manajemen. Jakarta: Prenadamedia Group ● Siagian, Soandang. 2013. Sistem Informasi Manajemen. Bandung: Alfabeta.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Able to explain the concept and scope of management information systems as part of improving the quality of life in society, nation, state and the progress of civilization based on Pancasila;
CLO 2	Able to demonstrate a responsible attitude towards the work/assignments assigned independently, with quality and measurability by mastering and utilizing relevant information and communication technology principles and procedures to support the development of learning quality
CLO 3	Able to make appropriate decisions in the context of completing independent/group tasks based on the results of information and data analysis and communicating the results both orally and in writing effectively.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	2							
CLO 2		3						
CLO 3								3



Semester II



Module name	Fundamental of Genetic		
Module level	Bachelor Programme		
Code	220301622W006		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	II (Second)		
Person responsible for the module	Prof. Dr. Ir. Rusdiansyah, M.Si		
Lecturer	1. Prof. Dr.sc.agr. Nurhasanah, SP. M.Si. 2. Dr. Ir. Syakhril, M.Si. 3. Dr. Ir. Ellok Dwi Sulichantini, M.Si. 4. Prof. Widi Sunaryo, SP. M.Si., Ph.D 5. Ir. Muhammad Saleh, M.Si.		
Language	Bilingual (Indonesian & English Language)		
Relation to curriculum	Compulsory		
Type of teaching	Lecture and Lesson		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit points	2 SKS (3.2 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	1. Students are able to explain the structure of organisms, cycles and chemical composition, 2. Students are able to explain the history of genetic development, 3. Students are able to explain the chemicals that make up their genetics		
Content	This course explains the structure and development of organisms, the chemicals that make up their genetics, as well as the progress and development of genetics.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Mid-semester test	Written test
			Quantity (%)
			10
			20
			30

	4	Final semester test	Written test	40
	TOTAL			100
Media Pembelajaran	Notebook/Computer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Referensi	1. Crowder, L.V. 1988. Plant Genetics. Terjemahan: Kusdiarti, Lilik: Genetika Tumbuhan. Gajah Mada Univ. Press 2. M. Apandi. Dasar-dasar Genetika. PT. Gelora Aksara Pratama, Bandung 3. PAI, A.C., 1985. Foundations of Genetics. Terjemahan 4. Yusuf M, 1998. Genetika Dasar I. Ekspansi Gen. PAU. IPB, Bogor			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the structure of organisms, cycles and chemical composition
CLO 2	Students are able to explain the history of genetic development
CLO 3	Students are able to explain the chemicals that make up their genetics

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1				2				
CLO 2		3						
CLO 3							3	



Module name	Agroclimatology
Module level	Bachelor Programme
Code	220301643W008
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	II (Second)
Person responsible for the module	Dr. Ir. A.Syamad Ramayana, M.P
Lecturer	1. Ir. Bambang Supriyanto, M.Si. 2. Dr. Ir. Suria Darma Idris, M.Si 3. RM. Nurhartanto, SP. M.Si
Language	Bilingual (Indonesian & English Language)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	1. Able to understand the meaning of agroclimatology 2. Able to understand and recognize weather/climate elements, understand the role of weather elements in the agricultural sector 3. Able to understand and compile climate classifications based on weather data, understand and apply microclimate modifications for the agricultural sector 4. Able to understand the influence of global warming and climate change on agriculture
Contents	The material discussed in the lecture is: 1. Understanding of weather, climate, seasons, microclimate followed by the scope of Agroclimatology which explains the benefits and role of agroclimatology in the agricultural production process. the role of weather/climate elements. 2. Weather/climate elements: solar radiation, temperature, air pressure, wind, humidity, clouds, precipitation and

	evapotranspiration. The discussion of each weather element is accompanied by an explanation of its role on plants. 3. Climate classification. 4. Modification of microclimate. 5. Global warming 6. Climate change and its impact on agriculture and mitigation efforts through anticipation and adaptation.																												
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 1 in the Academic Regulations of Mulawarman University: <table><tr><th>No.</th><th>Objects of Assessment</th><th>Forms of Assessment</th><th>Quantity (%)</th></tr><tr><td>1</td><td>Affective</td><td>Participation</td><td>10</td></tr><tr><td>2</td><td>Task</td><td>Study group presentations, Q&A</td><td>10</td></tr><tr><td>3</td><td>Practises</td><td>Report</td><td>20</td></tr><tr><td>4</td><td>Mid-semester test</td><td>Written test</td><td>20</td></tr><tr><td>5</td><td>Final semester test</td><td>Written test</td><td>40</td></tr><tr><td colspan="3">TOTAL</td><td>100</td></tr></table>	No.	Objects of Assessment	Forms of Assessment	Quantity (%)	1	Affective	Participation	10	2	Task	Study group presentations, Q&A	10	3	Practises	Report	20	4	Mid-semester test	Written test	20	5	Final semester test	Written test	40	TOTAL			100
No.	Objects of Assessment	Forms of Assessment	Quantity (%)																										
1	Affective	Participation	10																										
2	Task	Study group presentations, Q&A	10																										
3	Practises	Report	20																										
4	Mid-semester test	Written test	20																										
5	Final semester test	Written test	40																										
TOTAL			100																										
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)																												
Reading list	● Ariyanto, D. P., Aziz, A., Komariah, K., Sumani, S., & Abara, M,Comparing the accuracy of estimating soil moisture using the ● Ariyanto, D. P., Priswa, R. P. W., & Senge, M,Determining the wet season onset toward crop water availability under the tropical monsoon climate,IOP Conference Series: ● Arora, N. K,Impact of climate change on agriculture production and its sustainable solutions, Environmental Sustainability,2,2,2019, : ● Aryal, J. P., Sapkota, T. B., Khurana, R., Khatri-Chhetri, A., Rahut, D. B., & Jat, M. L,Climate change and agriculture in South Asia: Adaptation options in smallholder production systems,Environment, Development and Sustainability,22,6,2020, : ● Bhermana, A., & Susilawati, S,Environmentally Sound Spatial Management Using Conservation and Land Evaluation Approach at Sloping Lands in Humid Tropic (A case study of Antang Kalang sub-district, Central Kalimantan, Indonesia),SAINS TANAH-Journal of Soil Science and Agroclimatology,16,1,2019, : ● Budiastuti, M., Purnomo, D., Hendro, H., Sudjianto, U., & Gunawan, B,Rehabilitation of critical land by Implementing complex agroforestry at the prioritized subwatersheds in the Muria Region,Sains Tanah,17,1,2020, : ● Budiastuti, M., Purnomo, D., Supriyono, Yunindanova, M. B., Mahardini, P., & Utami, R,Land management strategy for cocoa cultivation at home gardens Land management strategy for cocoa cultivation at home gardens,IOP Conference Series: ● Budiastuti, Maria Theresia Sri,Agroforestri Sebagai Bentuk Mitigasi Perubahan Iklim,Seminar Nasional Magister Agroteknologi Fakultas Pertanian UPN “Veteran” Jawa Timur,Magister Agroteknologi Fakultas Pertanian UPN “Veteran” Jawa Timur,2020 : ● Budiastuti, S ., Purnomo D., Setyaningrum, D,Agroforestri Bentuk Pengelolaan Lahan Berwawasan Lingkungan,UNS																												

	Press,2021 : ● Budiastuti, S., Purnomo, D., Setyaningrum, D,Alam Semesta, Kehidupan dan Teknologi,UNS Press,2021 : ● Chang, J. H,Climate and agriculture: an ecological survey, Routledge, 2017. ● Chmura, H. E., Glass, T. W., & Williams, C. T,Biologging physiological and ecological responses to climatic variation: new tools for the climate change era,Frontiers in Ecology and Evolution,6,8,2018 ● Earth and Environmental Science,200,1,2018, : ● Earth and Environmental Science,200,1,2018,IOP Publishing : ● Earth and Environmental Science,686,1,2021,IOP Publishing : Bartok, B., Telcian, A. S., S?c?rea, C., Horvath, C., Croitoru, A. E., & Stoian, V.,Regional Climate Models Validation for Agroclimatology in Romania,Atmosphere,12,8,2021, : ● Hatfield, J. L., Sivakumar, M. V., & Prueger, J. H,Agroclimatology ,John Wiley & Sons,2020 : Qonita, M,Agricultural planning based on local agro-climatology assessment in Bongkot, Purwodadi, Purworejo,IOP Conference Series: ● Heymann, M,The climate change dilemma: big science, the globalizing of climate and the loss of the human scale,Regional Environmental Change,19,6,2019, : ● Karimi, V., Karami, E., & Keshavarz, M,Climate change and agriculture: Impacts and adaptive responses in Iran,Journal of Integrative Agriculture,17,1,2018, : ● Komariah, Senge, M., Sumani, Dewi, W. S., Yoshiyama, K., & Rachmadiyanto, A. N,The Impacts of Decreasing Paddy Field Area on Local Climate in Central Java, Indonesia,Air, Soil and Water Research,8,ASWRS21560,2015, : ● Liu, C., Yang, C., Yang, Q., & Wang, J,Spatiotemporal drought analysis by the standardized precipitation index (SPI) and standardized precipitation evapotranspiration index (SPEI) in Sichuan Province, China,Scientific Reports,11,1,2021, : ● Murniati, K,The impact of climate change on the household food security of upland rice farmers in Sidomulyo, Lampung Province, Indonesia,Biodiversitas Journal of Biological Diversity,,21,8,2020, : ● Rondhi, M., Fatikhul Khasan, A., Mori, Y., & Kondo, T,Assessing the role of the perceived impact of climate change on national adaptation policy: the case of rice farming in Indonesia, Land,8,5,2019, : ● Shields, A. L,The climates of other worlds: A review of the emerging field of exoplanet climatology,The Astrophysical Journal Supplement Series,243,2,2019, : ● Standardized Precipitation Index (SPI) and the Standardized Precipitation Evapotranspiration Index (SPEI),AINS TANAH-Journal of Soil Science and Agroclimatology,17,1,2020, : ● Suheri, N. A., Mujiyo, M., & Widijanto, H,Land Suitability Evaluation for Upland Rice in Tirtomoyo District, Wonogiri Regency, Indonesia,SAINS TANAH-Journal of Soil Science and Agroclimatology,15,1,2018, : ● Venkatramanan, V., Shah, S., & Prasad, R,Global Climate
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	Change and Environmental Policy, Springer Singapore, 2020 : ● White, S., Pfister, C., & Mauelshagen, F, The Palgrave handbook of climate history, Palgrave Macmillan, 2018 : ● Winsberg, E, Philosophy and climate science, Cambridge University Press, 2018 : ● Zaki, M. K., Noda, K., Ito, K., Komariah, K., Sumani, S., & Senge, M, Adaptation to extreme hydrological events by javanese society through local knowledge, Sustainability, 12, 24, 2020, :
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MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Able to understand the meaning of agroclimatology
CLO 2	Able to understand and recognize weather/climate elements, understand the role of weather elements in the agricultural sector
CLO 3	Able to understand and compile climate classifications based on weather data, understand and apply microclimate modifications for the agricultural sector

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1				3				
CLO 2							2	
CLO 3								2



Module name	Agricultural English		
Module level	Bachelor Programme		
Code	220301623W003		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	II (Second)		
Person responsible for the module	Prof. Widi Sunaryo, SP. M.Si., Ph.D		
Lecturer	Prof. Dr.sc.agr. Nurhasanah, SP. M.Si.		
Language	Bilingual (Indonesian and/or English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson, and practical		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	3 SKS (4.8 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	- English language skills covered in the aspects of Listening, Speaking, Reading and Writing skills. - Ability to read scientific terms/writings written in English.		
Contents	This course covers basic and main sentence patterns that absolutely must be mastered in English, advanced grammar, readings which supports the profession as a student, English terms, as well as simple conversations used every day, especially those that support their scholarly profession		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
			Quantity (%)

	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Module name	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Module level	● Frank, Marcella (1972). Modern English. Prentice Hall, Inc. Englewood Cliffs, New jersey. ● Hornby, A.S. (1979). The teaching of Structural Words and Sentence Patterns. Oxford University Press, London. ● Markstein, Linda; Hirasawa, Louise (1982). Expanding reading Skills. Newbury House Publishers, Inc. Rowley. London. ● Quirk, Randolph; Baum, Sidney Green (1983) A University Grammar of English. Longman Group Limktd, Engkand. ● Thomson, A.J. and A.V. Martinet (1986). A Practical English Grammar. Oxford University Press, London.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	● English language skills covered in the aspects of Listening, Speaking, Reading and Writing skills.
CLO 2	● Ability to read scientific terms/writings written in English.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1						2		
CLO 2								3



Module name	Botany		
Module level	Bachelor Programme		
Code	220301623W008		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	III (Third)		
Person responsible for the module	Ir. Hj. Susylowati, M.P		
Lecturer	1. Dr. Ir. H. E. Akhmad Syaifudin, M.P. 2. Prof. Widi Sunaryo, SP. M.Si., Ph.D		
Language	Bilingual (Indonesian or English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	<i>Lecture, lesson, practical, project, seminar etc.</i>		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	3 SKS (4.8 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	● Students are able to explain the structure of plant organs both anatomical and morphological. ● Students are able to explain the function of plant organs. ● Students are able to explain the role of systematics and classification in the world of plants.		
Content	This Botany lecture material includes: Introduction to cells, plant organ tissue, anatomical and morphological. Division in cells. Plant morphology and functions. Systematics and classification in the world of plants.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group
			Quantity (%)
			10
			10

			presentations, Q&A	
	3	Practises	Report	20
	3	Mid-semester test	Written test	20
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	1. A.G. Kartasapoetra. 1988. Pengantar Anatomi tumbuh-tumbuha. Bina Aksara, Jakarta. 247 Hal 2. 2. Sri Mulyani E.S. 2006. Anatomi Tumbuhan. Kanisius, Yogyakarta. 325 Hal. 3. Siti Sutarmi Tjitrosomo. 1983. Botani Umum Jilid 1,2,3. Angkasa, Bandung. 4. Ratna Nirmala. 2011. Diktat Anatomi Tumbuhan. Faperta. Univ. Mulawarman 5. http://ninityulianita.wordpress.com/2009/07/29/anatomi-tumbuhan/			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the structure of plant organs both anatomical and morphological.
CLO 2	Students are able to explain the function of plant organs.
CLO 3	Students are able to explain the role of systematics and classification in the world of plants.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	0	3	0	0	0	0	0	0
CLO 2	0	0	0	2	0	0	0	0
CLO 3	0	0	0	0	0	0	0	1



Module name	Agronomy
Module level	Bachelor Programme
Code	220301623W004
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	II (Second)
Person responsible for the module	Dr. Ir. Sadaruddin, M.P.
Lecturer	1. Ir. Hj. SusyLOWATI, M.P 2. Ir. Alvera Prihatini Dewi Nazari, M. 3. Penny Pujowati, S.P., M.Si. 4. Dr. Hadi Pranoto, S.P., M.P 5. Dr. Ir. Syakhril, M.Si.
Language	Bilingual (Indonesian and/or English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson, and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	2 SKS (3.2 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	● Students are able to explain plant management techniques to obtain maximum production ● Students are able to explain their environment to get maximum production ● Students are able to explain plant harvesting techniques ● Students are able to explain post-harvest handling to reduce yield losses.
Contents	This lecture material is about agricultural development, understanding agronomy, structure, morphology and function of plants, plant propagation, planting and maintenance of plants, fertilizer and fertilization, multiple cropping (double propagation system), as well as harvesting and good post-harvest handling to reduce yield losses.

Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Module name	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Module level	1. Asparno Mardjuki. 1990. Pertanian dan Masalahnya. Andri Offset, Yogyakarta. 2. Hasan basri jumin. 1991. Dasar-dasar agronomi. Rajawali, Jakarta. 3. Sri Setyani Harjadi. 1997. Pengantar Agronomi. PT. Gramedia, Jakarta. 4. Soehartini Riyanto, Sadarudin, Hj. Susylowati, Amjaya, Hadi Purwanto, dan Yazid Ismi Intara. 2006. Dasar-dasar Agronomi. Program Studi Agronomi. Faperta Unmul. Samarinda.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain plant management techniques to obtain maximum production
CLO 2	Students are able to explain their environment to get maximum production
CLO 3	Students are able to explain plant harvesting techniques
CLO 4	Students are able to explain post-harvest handling to reduce yield losses.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1			3					
CLO 2				2				
CLO 3							2	
CLO 4								1



Module name	Soil Science
Module level	Bachelor Programme
Code	220301623W005
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	II (Second)
Person responsible for the module	Dr. Ir. Mulyadi, M.Sc.
Lecturer	1. Dr. Rabiatal Jannah, S.P., M.P. 2. Dr. Ir. H. Makhrawie, M.Agr. 3. Dr. Hut. Ria Rachel Paranoan, S.P., M.Sc. 4. Donny Donantho, S.P., M.Sc. 5. Rahardian Adi Prasetyo, S.P., M.Si
Language	Bilingual (Indonesian and/or English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson, dan practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	● Students are able to explain basic theoretical concepts of soil science, ● Students are able to explain problems in the field of increasing agricultural commodity production, ● Students are able to explain efforts to conserve land and water resources, ● Students are able to explain efforts to repair environmental damage, especially in wet tropical areas.
Content	The scope of the basics of soil science is the definition and factors that form soil, physical properties of soil, water conditions in the soil, chemical properties of soil, soil ecology, organic matter and its management, elements needed by soil, plant fertilization, and genesis and soil survey.

Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	● Barchia, M. F. 2008. Agroekosistem Tanah Mineral Masam. Gadjah Mada University Press, Yogyakarta. ● Hanafiah, K.A., I. Anas, A. Napoleon dan N. Ghoffar, MSi. 2005. Biologi Tanah, Ekologi dan Makrobiologi Tanah. PT RajaGrafindo Persada. Jakarta ● Handayanto, E. dan K. Hairiah. 2009. Biologi Tanah. Landasan Pengelolaan Tanah Sehat. Penerbit Pustaka Adipura, Yogyakarta. ● Hardjowigeno, S. 2010. Ilmu Tanah. Penerbit Akademika Pressindo, Jakarta. ● Hillel, D dan C. Rosenweig. 2011. Handbook of Climate Change and Agroecosystems. Impact, Adaptation, and Mitigation. Imperial College Press, London. ● Kartasapoetra, dkk. 2002. Teknologi Konservasi Tanah dan Air. Penerbit Rineka Cipta, Jakarta. ● Marschner, P. & Z. Rengel. 2007. Soil Biology, Nutrient Cycling in Terrestrial Ecosystems. Springer, Verlag-Berlin, Heidelberg. ● Munawar, A. 2011. Kesuburan Tanah dan Nutrisi Tanaman. PT Penerbit IPB Press, Bogor. ● Munir, M. 1996. Tanah-Tanah Utama Indonesia. Karakteristik, Klasifikasi dan Pemanfaatannya. Pustaka Jaya, Jakarta. ● Rayes, L. 2007. Metode Inventarisasi Sumber Daya Lahan. Penerbit Andi, Yogyakarta. ● Sanchez, P. A. 1992. Sifat dan Pengelolaan Tanah Tropika. Penerbit ITB, Bandung. ● Simanungkalit, R.D.M., D. A. Suriadikarta, R. Saraswati, D. Setyorini, dan W. Hartatik. 2006. Pupuk Organik dan Pupuk Hayati. Balai Besar Litbang Sumberdaya Lahan Pertanian. Badan Penelitian dan Pengembangan Pertanian, Bogor. ● Summer M. 2000. Handbook of Soil Science. CRC Press, Boca Raton, Florida. ● Sutanto, R. 2005. Dasar-Dasar Ilmu Tanah. Konsep dan Kenyataan. Penerbit Kanisius, Yogyakarta. ● Tan, K.H., 1992. Dasar-Dasar Kimia Tanah. Gadjah Mada University Press. Yogyakarta ● Utomo, W. H. 1994. Erosi dan Konservasi Tanah. Penerbit IKIP Malang. ● Winarso, S. 2005. Kesuburan Tanah. Dasar Kesehatan dan Kualitas Tanah. Penerbit Gava Media, Yogyakarta ● Yulius, AKP, Nanere, JI., Samosir SSR., Tangkasari R., Lalopoa, JR., Ibrahim, B., Asmadi H. 1997. Dasar-Dasar Ilmu Tanah. Depdikbud. Dirjen Dikti, Badan Kerjasama PTN Indonesia Timur.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain basic theoretical concepts of soil science,
CLO 2	Students are able to explain problems in the field of increasing agricultural commodity production,
CLO 3	Students are able to explain efforts to conserve land and water resources,
CLO 4	Students are able to explain efforts to repair environmental damage, especially in wet tropical areas.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	0	0	3	0	0	0	0	0
CLO 2	0	0	0	2	0	0	0	0
CLO 3	0	0	0	0	0	0	2	0
CLO 4	0	0	0	0	0	0	0	1



Module name	Citizenship		
Module level	Bachelor Programme		
Code	MU0000602W003		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	II (Second)		
Person responsible for the module	Dr. Abdul Sahid, S.P., M.P.		
Lecturer	Dr. Ir. Akhyar Roeslan, M.P		
Language	Bilingual (Indonesian and/or English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	2 SKS (3.2 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	● Students are able to explain the ideology of the Indonesian state, humanitarian values, law, state administration and nationalism. ● Students are able to interact in communities with diverse beliefs and cultures. ● Students are able to discuss phenomena that are currently occurring in society		
Contents	During lectures, students gain general knowledge including ideology, humanity, law, state administration and nationalism, so that they can be used in interacting in communities with diverse beliefs and cultures. Students also discuss phenomena that are currently occurring in society.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 5 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
			Quantity (%)

	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	20
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	- Fauzi, I & Srikantono, Pendidikan Kewarganegaraan (Civil Education), Superior Jember, 2013 - Ismail S. & Hartati., Pendidikan Kewarganegaraan Konsep Dasar Kehidupan Berbangsa dan Bernegara di Indonesia, Qiara Media Pasuruan, 2020 - Marzali, A., Agama dan Kebudayaan, Journal of Anthropology, 1, 1, 2016,			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the ideology of the Indonesian state, humanitarian values, law, state administration and nationalism.
CLO 2	Students are able to interact in communities with diverse beliefs and cultures.
CLO 3	Students are able to discuss phenomena that are currently occurring in society

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1				3				
CLO 2							2	
CLO 3								2



Module name	Entrepreneurship
Module level	Bachelor Programme
Code	220301622W002
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	II (Second)
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P.
Lecturer	1. Dr. Ir. Suria Darma Idris, M.Si 2. Dr. Ir. Mulyadi, M.Sc. 3. Ali Zainal Abidin Alayidrus, STP, MP 4. Dr. Ir. Ellok Dwi Sulichantini, M.Si.
Language	Bilingual (Indonesian and/or English)
Relation to curriculum	Compulsory
Type of teaching	Lecture, lesson, and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit points	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	● Explain the scope of entrepreneurship ● Analyze and self-motivate the factors that influence entrepreneurial success ● Preparing a business plan ● Present a business plan ● Manage the business that has been created and train cooperation among group members
Content	This course discusses the meaning of entrepreneurship, mindset revolution, to be an entrepreneur, innovation and creativity, business opportunities, x factor, action oriented, leadership, risk

	taking and business planning which can be executed as an act of doing real business.																								
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 5 in the Academic Regulations of Mulawarman University: <table><tr><th>No.</th><th>Objects of Assessment</th><th>Forms of Assessment</th><th>Quantity (%)</th></tr><tr><td>1</td><td>Affective</td><td>Participation</td><td>10</td></tr><tr><td>2</td><td>Task</td><td>Study group presentations, Q&A</td><td>20</td></tr><tr><td>3</td><td>Mid-semester test</td><td>Written test</td><td>30</td></tr><tr><td>4</td><td>Final semester test</td><td>Written test</td><td>40</td></tr><tr><td colspan="3">TOTAL</td><td>100</td></tr></table>	No.	Objects of Assessment	Forms of Assessment	Quantity (%)	1	Affective	Participation	10	2	Task	Study group presentations, Q&A	20	3	Mid-semester test	Written test	30	4	Final semester test	Written test	40	TOTAL			100
No.	Objects of Assessment	Forms of Assessment	Quantity (%)																						
1	Affective	Participation	10																						
2	Task	Study group presentations, Q&A	20																						
3	Mid-semester test	Written test	30																						
4	Final semester test	Written test	40																						
TOTAL			100																						
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)																								
Reading list	● Henry, C., & Lewis, K,A review of entrepreneurship education research: ExILOring the contribution of the Education+Trainingspecial ssues,Education+Training,2018. ● Emerald : Kiminami, A,Issues on Entrepreneurship and Human Resource Development in Japanese Farm Business. In Entrepreneurship and Innovation in Japanese Agriculture (pp. 1-11).,Springer, Singapore,2019 : ● Kiminami, A,Entrepreneurship and innovation in Japanese agriculture,Singapore: Springer,2019 : ● Amalia, R. T., & von Korflesch, H. F,Entrepreneurship education in Indonesian higher education: mapping literature from the Country's perspective,Entrepreneurship Education,4,3,2021, : ● Wahyudi, A. F., & Kiminami, A,ExILOring the research trends of entrepreneurship and innovation for agricultural competitiveness: a bibliometric analysis,IOP Conference Series: Earth and Environmental Science,892,1,,IOP Publishing : ● Berger, E. S., von Briel, F., Davidsson, P., & Kuckertz, A,Digital or not–The future of entrepreneurship and innovation: Introduction to the special issue,Journal of Business Research,125,,2021,Elsevier : ● Boone, C., Lokshin, B., Guenter, H., & Belderbos, R,Top management team nationality diversity, corporate entrepreneurship, and innovation in multinational firms,Strategic management journal,40,2,2019,Wiley Online Library : ● Shams, S. R., Vrontis, D., Chaudhuri, R., Chavan, G., & Czinkota, M. R,Stakeholder engagement for innovation management and entrepreneurial development: A meta-analysis,Journal of Business Research,119,,2020,Elsevier : ● Newman, A., Obschonka, M., Moeller, J., & Chandan, G. G,Entrepreneurial passion: A review, synthesis, and agenda for future research,Applied Psychology,70,2,2021,Wiley Online Library : ● Forliano, C., De Bernardi, P., & Yahiaoui, D,Entrepreneurial universities: A bibliometric analysis within the business and management domains,Technological Forecasting and Social Change,165,120522,2021,Elsevier : ● Jena, R. K,Measuring the impact of business management Student's attitude towards entrepreneurship education on																								

	entrepreneurial intention: A case study. ,Computers in Human Behavior,107,106275,2020,Elsevier : ● Burdu, E,Fundamentals of entrepreneurship,Revista de Management Comparat International,11,1,2010, : ● Secundo, G., Ndou, V., Del Vecchio, P., & De Pascale, G,Knowledge management in entrepreneurial universities: A structured literature review and avenue for future research agenda.,Management Decision,,,2019,emerald : ● Wales, W. J., Covin, J. G., & Monsen, E,Intrepreneurial orientation: The necessity of a multilevel conceptualization,Strategic Entrepreneurship Journal,14,4,2020, Wiley Online Library : ● Johannessen, J. A., & Stokvik, H,Entrepreneurial Management. In Evidence-Based Innovation Leadership,Emerald Publishing Limited,2018
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MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Explain the scope of entrepreneurship
CLO 2	Analyze and self-motivate the factors that influence entrepreneurial success
CLO 3	Preparing a business plan
CLO 4	Present a business plan
CLO 5	Manage the business that has been created and train cooperation among group members

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1							
CLO 2					3			
CLO 3						2		
CLO 4							3	
CLO 5								2



Module name	Plant Protection
Module level	Bachelor Programme
Code	220301623W007
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	II (Second)
Person responsible for the module	Prof. Ir. Suyadi, M.S., Ph.D.
Lecturer	1. Ir. HM. Alexander Mirza, M.P. 2. Dr. Ir. Tjatjuk Subiono, M.P. 3. Dr. Ir. Akhyar Roeslan, M.P
Language	Bilingual (Indonesian and/or English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	<i>Lecture, lesson, and practical</i>
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
<i>Module Objectives/ Intended Learning Outcomes</i>	● Students are able to explain the existence of various orpeta groups that can cause damage and reduce the yield of cultivated plants; ● Students are able to recognize various biological characters or groups of pathogens, pests, weeds and nematodes, ● Students are able to control each orpeta using various methods to prevent damage and reduction in plant yields; ● Students are able to document (in the form of photography) symptoms of operta damage to cultivated plants
Content	This course discusses in general the existence of all types of groups of pathogens, pests, weeds and nematodes, especially those commonly found in the East Kalimantan agroecosystem, based on

	their biological characteristics, symptoms of damage and the resulting reduction in crop yields. This course provides students with the basic knowledge and skills to be able to control various types of orbiters effectively, safely for the environment and consumers, and make maximum use of available local resources.																																										
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University: <table><tr><th>No.</th><th>Objects Assessment</th><th>of</th><th>Forms Assessment</th><th>of</th><th>Quantity (%)</th></tr><tr><td>1</td><td>Affective</td><td></td><td>Participation</td><td></td><td>10</td></tr><tr><td>2</td><td>Task</td><td></td><td>Study group presentations, Q&A</td><td></td><td>10</td></tr><tr><td>3</td><td>Practises</td><td></td><td>Report</td><td></td><td>20</td></tr><tr><td>3</td><td>Mid-semester test</td><td></td><td>Written test</td><td></td><td>20</td></tr><tr><td>4</td><td>Final semester test</td><td></td><td>Written test</td><td></td><td>40</td></tr><tr><td colspan="5">TOTAL</td><td>100</td></tr></table>	No.	Objects Assessment	of	Forms Assessment	of	Quantity (%)	1	Affective		Participation		10	2	Task		Study group presentations, Q&A		10	3	Practises		Report		20	3	Mid-semester test		Written test		20	4	Final semester test		Written test		40	TOTAL					100
No.	Objects Assessment	of	Forms Assessment	of	Quantity (%)																																						
1	Affective		Participation		10																																						
2	Task		Study group presentations, Q&A		10																																						
3	Practises		Report		20																																						
3	Mid-semester test		Written test		20																																						
4	Final semester test		Written test		40																																						
TOTAL					100																																						
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)																																										
Reading list	1. Boote, K.J., W. D. Batchelor, J. W. Jones, H. Pinnschmid and G. Bourgeois. 1991. Pest damage relations at the field level. <i>in</i> Systems Approaches for Sustainable Agricultural Development, Proceedings of the International Symposium on Systems Approaches for Agricultural Development, 2-6 December 1991, Bangkok, Thailand, de Vries, F.P., Teng, P. and Metselaar, K. (eds.) Springer Science+Business Media, B.V., p. 277-296 2. Perry R.N. and Moens M. 2013. Plant Nematolgy 2nd Edition. CABI Nosworthy Way Wallingford Oxfordshire OX10 8DE, UK. 3. Lambert K. and Bekal S. 2009. Introduction to Plant-Parasitic Nematodes. <i>The Plant Health Instructor</i>. DOI: 10.1094/PHI-I-2002-1218-01 (https://www.apsnet.org/edcenter/disandpath/nematode/intro/Pages/IntroNematodes.aspx). 4. The Journal of Nematology, https://www.exeley.com/journal/journal_of_nematology 5. Phytopathology, Phytopathology® : (apsnet.org) 6. Plant Disease, Phytopathology® : (apsnet.org) 7. Weed Science, Weed Science Journal Weed Science Society of America (wssa.net) 8. Caton, B.P., M. Mortimer, J.E. Hill, and D.E. Johnson. 2011. <i>Gulma Padi di Asia</i>, IRRI, Los Banos. 9. Ruth M. Kerruish, R.M. and P. W. Unger.2010. PLANT PROTECTION 1: Pests, Diseases and Weeds, 4th edition. RootRot Press, Canberra.																																										

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the existence of various orpeta groups that can cause damage and reduce the yield of cultivated plants;
CLO 2	Students are able to recognize various biological characters or groups of pathogens, pests, weeds and nematodes,
CLO 3	Students are able to control each orpeta using various methods to prevent damage and reduction in plant yields;
CLO 4	Students are able to document (in the form of photography) symptoms of operta damage to cultivated plants

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1			3					
CLO 2				2				
CLO 3							2	
CLO 4								1



Semester III





Module name	Soil Fertility and Fertilizer
Module level	Bachelor Programme
Code	190301603W025
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	3
Person responsible for the module	Dr. Ir. Fahrunsyah, MP.
Lecturer	Dr. Rabiatal Jannah, SP. MP. Roro Kusumaningwati, SP. MSc. Nurul Puspita Palupi, SP. MSi. Dr. Ria Rachel Paranoan, SP. MSc. Titin Eka Setianingsih, S.P., M.P
Language	Bilingual (Indonesian and English Language)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson, practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	1. Able to Understand the meaning and concept of soil fertility 2. Able to Understand soil fertility analysis techniques 3. Able to Understand the relationship between nutrients and plant needs for optimal growth 4. Able to Understand macro and micro nutrients 5. Able to identify the right planting medium to support plant growth 6. Able to analyze the relationship between soil properties and the availability of nutrients for plants 7. Able to choose appropriate soil fertility management related to plant nutritional needs 8. Understand soil fertility analysis techniques 9. Understand the relationship between nutrients and plant needs for optimal growth 10. Understand macro and micro nutrients

	11. Able to identify the right planting medium to support plant growth 12. Able to analyze the relationship between soil properties and the availability of nutrients for plants 13. Able to choose appropriate soil fertility management related to plant nutritional needs																												
Contents	This course discusses the understanding and concept of soil fertility, soil fertility analysis techniques, relationships nutrients and plant needs for optimal growth, macro and micro nutrients, appropriate planting media for supports soil growth, analyzes the relationship between soil properties and the availability of nutrients for plants, as well as proper soil fertility management related to plant nutritional needs.																												
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following scheme 1in the Academic Regulations of Mulawarman University: <table><tr><th>No.</th><th>Objects of Assessment</th><th>Forms of Assessment</th><th>Quantity (%)</th></tr><tr><td>1</td><td>Affective</td><td>Participation</td><td>10</td></tr><tr><td>2</td><td>Task</td><td>Study group presentations, Q&A</td><td>10</td></tr><tr><td>3</td><td>Practises</td><td>Report</td><td>20</td></tr><tr><td>3</td><td>Mid-semester test</td><td>Written test</td><td>20</td></tr><tr><td>4</td><td>Final semester test</td><td>Written test</td><td>40</td></tr><tr><td colspan="3">TOTAL</td><td>100</td></tr></table>	No.	Objects of Assessment	Forms of Assessment	Quantity (%)	1	Affective	Participation	10	2	Task	Study group presentations, Q&A	10	3	Practises	Report	20	3	Mid-semester test	Written test	20	4	Final semester test	Written test	40	TOTAL			100
No.	Objects of Assessment	Forms of Assessment	Quantity (%)																										
1	Affective	Participation	10																										
2	Task	Study group presentations, Q&A	10																										
3	Practises	Report	20																										
3	Mid-semester test	Written test	20																										
4	Final semester test	Written test	40																										
TOTAL			100																										
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)																												
Reading list	• Afandie, R and Nasih, W.Y. 2002. Soil Fertility Science. Canisius. Yogyakarta • AK. 1983. Basics of Farming. Canisius. Yogyakarta • Hasan, B.J. 2002. Agronomy. PT. Raja Grafindo Persada. Jakarta • Henry, K.I. 1994. Soil Fertility Management. Literary Earth. Jakarta • Loughnan,F.C. 1969. Chemical Weathering of the Silicate Minerals. American Elsevier Publ. Co., Inc. New York.																												

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to understand the meaning and concept of soil fertility
CLO 2	Students are able to understand soil fertility analysis techniques
CLO 3	Students are able to understand macro and micro nutrients and the relationship between nutrients and plant needs for optimal growth
CLO 4	Students are able to identify the right planting media to meet nutritional needs to support plant growth

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	3							
CLO 2				3				
CLO 3							3	
CLO 4								1



Module name	Plant Physiology		
Module level	Bachelor Programme		
Code	220301633W003		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	III (Third)		
Person responsible for the module	Dr. Ir. Syakhril, M.Si.		
Lecturer	Ir. Eliyani, M.Si Dr. Odit Ferry Kurniadinata, S.P., M.Si. Ir. Yetti Elidar, M.P. Ir. Alvera Prihatini Dewi Nazari, M.Si Prof. Widi Sunaryo, S.P, M.Si., Ph.D.		
Language	Bilingual (Indonesian & English Language)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson and practical		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	3 SKS (4.8 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	- Students are able to explain the structure and physiological processes of plants - Students are able to explain the internal and external factors that influence plant physiological processes		
Content	Plant Physiology studies the scope and role of plant physiology, structure, properties and function of cells, plant tissues and organs, water and its functions, photosynthesis, transpiration, germination, plant growth and development, growth regulators, ecophysiology, plant stress.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 1 in the Academic Regulations of Mulawarman University		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
Quantity (%)			
10			
10			

	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	• Bewley JD, Black M. 1983. Physiology and Biochemistry of Seeds in Relation to Germination. Vol 1 dan 2. Springer – Verlag. Berlin. • Campbell, Neil A; Mitchell, Lawrence G dan Reece, Jane B. 2004. Biologi Edisi Kelima Jilid 3. Erlangga. Jakarta. • Darmawan dan Baharsjah. 1983. Pengantar Fisiologi Tumbuhan. Gramedia. Jakarta. • Darmawan dan Baharsyah. 1983. Dasar-dasar Fisiologi Tanaman. PT Suryani Utama. Semarang. • Davies, P. J (ed). 1995. Plant Hormones and Their Role in Plant Growt and Development. Martinus Nijhoff. Pub. Dordrecht.) • Devlin,R.M. 1975. Plant Phsiology. Third Edition. D. Van Nostrand, Company. New York. • Fitter, A.H. dan R.K.M. Hay. 1994. Fisiologi Lingkungan Tanaman (terjemahan). Gajahmada Univ. Press. Yogyakarta. • Gardner, F. P., R. B. Pearce, dan R. L. Mitchell. 1985. Physiology of Crop Plants. (Terjemahan Susilo, 1991. Jakarta: UI-Press). • Hale, M. G. And D.M. Orcutt. 1987. The Physiology of Plants Under Stress. John Wiley and Sons. New York. • Harjadi, S.S. dan S. Yahya. 1988. Fisiologi Stres Lingkungan. PAU Bioteknologi, Institut Pertanian Bogor. • Harjadi. S. S. 1979. Pengantar Agronomi. Gramedia. Jakarta. • Hess, D. 1975. Plant Physiology. New York: Springer-Verlag. • Hopkins, W.G. 1995. Introduction to Plant Physiology. John Wiley and Sons, USA. • Lakitan, B. 1993. Dasar-dasar Fisiologi Tumbuhan. PT Raja Grafindo Persada. Jakarta. • Loveless, A.R. 1991. Prinsip-prinsip Biologi Tumbuhan untuk Daerah Tropik 1. Penerbit PT Gramedia Pustaka Utama : Jakarta. • Noggle. G.R. and Fritz, G.J. 1979. Introduction Plant Physiology. Prentice Hall Of India. • Nurdin, H. 1997. Buku Ajar Fisiologi Tumbuhan. Departement Pendidikan dan Kebudayaan Universitas Andalas Padang. • Salisbury FB, dan Ross CW. 1992. Plant Physiology. Wodsworth Publishing Company, Belmont-California. • Salisbury Frank B. 1995. Fisiologi Tumbuhan. Bandung: ITB. • Salisbury, F.B. and C.W. Ross. 1991. Plant Physiology 4th Edition. Wadsworth Publishing Company, Belmont, CA. • Sasmitamihardja, Dardjat. 1996. Fisiologi Tumbuhan. Bandung: ITB. • Sutopo, L. 1993. Teknologi Benih. Rajawali Press. Jakarta. • Thomas J B. 1965. Primary Photoprocesses in Biology. Amesterdam: Nort-Holland Publishing Company. • Wilkins Malcolm B. 1989. Fisiologi Tanaman. Bumi Aksara. Jakarta.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the structure and physiological processes of plants
CLO 2	Students are able to explain the internal and external factors that influence plant physiological processes

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1				2				
CLO 2								1



Module name	Research Methodology		
Module level	Bachelor Programme		
Code	190301603W021		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	3		
Person responsible for the module	Prof. Dr. Ir. Zulkarnain, MS.		
Lecturer	Prof. Dr. Ir. Surya Darma, MSi. Ir. Eliyani, MSi. Ir. Alvera Prihatini DN, MSi. Dr. Hadi Pranoto, SP. MP.		
Language	Bilingual (Indonesia dan English Language)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Lecture, lesson		
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
Credit point	2 SKS (3.2 ECTS)		
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After taking this course, it is hoped that students will be able to explain the background and intricacies of research starting from pre-preparation research, during research and preparation of results and research reports along with various aspects that cover them		
Contents	The scope of this course includes research philosophy and concepts, research problems, research objectives and benefits, variables, design, population and samples, data collection, data analysis, data presentation and writing research proposals and results		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 5 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Mid-semester test	Written test
			Quantity (%)
			10
			20
			30

	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	- Guidelines for Research Management at the Director General of DIKTI, 1994, Dikti, Jakarta - Marczyk, G., DeMateo, D., Festinger, D. 2005, Essentials of research design & methodology., John Wiley & Sons Inc., New Jersey - Saryono. 2010. Health Research Methodology. Cendikia Press Partners. Yogyakarta - Singarimbun, M and S. Efendi, 1989, Survey Research Methods, Pernerbit LP3ES, Jakarta - Suryabrata, s., 1992, Research Methodology, CV Rajawali, Jakarta			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the background and intricacies of the research
CLO 2	Students are able to prepare whatever preparations need to be made during pre-research, during research and compiling results
CLO 3	Students are able to prepare research reports along with the various aspects they include

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1				3				
CLO 2							3	
CLO 3								2



Module name	Biodiversity of Humid Tropical Plants
Module level	Bachelor Programme
Code	190301662W073
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	3
Person responsible for the module	Prof. Widi Sunaryo, SP. MSi.PhD.
Lecturer	Prof. Dr.sc.agr. Nurhasanah, SP. MSi. Ir. Muhammad Ssaleh, MSi. Dr. Odit Ferry Kurniadinata, SP. MSi.
Language	Indonesia
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture and Practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
	2 SKS (3.2 ECTS)
Credit point	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720 / 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	1. Students are able to classify biodiversity and trigger the causes and consequences of its destruction 2. Students are able classify the types and benefits of germplasm and formulate criteria for its rarity 3. Students are able to transmit application of in-situ and ex-situ conservation methods 4. Students are able to spread the prospects of microbial and insect diversity as well as informatics with the surrounding ecosystem, both macro and micro ecosystems
Contents	This course discusses aspects of biological resources which include aspects of diversity, damage and threats to biological resources as a result the use of engineering technology and biodiversity management systems that do not pay attention to sustainable principles, as well as finding alternative solutions to overcome these problems.
Study and Examination Requirements and	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:

Forms of Examination	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	20
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	1. Bhaduriya S, Khandelwal M, Churasiya K, Rathore AK, Pareek A, Dubey A, Singh J, Plant Ecology, Plant Resources Utilization and Biodiversity Conservation, Vardhman Mahaveer Open University, Kota, 2017 2. Hawksworth DL and Bull AT (Eds.), Plant Conservation and Biodiversity (Vol. 6), Springer. The Netherlands, 2007 3. Hawksworth DL and Bull AT (Eds.), Human Exploitation and Biodiversity Conservation (Vol. 8), Springer. The Netherlands, 2009 4. Meena VS, Mishra PK, Bisht JK, Pattanayak A (Eds.), Agriculturally Important Microbes for Sustainable Agriculture (Vol. I), Springer Nature. Singapore, 2017 5. Meena VS, Mishra PK, Bisht JK, Pattanayak A (Eds.), Agriculturally Important Microbes for Sustainable Agriculture (Vol. II), Springer Nature. Singapore, 2017 6. Milner-Gulland EJ and Rowcliffe JM, Conservation and Sustainable Use. A Handbook of Techniques, Oxford Univ. Press. New York, 2007 7. Normah MN, Chin HF, Reed BM, Conservation of Tropical Plant Species, Springer. New York, 2013 8. Peterson R and Lima N (Eds.), Bioprospecting - Success, Potential and Constraints, Springer Int. Publ. Switzerland, 2017 9. Singh DP, Singh HB, Prabha R (Eds.), Plant and Microbes Interaction in Agriculture Ecological Perspectives (Vol. I), Springer Nature. Singapore, 2017 10. Sloatweg R, Rajvanshi A, Mathur V and Kolhoff A, Biodiversity and Environmental Assessment, Cambridge Univ. Press. UK, 2010			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to classify biodiversity and evaluate the causes and consequences of its damage
CLO 2	Students are able classify the types and benefits of germplasm and formulate criteria for its rarity
CLO 3	Students are able to evaluate application of in-situ and ex-situ conservation methods and prospects for microbial and insect diversity and their relationships with the surrounding ecosystem, both macro and micro ecosystems

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1		3						
CLO 2				2				
CLO 3						1		



Module name	Agricultural Mechanization
Module level	Undergraduate Programme
Code	190301633W0016
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	3
Person responsible for the module	Ir. Bambang Supriyanto, M.Si
Lecturer	Dr. Ir. A. Syamad Ramayana, M.P Ali Zainal Abidin Alaydrus, S.TP, MP Dr. Ir. Suria Darma Idris, M.Si. Prof. Dr. Ir. Zulkarnain, M.S Dr. Ir. Hamsyin, M.P RM. Nurhartanto, S.P., M.Si
Language	Bilingual (Indonesian and English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	1. Students are able to explain the definition, scope, development and role of agricultural mechanization 2. Students are able to explain the types of resources and energy and their use in the agricultural sector 3. Students are able to explain agricultural tools and machines used in land processing, planting, maintenance, harvesting and post-harvest according to the principles of how they work 4. Students are able to determine agricultural tools and machines effectively and efficiently
Contents	This course studies the scope of agricultural mechanization, energy sources in the agricultural sector, the working principles of combustion engines as driving force, tools and machines in clearing and cultivating land, tractors and their specifications, planting tools and machines, tools and machines in plant maintenance, principles pump work, harvesting/post-harvest tools and machines, pumps for agriculture, and machinery management.

Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	3	Mid-semester test	Written test	20
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	• Amran, Adi dkk. 2018. Revolusi Mekanisasi Pertanian Indonesia. IAARD Press. Jakarta • Gunawan, Bambang. 2014. Mekanisasi Pertanian. Jaudar Press. Surabaya • Hadiutomo, Kusno, 2012. Mekanisasi Pertanian. IPB Press. Bogor • Jamaludin dkk. 2019. Alat dan Mesin Pertanian. Badan Penerbit UNM. Makassar • Saleh Wahyudi. 2022. Manajemen Usaha Pelayanan Jasa Alat Dan Mesin Pertanian. BPPSDM Kementan. Jakarta • Santoso, Dwi. 2023. Transformasi & Pengembangan Mekanisasi Pertanian di Kawasan Perbatasan. Media Aksara, Purbalingga • Suhendrata, Tota. 2016. Teknologi Mekanisasi. IAARDS Press, BPPP. Jakarta • Unadi, Astu. 2011. Mekanisasi Pasca Panen Padi di Indonesia. BBP Mektan. Tangerang			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the definition, scope, development and role of agricultural mechanization
CLO 2	Students are able to explain the types of resources and energy and their use in the agricultural sector
CLO 3	Students are able to explain agricultural tools and machines used in land processing, planting, maintenance, harvesting and post-harvest along with their working principles
CLO 4	Students are able to determine agricultural tools and machines effectively and efficiently

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1		1						
CLO 2					2			
CLO 3					2			
CLO 4							3	



Module name	Agricultural Statistic
Module level	Bachelor Programme
Code	190301633W01
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	III (Third)
Person responsible for the module	Dr. Ir. Sadaruddin, MP.
Lecturer	Ir. Bambang Supriyanto, MSi. Ir. Alvera Prihatini DN, MSi. Ir. Muhammad Saleh, MSi. Ir. Eliyani, MSi. RM. Nurhartanto, SP. MSi. Dr. Ir. E. A. Syaifudin, MP.
Language	Bilingual (Indonesian and English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Lecture, lesson, and practical
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
Credit point	3 SKS (4.8 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	- Students are able to explain the definition of statistics, the use of statistics and scientific methods, sample populations, types of variables, descriptive statistics, probability, distribution of random variables, normal distribution, sampling theory, estimating variables. - Students are able to explain hypothesis testing, regression and correlation.
Contents	This course studies the definition of statistics, the use of statistics and scientific methods, sample populations, types of variables, statistics descriptive, probability, distribution of random variables, normal distribution, sampling theory, estimating variables, hypothesis testing, regression and correlation.

Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	3	Mid-semester test	Written test	20
	4	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Walpole, R. E., Pengantar Statistika, PT Gramedia Pustaka Utama, 1995 Gomez, K. A. dan Gomez, A. A., Prosedur Statistik untuk Penelitian Pertanian, Universitas Indonesia Press, 1995 Steel, R. G. D. dan Torrie, J. H., Prinsip dan Prosedur Statistika. Suatu Pendekatan Biometrik., PT Gramedia Pustaka Utama, 1991.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the definition of statistics, the use of statistics and scientific methods, sample populations, types of variables, descriptive statistics, probability, distribution of random variables, normal distribution, sampling theory, estimating variables.
CLO 2	Students are able to explain hypothesis testing, regression and correlation.

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1				3				
CLO 2								
CLO 3								3



Semester IV



Module name	Sustainable Agriculture System
Module level	Bachelor Programme
Code	190301662W072
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	IV (Fourth)
Person responsible for the module	Dr. Ir. Suria Darman Idris, M.Si
Lecturer	Dr. Ir. A. Syamad Ramayanan, M.P Penny Pujowati, S.P., M.Si
Language	Bilingual (Indonesian and English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Compulsory
Workload	Lecture, lesson
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
Credit point	2 SKS (3.2 ECTS)
	Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2720 min / semester 1 ECTS = 28 h / semester 1 Credit = 2720/ 60 / 28 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	• Students are able to explain the principle of sustainable agriculture • Students are able to explain optimization of environmental factors and various components in sustainable agriculture • Students are able to explain the principles of sustainable agriculture that are economically profitable, socially acceptable and environmentally
Contents	This course studies the definition of sustainable agriculture system, Elements of Integrated and Sustainable Agriculture: Integrated Crop Management, Integrated Nutrient Management, Integrated Soil Management, Integrated Plant Pest and Disease Management, Integrated Water Management, Integrated Crop-Livestock-Fish Management, Management between agricultural commodity producers, market networks, and integrated consumers accompanied by examples in their implementation.
Study and Examination	Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:

Requirements and Forms of Examination	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	20
	3	Mid-semester test	Written test	30
	4	Final semester test	Written test	40
TOTAL				100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Abbot,L.K. and Murphy,D.V. 2003. Soil Biological Fertility. Kluwer Academic Publishers. 1-16. Arshad,M and Frekenberger,WT.Jr.1993. Microbial Production of Plant Growth Regulators. dlm. Soil Microbial Ecology (Blaine Meeting F.Jr. (ed) Marcel Dekker,Inc. hal. 307-348. Atkins,CA and Rainbird,RM.1982. Physiology and Biochemistry of Biological Nitrogen Fixation in Legumes. In: Recent Advances in Biological Nitrogen Fixation. Subba Rao,NS (ed.). Oxford and IBH Publishing C Barber,SA and Peterson,JB.1995. Soil Nutrient Bioavailability. John Wiley and Sons, Inc. hal.180-201. Bardgett,RD.,2005. The Biology of Soil. A Community and Ecosystem Approach. Oxford University Press. NY. 24-86.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain principles of sustainable agriculture, and relevance to sustainable development.
CLO 2	Students are able to explain optimization of environmental factors and various components in sustainable agriculture
CLO 3	Students are able to explain to apply the principles of sustainable agriculture that are economically profitable, socially acceptable and environmentally

	INTENDED LEARNING OUTCOMES (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	0	2	0	0	3	0
CLO 2	1	0	0	2	0	0	3	0
CLO 3	1	0	0	2	0	0	3	0



Module name	Experimental Design			
Module level	Bachelor Programme			
Code	190301662W022			
Subtitle, if applicable				
Courses, if applicable	Regular			
Semester	IV (Fourth)			
Person responsible for the module	Dr. Ir. Zulkamain, M.S ; Ir. Eliyani, M.Si			
Lecturer	Dr. Ir. Suria Darma Idris, M.Si Ir. Alvera Prihatini Dewi Nazari, M.Si Dr. Hadi Pranoto, S.P., M.P			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Explain to basic principles of experimental design CLO 2: apply Non-Factorial Experimental Design			
Contents	This course studies the definition of procedures for designing experiments, and analyzing data from experimental results in the field of agriculture. Lecture materials include the principles of experimental design, environmental design and treatment design; including Completely Randomized Design (CRD), Randomized Block Design (RAK), Factorial Experimental Design (RPF), Split Plot Design (RPT)			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40

	TOTAL	100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)	
Reading list	Gomez, K.A. & A. A. Gomez. 1995. Prosedur Statistik Untuk Penelitian Pertanian. UI Press. Jakarta. Steel R.G.D. & J.H. Torrie. 1980. Prinsip dan Prosedur Statistika. Gramedia, Jakarta Hanafiah, K.A. 2004. Rancangan Percobaan : Teori dan Aplikasi (cet9). Raja GHrafindo Perkasa, Jakarta LaDaha. 2011. Rancangan Percobaan Untuk Bidang Biologi dan Pertanian, Teori dan Aplikasi. Masagena Press, Makassar	

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain to Explain to basic principles of experimental design
CLO 2	Students are able to explain to apply Non-Factorial Experimental Design

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	0	2	0	0	3	0
CLO 2	1	0	0	2	0	0	3	0



Module name	Soil Management of Humid Tropics		
Module level	Bachelor Programme		
Code	220301643W004		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	IV (Fourth)		
Person responsible for the module	Prof. Widi Sunaryo, S.P, M.Si., Ph.D		
Lecturer	Prof. Dr.sc.agr. Nurhasanah, S.P., M.Si. Dr. Odit Ferry Kurniadinata, S.P., M.Si		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain to land management and basic principles of land management CLO 2: Students are able to explain to identifying constraints/problems in wetlands (peat, paddy fields), dry land, acid soil and saline soil		
Contents	This course studies the basic concepts and principles of land management, potential and constraints in land management, basic land management technology and its solutions in dealing with land management problems.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test
	5	Final semester test	Written test
	TOTAL		100

Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)
Reading list	Craswell, E.T., and Pushparajah, E. . , Management of Acid Soils in the Humid Tropics of Asia.Australian Centre for International Agricultural , Research, 1989 Cook, F.H and C. Howard. . , Soil Management in Sustainable Agriculture., Wye Coolege Press. UK. London, 1995 Cook, R and B.E Ellis. . John Wiley & Sons. Toronto, Soil Management. A World View Of Conservation And Production., John Wiley & Sons. Toronto, 1987 Edward J plaster.. , Soils Science and Management, 4th edition., 2003 Horneck, J.W. Ellsworth, B.G. Hopkins, D.M. Sullivan, and R.G. Stevens. . , Managing salt-affected Soil for Crop Production. , Washington State University, 2007 Munir,M. , Tanah-Tanah Utama Di Indonesia., Pustaka Jaya. Jakarta, 1996 Sanchez, P.A. . , Properties And Manaagement Of Soil in The Tropic., John Wiley & Sons. New York, 1976 Suntoro, Pengelolaan lahan Gambut, UNS press. Surakarta, 2015 Sitanala, A, Pengawetan Tanah dan Air, Institut Pertanian Bogor. Bogor, 1996 Utomo, W.H, Pengawetan Tanah, Utomo, W.H, 2003 William Simon and Emerson DN, Soil Management and Tillage, Departement of Natural Resources and Enviromental Science. Illinois. USA, 2004

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain to land management and basic principles of land management
CLO 2	Students are able to explain to identifying constraints/problems in wetlands (peat, paddy fields), dry land, acid soil and saline soil

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	2	3	3	0	0	2	0
CLO 2	1	2	3	3	0	0	2	0



Module name	Pesticides and Aplication techniques		
Module level	Bachelor Programme		
Code	220301643W005		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	IV (Fourth)		
Person responsible for the module	Dr. Ir. Hj. Ni'matuljannah Akhsan, M.P; Dr. Ir. Surya Sila, M.P.		
Lecturer	Kadis Mujiono, S.P., M.Sc. P.hD Ir. HM. Alexander Mirza, M.P Dr. Ir. Tjatjuk Subiono, M.P. Dr. Ir. Akhyar Roeslan, M.P.		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain the right type of pesticide for the target pest (effective and safe for the environment) CLO 2: Students are able to apply pesticides correctly and be able to analyze problems that arise due to pesticide use.		
Contents	This course studies the definition of pesticides, side effects of their use, resistance, persistence, decomposition of pesticides in nature, formulation, active ingredients, equipment and application methods, classification of pesticides (insecticides, rodenticides, fungicides and herbicides) based on the type or origin of compounds or active ingredients		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	Quantity (%)		
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
			10

	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Corbett, J.R.,K. Wright and A.C. Baillie, 1984. The Biochemical Mode of Action of Pesticides. Academic Press Inc. London Ltd https://sia.unmul.ac.id/rps/cetak[6/9/2022 3:13:44 PM] Djoyosumarto, O., 2000. Teknik Aplikasi Pestisida Pertanian. Kanisius. Yogyakarta Novizan, 2002. Membuat dan Memanfaatkan Pestisida Ramah Lingkungan. Agromedia Pustaka, Jakarta Panda, H. 2009. The Complete Technology Book on Insecticidas, Fungicides and Herbicides with Formula and Processes. Idazo Agricultural Experiment Station Pryambodo, S., 1995. Pengendalian Hama Tikus Terpadu. Penebar Swadaya, Jakarta Sastroutomo, S.S., 1992. Pestisida, Dasar-Dasar dan Dampak Penggunaannya. Gramedia Pustaka, Jakarta Tarauming, R.C., 1992. Insektisida : Sifat, Mekanisme Kerja dan Dampak Penggunaannya. Ukrida, Jakarta VYas, C., 1993. Hand Book f Systemic Fungicides : General Aspects. Volume I. India			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the right type of pesticide for the target pest (effective and safe for the environment)
CLO 2	Students are able to apply pesticides correctly and be able to analyze problems that arise due to pesticide use

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	0	3	0	0	2	1
CLO 2	1	0	0	3	0	0	2	1



Module name	Agricultural Waste Management		
Module level	Bachelor Programme		
Code	220301643W006		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	IV (Fourth)		
Person responsible for the module	Nurul Puspita Palupi, S.P., M.Si.		
Lecturer	Roro Kesumaningwati, S.P., M.Sc. Dr. Ir. Suria Darma Idris, M.Si. Dr. Ir. Hamsyin, MP.		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to concepts and applications in managing various agricultural wastes so as to provide benefits to society and the environment CLO 2: Students are able to explain the concept of agricultural waste management along with its concepts, classification and forms of agricultural waste along with examples, the nature and characteristics of agricultural waste, and the effects of agricultural waste on the environment		
Contents	This course studies the definition of the concept of agricultural waste management and its concepts, classification and forms of agricultural waste and examples, the nature and characteristics of agricultural waste, and the effects of agricultural waste on the environment		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
			Quantity (%)
			10

	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Syekluani Ilyas dan Sugeng Prijono. 2000. Analisis Pemberian Limbah Pertanian Abu Sekam Sebagai Sumber Sillka T P Ada Andisol dan Oxisol terhadap Pelepasan Fosfor Terjerap dengan Teknik Perunut 32p. Risalah Pertemuan Ilmiah Penelitian dan Pengembangan Teknologi Isolop dan Radiasi Aryantha, I.P. 2002. Development of Sustainable Agricultural System, One Day Discussion on The Minimization of Fertilizer Usage, Menristek-BPPT, 6 th May-2002, Jakarta			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to concepts and applications in managing various agricultural wastes so as to provide benefits to society and the environment
CLO 2	Students are able to explain the concept of agricultural waste management along with its concepts, classification and forms of agricultural waste along with examples, the nature and characteristics of agricultural waste, and the effects of agricultural waste on the environment

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	2	3	0	0	1	0
CLO 2	1	0	2	3	0	0	1	0



Module name	Agroclimatology			
Module level	Bachelor Programme			
Code	220301643W008			
Subtitle, if applicable				
Courses, if applicable	Regular			
Semester	IV (Fourth)			
Person responsible for the module	Ir. Bambang Supriyanto, M.Si; Dr. Ir. A.Syamad Ramayana, M.P			
Lecturer	Dr. Ir. Suria Darma Idris, M.Si RM. Nurhartanto, SP. M.Si			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to understand and recognize weather/climate elements, understand the role of weather elements in the field of agriculture CLO 2: Students are able to understand and compile climate classifications based on weather data, understand and apply microclimate modifications for the field of agriculture			
Contents	This course studies the definition of about weather, climate, seasons, microclimate continued with the scope of Agroclimatology which explains the benefits and role of agroclimatology in the agricultural production process. the role of weather/climate elements.			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20

	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Chang, J. H. 2017. Climate and agriculture: an ecological survey, Routledge Rondhi, M., Fatikhul Khasan, A., Mori, Y., & Kondo. 2019. Assessing the role of the perceived impact of climate change on national adaptation policy: the case of rice farming in Indonesia, Land, 8, 5 Murniati, K. 2020. The impact of climate change on the household food security of upland rice farmers in Sidomulyo, Lampung Province, Indonesia, Biodiversitas Journal of Biological Diversity, 21, 8. Venkatramanan, V., Shah, S., & Prasad, R. 2020. Global Climate Change and Environmental Policy, Springer Singapore			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to understand and recognize weather/climate elements, understand the role of weather elements in the field of agriculture
CLO 2	Students are able to understand and compile climate classifications based on weather data, understand and apply microclimate modifications for the field of agriculture

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	0	3	0	0	2	2
CLO 2	1	0	0	3	0	0	2	2

Module name	Gohidrology			
Module level	Bachelor Programme			
Code	220301643W001			
Subtitle, if applicable				
Courses, if applicable	Reguler			
Semester	IV (Fourth)			
Person responsible for the module	Dr. Ir. H. Mulyadi, MSc			
Lecturer	Dr. Syamad Ramayana Bambang Supriyanto, M.Si., RM Nur Hartanto, M.Si			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to analyze and apply water management and conservation systems to plants cultivated on wet and dry land based on theories and practices that have developed in wet tropical agricultural environments			
Contents	This course studies of about water management on agricultural land, the function of water for plants and the relationship between water management and other disciplines, the relationship between water and plants, irrigation systems on agricultural land, and water conservation on agricultural land			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40

	TOTAL	100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)	
Reading list	Arifin. 1989. Dasar Klimatologi Pertanian. Fakultas Pertanian Universitas Brawijaya, Malang Barley, Graham and Laing. 1985. The Agronomy of Annual Crops. Dai Nippon Printing, Hongkong Bhuiyan. 1999. Concepts in Water Management. Paper on Irrigation Water Management. IRRI Los Banos, Philippines Departemen Pertanian. 2000. Padi, Palawija dan Sayur-sayuran. Bimas Deptan, Jakarta Doorenbos and Pruitt. 1987. Guidelines for Predicting Crop Water Requirements. Food and Agriculture, Rome Euroconsult. 1999. Agriculture Compendium, For Rural Development in the Tropics and Sub Tropics. Elsevier, Amsterdam FAO and IIRR. 1995. Resources Management for Upland Areas in Southeast Asia. Silang-Cavite, Philippines Fitter and Hay. 1981. Enviromental Physiology of Plants. Academic Press, London Foth. 1984. Fundamental of Soil Science. John Willey and Sons, New York Srikandi Fardiaz. 1992. Polusi Air dan Udara. Kanisius, Yogyakarta Sri Setyati Harjadi. 2003. Dasar-dasar Agronomi. Gramedia, Jakarta Suhardjono.1994. Kebutuhan Air Tanaman. Institut Teknologi Nasional, Malang	

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to analyze and apply water management and conservation systems to plants cultivated on wet and dry land based on theories and practices that have developed in wet tropical agricultural environments
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	2	3	2	0	0	3	2



Semester V



Module name	Soil Survey and Land Evaluation		
Module level	Bachelor Programme		
Code	220301653P022		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Dr. Ir. H. Makhrawie, M.Agr		
Lecturer	Dr. Ir. Mulyadi, M.Sc. Donny Donantho, S.P., M.Sc. Rahadian Adi Prasetyo, SP.M.Si.		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to principles of land surveying and land evaluation and their implementation in the field to mapping land resources		
Contents	This course studies of the principles of land surveying and land evaluation and their implementation in the field to mapping land resources as a basis for regional planning and development.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test
	5	Final semester test	Written test
	TOTAL		
			Quantity (%)
			10
			10
			20
			20
			40
			100

Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)
Reading list	CSR/FAO Staff. 1983. Reconnaissance Land Resource Surveys 1:250,000 Scale. Atlas Format Procedures. Ministry of Agriculture Government of Indonesia and United Nations Development Programme and Food and Agriculture Organization. Bogor. Indonesia. FAO. 1976. Framework for Land Evaluation. FAO Soils Bulletin No 32, Food and Agriculture Organizations of The United Nations-Rome, Italy. FAO. 1983. Guidelines: Land Evaluation for Rainfed Agriculture. FAO Soil Bulletin, 52, Food and Agriculture Organization of The United Nations, Rome. FAO. 1984. Guidelines: Land Evaluation for Forestry. FAO Soil Bulletin 48, Food and Agriculture Organization of The United Nations, Rome. FAO. 1985. Guidelines: Land Evaluation for Irrigated Agriculture. FAO Soil Bulletin 55, Food and Agriculture Organization of The United Nations, Rome. FAO. 1991. Guidelines: Land Evaluation for Extensive Grazing. FAO Soil Bulletin, 58, Food and Agriculture Organization of The United Nations, Rome. FAO. 2006. Guidelines for Soil Description 4th Ed. Food and Agriculture Organization of The United Nations, Rome. · FAO. 2007. Land Evaluation: Towards A Revised Framework. Land and Water Discussion Paper 6. Food and Agriculture Organization of The United Nations, Rome. Hardjowigeno, S dan Widiatmaka. 2001. Kesesuaian Lahan dan Perencanaan Tata Guna Tanah. Institute Pertanian Bogor, Bogor.

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to analyze and apply water management and conservation systems to plants cultivated on wet and dry land based on theories and practices that have developed in wet tropical agricultural environments
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	3	0	2	0	0	0	3



Module name	Weed Science		
Module level	Bachelor Programme		
Code	220301653P032		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Dr. Ir. H.E.A. Syaifuddin, M.P		
Lecturer	Ir. H.M. Alexander Mirza, M.P Bambang Supriyanto, M.Si., Suryana, S.P., M.Si		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain various basic concepts of weed science, identify weeds and apply weed control techniques based on quantitative variable decisions		
Contents	This course studies of about the definition or understanding of weeds, biology, classification, and ecology of weeds, competition as a form of interaction, allelopathy, weed identification and herbarium, weed control techniques (physical/mechanical, biological, technical culture, chemical and integrated)		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test

	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Tjitroseodirdjo, S.dkk. Pengendalian Gulma di Perkebunan Booth, B.D., dkk. Weed Ecology in Naural and Agricultural Ecosystem K Moody. Weed Reported in Rice in East and Southeast Asia Univ. Mennesota. Broadleaf and Grasses weed Identification Soerjani, et.al. Weed in Rice in Indonesia Moenandir, J. Pengantar Ilmu dan Pengendalian Gulma Sitompul, SM. dan B. Guritno. Pengantar Analisis Pertumbuhan Tanaman Moenandir, J, Persaingan Tanaman Budidaya dengan Gulma. Rajawali Press, Jakarta Mody, K. Weed Control in Tropical Crops. WSSP-SEARCA Gopal, B. dan K.P. Sharma. Water Hyacinth. Hindasia			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain various basic concepts of weed science, identify weeds and apply weed control techniques based on quantitative variable decisions
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	1	0	2	0	0	0	3



Module name	Entomology		
Module level	Bachelor Programme		
Code	220301653P024		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	V (Fifth)		
Person responsible for the module	Dr. Ir. H.E.A. Syaifuddin, M.P		
Lecturer	Ir. H.M. Alexander Mirza, M.P Bambang Supriyanto, M.Si., Suryana, S.P., M.Si		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain Can explain the importance of Insects in Agriculture CLO 2: Students are able to explain important Plant Pests History of insects in the Animal Kingdom and their relationship with members of Arthropoda II, III, IV		
Contents	This course studies of about Insect body wall structure and function, molting process for insect growth, insect excretory system, Insect circulatory system		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test

	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Kearns, C. A. 1997. Pollinators, Flowering Plants, and Conservation Biology. BioScience 47 (5): 297-306 Faheem, M., M. Aslam and M. Razaq. 2004. Pollnation Ecology with special reference to insects. A Review. Journal of Research (Science), Bahauddin Zakariya 7. University, Multan, Pakistan. Vol.15, No.4: 395-409. University, Multan, Pakistan. Vol.15, No.4: 395-409 Beier, M. 1968a. Mantodea (Fangschrecken). Handbuch der Zoologie, IV, Arthropoda: Insecta.Inst. 4. Walter de Gruyter, Berlin. Beier, M. 1968b. Phasmida (Stab- oder Gespenstheuschrecken). Handbuch der Zoologie, IV, Arthropoda: Insecta. Inst. 6. Walter de Gruyter, Berlin. Beier, M. 1974. Blattariae (Schaben). Handbuch der Zoologie, IV, Arthropoda: Insecta. Inst. 22. Walter de Gruyter, Berlin. 13. Beutel, R.G. & Leschen, R.A.B. (vol. eds.) 2005. Coleoptera, Vol. I. Morphology and Systematics (Archostemata, Adephaga, Myxophaga, Polyphaga partim). Handbook of Zoology Vol. IV, Arthropoda: Insecta. De Gruyter, Berlin, New York. Chapman, R.F. 1998. The Insects. Structure and Function. 4th ed. Cambridge University Press,Cambridge, New York, Melbourne. Chapman, R.F. & Joern, A. (eds). 1990. Biology of Grasshoppers. Wiley-Interscience, New York. Crowson, R.A. 1981. The Biology of Coleoptera. John Murray, London, UK. CSIRO Division of Entomology (ed.) 1991. The Insects of Australia: a Textbook for Students and Research Workers. 2nd ed. Cornell University Press, Ithaca, N.Y			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain Can explain the importance of Insects in Agriculture
CLO 2	Students are able to explain important Plant Pests History of insects in the Animal Kingdom and their relationship with members of Arthropoda II, III, IV

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	1	0	2	0	0	0	3
CLO 2	1	1	0	2	0	0	0	3



Module name	Land Reclamation		
Module level	Bachelor Programme		
Code	220301653P013		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Prof. Dr. Ir. Zulkarnain, M.S; Prof. Dr. Ir. Surya Darma, M.S		
Lecturer	Dr. Ir. Mulyadi, M.Sc Ir. Arham, M.P Yoga Toyibulah, S.Si., M.Sc. Dr. Ir. Fahrumsyah, MP Dr. Ir. Hamsyin, M.P. Ir. Arham, M.P		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to understand land degradation and various examples of land reclamation based on various experiences and scientific publications		
Contents	This course studies of about definitions and scopes of land degradation and land reclamation/remediation/rehabilitation/restoration. Land degradation is a process (natural or human-induced) that results in a decrease in land quality.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
			Quantity (%)
			10
			10

	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Donald, L.W. 2000. Bioremediation of Comtaminated soils. CRC Press. New York. Sparks, D.L. 2003. Environmental Soil Chemistry. Academic Press, California Handayanto, E, Nuraini, Y., Muddarisna, N., Syam, N. dan A. Fiqri. 2017. Fitoremediasi dan Phytomining Logam Berat Pencemar Tanah. UB Press, ISBN 978-062-432-013-3, 203 hal. Larney, F.J. and D.A. Angers. 2012. The role of organic amenbments in soil reclamation: A review. Can. Jour. Soil Sci 92: 19- 38 Sheoran, V., Sheoran, A.S., and P, Poonia. 2010. Soil reclamation of abandoned mine land by revegetation: A review. Int. Jour. Soil, Sediment and Water Vol 3, Iss2, Article 13. Qi, F., Kunihirow, E., and C. Guodong. 2002. Soil water and chemical charateristics of sandy soils and their significance to land reclamation. Journal of Arid Environments (2002) 51: 35–54. Markus Anda, A.B. Siswanto, R.E. Subandiono. 2009. Properties of organic and acid sulfate soils and water of a ‘reclaimed’ tidal backswamp in Central Kalimantan, Indonesia. Geoderma 149: 54-65 Horney, R.D. et al. 2005. Development of practical site-specific management methods for reclaiming salt-affected soil. Computers and Electronics in Agriculture 46 (2005) 379–397 Ai Dairiah, A. Abdurachman dan D. Subardja. 2010. Reklamasi lahan eks penambangan untuk perluasan lahan pertanian. Juenal Sumberdaya Lahan 4 (1): 1-12.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to understand land degradation and various examples of land reclamation based on various experiences and scientific publications
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	2	3	0	0	2	0



Module name	Pomology		
Module level	Bachelor Programme		
Code	220301653P012		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Prof. Dr. Ir. Zulkarnain, M.S; Prof. Dr. Ir. Surya Darma, M.S		
Lecturer	Dr. Ir. Mulyadi, M.Sc Ir. Arham, M.P Yoga Toyibulah, S.Si., M.Sc. Dr. Ir. Fahrumsyah, MP Dr. Ir. Hamsyin, M.P. Ir. Arham, M.P		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain the growing requirements of tropical fruit plants Recognizing the technical culture of organic fruit plants Identifying various technical cultures of important fruit plants in life, development prospects with organic farming		
Contents	This course studies of about definitions understanding of fruit and its importance in life, prospects for fruit development in Indonesia, environmental factors of tropical fruit plants and growth		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
			Quantity (%)
			10
			10
			20

	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	A. A. U. 1977. Horticulture. Short Course Brawijaya University Australian (Asian Universities Co-operation Scheme). Universitas Brawijaya. Malang. Ashari, S. 1995. Hortikultura, Aspek Budidaya. Universitas Indonesia Press. Jakarta. Danoesastro, H. 1976. Pohon Buah-buahan. Yayasan Pembina Fakultas Pertanian. UGM. Yogyakarta Edmonds, J.B., T.L. Senn, F.S. Adrew and R.S. Halfare. 1975. Fundamental of Horticulture. McGraw-Hill. Michigan. Hartmann, H.T., A.M. Konfraneck, V.E. Rubatzky and W.J. Floker. 1988. Plant Science, Growth, Development and Utilization of Cultivated Plants. 2 nd Ed. Printince-Hall International Edition (Inc). New Jersey Lahiya, A. Z. 1983. Budidaya Tanaman Hortikultura. Seri Himpunan Peninggalan Penulisan Yang Berserakan. Bandung. (Terjemahan buku : Indische Vruchten. Ochse, J.J). Leopold, A. C. And F. E. Kriedemann. 1979. Plant Growth and Development. 2 nd Ed. Tata McGraw-Hill Publishing Company Ltd. New Dehli Rismunandar. 1983. Membudidayakan Tanaman Buah-buahan. Sinar Baru. Bandung. Ryugo, K. 1998. Fruit Culture, Its Science and Art. John Wiley and Sons. New York.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the growing requirements of tropical fruit plants Recognizing the technical culture of organic fruit plants Identifying various technical cultures of important fruit plants in life, development prospects with organic farming
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	1	0	2	0	0	0	3



Module name	Tissue Culture		
Module level	Bachelor Programme		
Code	220301653P003		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Dr. Ir. Ellok Dwi Sulichantini, M.Si.		
Lecturer	Prof. Dr.sc.agr. Nurhasanah, S.P., M.Si. Prof. Widi Sunaryo, S.P. M.Si., Ph.D. Indah Sriwahyuni, B.Sc., MP		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain and apply basic plant biotechnology techniques for studies related to the field of agriculture in general, and are able to provide appropriate solutions to problems in agriculture using plant tissue culture techniques		
Contents	This course studies of about the scope of plant biotechnology starting from tissue culture techniques and applications in supporting plant improvement (crop improvement) such as haploid plant production, somaclonal variation, protoplast fusion, embryo rescue, in vitro flowering, synthetic seeds (artificial seeds), in vitro mutation induction, and discusses plant genetic engineering		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
			Quantity (%)
			10
			10
			20

	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Trigiano, R. N. and Gray, D.J. 2005. Plant Development and Biotechnology. CRC Press, Boca Raton Chawla, H. S. 2002. Introduction to Plant Biotechnology (second edition). Science Publisher, Inc, New Hampshire Altman, A. and Hasegawa P. M. 2012. Plant Biotechnology and Agriculture. Elsevier, Inc, London			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain and apply basic plant biotechnology techniques for studies related to the field of agriculture in general, and are able to provide appropriate solutions to problems in agriculture using plant tissue culture techniques
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	0	3	0	1	3	1



Module name	Geomorphology and Lanscape Analysis		
Module level	Bachelor Programme		
Code	220301653P020		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Donny Dhonanto, S.P., M.Sc.		
Lecturer	Prof. Dr. Ir. Surya Darma, M.S Dr.hut. Ria Rachel Paranoan, S.P., M.Sc Ghaisani Salsabila, S.P., M.Sc		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain geomorphology and landscape analysis, the process of landscape formation, various types of landforms and physiography in East Kalimantan and their use in agriculture		
Contents	This course studies of describe of geomorphology, landscape analysis, geomorphic processes, landscape, landform, relief and topography; landscape formation process, geomorphic analysis, structural landforms, fluvial landforms, coastal landforms, karst landforms, physiography in East Kalimantan and general landscape analysis and in East Kalimantan		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	Quantity (%)		
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
			20

	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Bloom, L. 1978. "Geomorphology, A Systematic Analisis Of Late Cenozoic Landform", Precentice Hall Inc.,Englewood Cliff, New York Dicknison, W.R., 1974. "Plate Lobeck, 1969. "Geomorfology", Mc Graw Hill Subroto, 2000. "Geomorfologi dan Analisis Lansekap", Fajar Gemilang, Samarinda Subroto, 2004. Geomorfologi dan analisis lansekap. Fajar. Samarinda Wiradisastra, U, B. Barus, K. Gandasasmita, 2006. Diktat Geomorfologi dan Analisis Lansekap. IPB. Bogor			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain geomorphology and landscape analysis, the process of landscape formation, various types of landforms and physiography in East Kalimantan and their use in agriculture
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	2	2	0	0	0	2



Module name	Soil Chemistry		
Module level	Bachelor Programme		
Code	20301653P015		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Prof. Dr. Ir. Surya Darma, M.Si.		
Lecturer	Dr. Ir. Fahrunsyah, M.P. Dr. Ir. H. Makhrawie, M.Agr		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain about the chemical properties of soil so as to be able to manage a plant growth cycle based on the chemical properties of in situ soil quickly		
Contents	This course studies of describe soil chemistry, the role of solution composition and soil ions (colloids), soil reactions, the relationship between soil or soil chemical properties with plants and their problems, the effect of lime on soil properties, the relationship between nutrient status and plant growth, evaluation of soil chemical status, interaction between soil and organic matter and chelates, soil pollution and potential hazards from household and inorganic waste.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test

	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Greenland, D.J. and MBH. Hayes. 1978. The Chemistry of Soil Constituents Malcolm Cresser, Ken, Killham, Tony Edwards. Soil Chemistry and its Application Landon, J.R. 1984. Booker Tropical Soil Manual. Longman. NY. 102-105 Kim, H.T. 1982. Principle of Soil Chemistry			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain about the chemical properties of soil so as to be able to manage a plant growth cycle based on the chemical properties of in situ soil quickly
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	2	0	2	0	0	2	0



Module name	Horticulture Science			
Module level	Bachelor Programme			
Code	220301653P008			
Subtitle, if applicable				
Courses, if applicable	Reguler			
Semester	V (Fifth)			
Person responsible for the module	Dr. Odit Ferry Kurniadinata, S.P., M.Si			
Lecturer	Ir. Eliyani, M.Si Indah Sriwahyuni, B.Sc., MP Rossa Diniyati, SP., MP			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain the characteristics of horticultural plants, horticultural prospects, challenges and opportunities for horticultural development			
Contents	This course studies of principles of characteristics of horticultural plants, horticultural prospects, challenges and opportunities for horticultural development, development of horticulture in the world and Indonesia and the factors that influence it, growth of horticultural plants, quality horticultural plant seeds, land preparation and planting, horticultural production technology			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20

	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Janick, J. 1972. Horticultural Science. W.H. Freeman and Co. San Fransisco. 586 pp Nanik, S. M. 1978. Peranan Pekarangan dalam Memncukupi Kebutuhan Sehari-hari Masyarakat Pedesaan. Reijntjes, B. dan Waters-Bayer, A. 1999. Pertanian Masa Depan. Kanisius, Yogyakarta. Sutanto, R. 2002. Penerapan Pertanian Organik. Kanisius, Yogyakarta. Zulkarnain, H. 2009. Dasar-Dasar Hortikultura. PT Bumi Aksara, Jakarta. 336 hal.			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the characteristics of horticultural plants, horticultural prospects, challenges and opportunities for horticultural development
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	1	0	2	0	0	0	3



Module name	Epidemiology of Plant Diseases		
Module level	Bachelor Programme		
Code	220301653P028		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	V (Fifth)		
Person responsible for the module	Prof. Ir. Suyadi, M.S., Ph.D		
Lecturer	Dr. Ir. Ni'matuljannah Akhsan, M.P Ir. Sopialena, M.P., Ph.D		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to understand the epidemiology of plant diseases		
Contents	This course studies of principles of ecology in relation to epidemiology, the role of the environment in the epidemiological process, mechanisms of pathogen spread, cycles and chains of infection, patterns of disease development, application of epidemiology in controlling disease.		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test
	5	Final semester test	Written test
	TOTAL		
			Quantity (%)
			10
			10
			20
			20
			40
			100

Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)
Reading list	Oka, I.N. 1993. Pengantar epidemiologi penyakit tanaman. University Press Van Der Plank, J.E. 1978. Plant Disease; epidemic and control. Academic Press. New York Zadock C. Jan and Richard D.S. 1979. Epidemiology and plant disease management. Oxford University Press. New York

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to understand the epidemiology of plant diseases
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	1	3	0	0	2	0



Semester VI



Module name	Soil and Water Conservation		
Module level	Bachelor Programme		
Code	220301663P009		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	VI (sixth)		
Person responsible for the module	Dr. Rabiatul Jannah, SP, M.P		
Lecturer	Dr. Ir. Zulkarnain, MS Roro Kesumaningwati, S.P., M.Sc		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain, evaluating and explaining, implementing soil and water conservation		
Contents	This course studies of about the basic understanding and scope of soil and water conservation, soil erosion and its problems, prediction and evaluation of soil erosion, soil conservation methods, water conservation and soil and water conservation planning strategies		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test
	5	Final semester test	Written test
	TOTAL		100
Media EmILoyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)		

Reading list	Arsyad. 1982. Pengawetan Tanah dan Air. IPB Bogor Rahim. 2000. Pengendalian Erosi Tanah. PT. Bumi Akasara. Jakarta Soedarsono dan Takeda. 1978. Hidrologi untuk Pengairan Syarief. 1985. Konservasi tanah dan air. IPB Press. Bogor
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MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain, evaluating and explaining, implementing soil and water conservation
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	2	3	0	0	3	0



Module name	Agroforestry			
Module level	Bachelor Programme			
Code	220301663P005			
Subtitle, if applicable				
Courses, if applicable	Reguler			
Semester	VI (sixth)			
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P			
Lecturer	Penny Pujowati, S.P., M.Si Dr. Ir. Sadaruddin, M.P. Dr. Ir. A. Syamad Ramayana, M.P			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to analyzing agroforestry management systems in terms of theories and concepts that have developed in agroforestry			
Contents	This course studies of agroforestry classification, advantages and disadvantages of agroforestry, agroforestry landscape, shifting cultivation, distribution of solar radiation in communities, relationships between plants and competition, the effect of shade, selection of plant types, agroecological studies, agroforestry productivity, socio-economics and sustainability.			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40

	TOTAL	100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)	
Reading list	Didik Suharjito, dkk. 2003. Aspek Sosial Ekonomi dan Budaya Agroforestri. World Agroforestry Centre (ICRAF). http://www.worldagroforestrycentre.org Tony Djogo, dkk. 2003. Kelembagaan dan Kebijakan dalam Pengembangan Agroforestri. World Agroforestry Centre (ICRAF). http://www.worldagroforestrycentre.org Widianto, dkk. 2003. Fungsi dan Peran Agroforestri. World Agroforestry Centre (ICRAF). http://www.worldagroforestrycentre.org Sri Rahayu Utami, dkk. 2003. Prospek Penelitian dan Pengembangan Agroforestri di Indonesia. World Agroforestry Centre (ICRAF). http://www.worldagroforestrycentre.org	

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to analyzing agroforestry management systems in terms of theories and concepts that have developed in agroforestry
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	2	0	3	0	0	2	0



Module name	Geographic Information System		
Module level	Bachelor Programme		
Code	220301663P014		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	VI (sixth)		
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P		
Lecturer	Penny Pujowati, S.P., M.Si Dr. Ir. Sadaruddin, M.P. Dr. Ir. A. Syamad Ramayana, M.P		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to apply IT for land resource management. Able to understand geographic objects as land resources. Able to understand GIS as an information system and information technology and identify the benefits of GIS in land resource management. Able to recognize and run various GIS software		
Contents	This course studies of use of geographic information systems by utilizing GIS applications and mapping for managing agricultural land resource databases at various scales of need		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test
	5	Final semester test	Written test
	TOTAL		100

Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)
Reading list	Djaenudin, D., Marwan, H., Subagjo, H. dan Hidayat, A. 2003. Petunjuk Teknis Evaluasi Lahan untuk Komoditas Pertanian, Balai Penelitian Tanah. Prahasta, E. 2004. Sistem Informasi Geografi : Tutorial ArcView, Informatika Yusmur, A. 2004. Pengenalan Software Pengolahan Sistem Informasi Geografi :ArcInfo dan ArcView., SEAMEO BIOTROP. Bogor. Wibowo, A. 2004. Teknologi Informasi untuk Pengelolaan Sumber Daya Alam, Balai Penelitian dan PengkajianTeknologi.

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to apply IT for land resource management. Able to understand geographic objects as land resources. Able to understand GIS as an information system and information technology and identify the benefits of GIS in land resource management. Able to recognize and run various GIS software
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	2	0	0	0	0	2	3



Module name	Biological Control			
Module level	Bachelor Programme			
Code	220301663P007			
Subtitle, if applicable				
Courses, if applicable	Reguler			
Semester	VI (sixth)			
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P			
Lecturer	Penny Pujowati, S.P., M.Si Dr. Ir. Sadaruddin, M.P. Dr. Ir. A. Syamad Ramayana, M.P			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain the Role and Function of Biological Control in sustainable plant cultivation			
Contents	This course studies of Biological control of plant pests (OPT) both diseases and plant pests, natural and non-natural biological control agents especially genetically modified organisms (Genetically Modified Organisms), biological control mechanisms of diseases (antibiosis, competition, hyperparasites, and induced resistance), biological control of pests discusses the specific relationship of biological agents with hosts, insect populations and dynamics, types of biological agents/natural enemies (parasitoids, predators, pathogens), parasitoid reproductive strategies; parasitization mechanisms, types and feeding behavior of predators, commercialization of OPT biological control agents and their implementation in the field, and habitat management to optimize biological control in the field			
Study and Examination Requirements and Forms of	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)

Examination	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Boland, GJ and LD Kuykendall , Plant Microbe Interaction and Biological Control, Marcel Dekker Inc., New York, 1998 Chet, I (Edt) , Innovatives Approaches to Plant Disease Control. , John Willey and Sons, New York, 1987 Heimpel GE. Mills NJ. , 2017. Biological Control: Ecology and Applications 1st Ed. , Cambridge University Press. Helyer N, Cattlin ND., Brown KC. 2014. Biological Control in Plant Protection: A Colour Handbook, 2nd Ed., CRC Press. Hirano, Susan S. and Christen D. Upper. 2000. Bacteria in the Leaf Ecosystem with Emphasis on Pseudomonas syringae: a Pathogen, Ice Nucleus, and Epiphyte. Microbiol., Mol. Biol. Rev, 64 , 3. DOI:. 10.1128/MMBR Gould J, Hoelmer K, Goolsby J. (Eds.). 2008. Classical Biological Control of Bemisia tabaci in the United States - A Review of Interagency Research and Implementation. 2008. doi:10.1007/978-1-4020-6740-2			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain the Role and Function of Biological Control in sustainable plant cultivation
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	1	0	2	0	0	3	0



Module name	Watershed Management		
Module level	Bachelor Programme		
Code	220301663P011		
Subtitle, if applicable			
Courses, if applicable	Regular		
Semester	VI (sixth)		
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P		
Lecturer	Penny Pujowati, S.P., M.Si Dr. Ir. Sadaruddin, M.P. Dr. Ir. A. Syamad Ramayana, M.P		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain classify morphometry, characteristics, and hydrological cycles CLO2: Students are able to explain concept and purpose watershed management		
Contents	This course studies of explain hydrology and water cycle, definition of watershed and watershed management, morphometry and characteristics of watershed, water processes in watershed, rainfall		
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
	1	Affective	Participation
	2	Task	Study group presentations, Q&A
	3	Practises	Report
	4	Mid-semester test	Written test
	5	Final semester test	Written test
	TOTAL		100

Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)
Reading list	Bambang Triatmodjo. 2013. Hidrologi Terapan, Beta Offset Yogyakarta. Brooks, K.N., P.F.Ffolliott, H.M. Gregersen, dan J.L. Thames.1988. Hydrology and the Managemtent of Watersheds, Ohio State University Press. Chay Asdak, 1995. Hidrologi dan Pengelolaan DAS, Gadjah Mada University, Press. Ohio. Easter, K.W. dan M.M. Hufschmidt. 1991. Watershed Resource Management Study in Water Policy and Management No.10, Paimin, Sukresno, Purwanto, Sidik. 2006. Cepat Degradasi Sub DAS., Puslitbang Hutan dan Konservasi Alam Bogor. Sitanala Arsyad. 1989. Konservasi Tanah dan Air, IPB Bogor.

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain classify morphometry, characteristics, and hydrological cycles
CLO 2	Students are able to explain concept and purpose watershed management

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	0	2	3	0	0	3	0
CLO 2	1	0	2	3	0	0	3	0



Module name	Botanical Pesticide Technology		
Module level	Bachelor Programme		
Code	220301663P019		
Subtitle, if applicable			
Courses, if applicable	Reguler		
Semester	VI (sixth)		
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P		
Lecturer	Penny Pujowati, S.P., M.Si Dr. Ir. Sadaruddin, M.P. Dr. Ir. A. Syamad Ramayana, M.P		
Language	Bilingual (Indonesian and English)		
Relation to curriculum	Compulsory		
Type of teaching, contact hours	Compulsory		
Workload	Lecture, lesson		
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)		
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester		
	3 SKS (4.8 ECTS)		
Recommended Prerequisites			
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain practicing proper and correct management of botanical pesticides and being able to analyze real problems and recommend appropriate solutions, especially those related to botanical pesticide management technology, having the ability to work in the field both in teams/alone, discussing with farmers, and being highly active and being able to develop practices for using botanical pesticides in the concept of sustainable agriculture		
Contents	This course studies of explain appropriate and correct botanical pesticide technology and able to analyze real problems and recommend appropriate solutions, especially those related to botanical pesticide management technology, have the ability to work in the field both in teams/alone, discuss with farmers, and be highly active and able to develop practices for using botanical pesticides in the concept of sustainable agriculture.		
Study and Examination Requirements and Forms of	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:		
	No.	Objects of Assessment	Forms of Assessment
			Quantity (%)

Examination	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Djojosumarto, P., 2000. Teknik Aplikasi Pesticida Pertanian. Kanisius. Yogyakarta. Grainge, M. and S. Ahmed. 1988. Handbook of Plants with Pest-Control Properties. John Wiley & Sons, New York-Chichester-Brisbane-Toronto Singapore. pp. 99-153 Zhu, B.C.R., G. Henderson, F. HF. Chen and RA Laine. 2001. Evaluation of vetiver oil and seven insect-active essential oils against the Formosan subterranean termite. J. Chem. Ecol. 27: 1617-1625			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain practicing proper and correct management of botanical pesticides and being able to analyze real problems and recommend appropriate solutions, especially those related to botanical pesticide management technology, having the ability to work in the field both in teams/alone, discussing with farmers, and being highly active and being able to develop practices for using botanical pesticides in the concept of sustainable agriculture
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	3	0	2	0	0	0	0

Module name	Virology			
Module level	Bachelor Programme			
Code	220301663P015			
Subtitle, if applicable				
Courses, if applicable	Reguler			
Semester	VI (sixth)			
Person responsible for the module	Dr. Hadi Pranoto, S.P., M.P			
Lecturer	Penny Pujowati, S.P., M.Si Dr. Ir. Sadaruddin, M.P. Dr. Ir. A. Syamad Ramayana, M.P			
Language	Bilingual (Indonesian and English)			
Relation to curriculum	Compulsory			
Type of teaching, contact hours	Compulsory			
Workload	Lecture, lesson			
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)			
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester			
	3 SKS (4.8 ECTS)			
Recommended Prerequisites				
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students are able to explain existing plant diseases and those caused by viruses, explaining the effects of viruses on plants, practicing various ways of transmitting viruses, and evaluating the control of viral diseases in plants			
Contents	This course studies of explain of viruses as plant diseases, the importance of viral diseases, symptoms and transmission of viruses, infection, multiplication, morphology and translocation of viruses in plants, viral plant diseases and techniques for controlling viral diseases			
Study and Examination Requirements and Forms of Examination	Evaluation and assessment of thelearning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40

	TOTAL	100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)	
Reading list	Djojosumarto, P., 2000. Teknik Aplikasi Pesticida Pertanian. Kanisius. Yogyakarta. Grainge, M. and S. Ahmed. 1988. Handbook of Plants with Pest-Control Properties. John Wiley & Sons, New York-Chichester-Brisbane-Toronto Singapore. pp. 99-153 Zhu, B.C.R., G. Henderson, F. HF. Chen and RA Laine. 2001. Evaluation of vetiver oil and seven insect-active essential oils against the Formosan subterranean termite. J. Chem. Ecol. 27: 1617-1625	

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students are able to explain existing plant diseases and those caused by viruses, explaining the effects of viruses on plants, practicing various ways of transmitting viruses, and evaluating the control of viral diseases in plants
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	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	1	0	2	0	0	0	3



Module name	Soil and Water Polution
Module level	Bachelor Programme
Code	220301663P013
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	VI (Fifth)
Person responsible for the module	Nurul Puspita Palupi, S.P., M.Si
Lecturer	Dr. Ir. Hamsyin, MP Rahardian Adi Prasetyo, SP., M.Si
Language	Bilingual (Indonesian and English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Compulsory
Workload	Lecture, lesson
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
	3 SKS (4.8 ECTS)
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Mastering the theory of engineering science, design engineering, methods and the latest techniques needed for the analysis and design of environmental management efforts CLO 2: Mastering the contextual and current interdisciplinary approach related to the design of integrated environmental management systems CLO 3: Able to solve engineering and technological problems and design systems, processes and components in environmental management efforts including management of drinking water, wastewater, solid waste, settlement drainage, liquid, solid and gas waste control systems, air pollution control and occupational health and safety (OHS) by utilizing other fields of science (if needed) and taking into account economic, health and public safety, cultural, social and environmental factors
Contents	The lecture discusses the issue of Soil and Groundwater Pollution. Characteristics and sources of soil and groundwater pollution. Regulations on soil and groundwater pollution. Risk assessment for soil and groundwater pollution. Site investigation and sampling analysis. Site investigation and monitoring. Method of remediation of polluted soils and groundwater.

Study and Examination Requirements and Forms of Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:			
	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Cosselman KE, Navas-Acien A, Kaufman JD. 2015. Environmental factors in cardiovascular disease. Nat Rev Cardiol. 12:627–642 Munzel, T., Hahad, O., Daiber. A and Landrigan. P.J. 2023. Soil and water Pollution And Human Health: What Should Cardiologists Worry About?. Cardiovascular Research. 119: 440-449			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Mastering the theory of engineering science, design engineering, methods and the latest techniques needed for the analysis and design of environmental management efforts
CLO 2	Mastering the contextual and current interdisciplinary approach related to the design of integrated environmental management systems
CLO 3	Able to solve engineering and technological problems and design systems, processes and components in environmental management efforts including management of drinking water, wastewater, solid waste, settlement drainage, liquid, solid and gas waste control systems, air pollution control and occupational health and safety (OHS) by utilizing other fields of science (if needed) and taking into account economic, health and public safety, cultural, social and environmental factors

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	3	0	2	0	0	0	3
CLO 2	1	3	0	2	0	0	0	3
CLO 3	1	3	0	2	0	0	0	3



Module name	Fundamentals of Insect Ecology
Module level	Bachelor Programme
Code	220301663P018
Subtitle, if applicable	
Courses, if applicable	Reguler
Semester	VI (Fifth)
Person responsible for the module	Kadis Mujiono, S.P., M.Sc.P.hD
Lecturer	Dr. Abdul Sahid, S.P., M.P. Rosfiansyah, SP, M.Sc, Ph.D
Language	Bilingual (Indonesian and English)
Relation to curriculum	Compulsory
Type of teaching, contact hours	Compulsory
Workload	Lecture, lesson
	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination)
Credit point	Total time of 2720 minutes or equivalent to a total of 45 hours in 14 weeks per semester
	3 SKS (4.8 ECTS)
Recommended Prerequisites	
Module Objectives/ Intended Learning Outcomes	After attending this course, students have the ability to: CLO1: Students learn to observe and formulate problems about the Relationship between Insect Ecology and Integrated Pest Control Systems and Sustainable Agriculture and write them in a paper as well as presentations and discussions. CLO 2: Students learn to use of genetic engineering and biological agents for environmentally friendly and sustainable agricultural production CLO 3: Students learn to use the process of making environmentally friendly OPT control products with genetic engineering
Contents	This course studies of explain the Insect Ecology course, students learn about the life of insects, their role in agriculture, the concept of individuals, organisms, community populations and their environment, ecosystems and ecosystem components, Ecosystem balance, Energy in Ecosystems, food chains, trophic structures, life, habitat, niche, the role of biotic and Abiotic factors in insect life, the role of food factors in insect life, about the concept of functional and numeric responses of parasitoids and predators to their hosts/prey, insect population growth.
Study and Examination	Evaluation and assessment of the learning process are following Scheme 1 in the Academic Regulations of Mulawarman University:

Requirements and Forms of Examination	No.	Objects of Assessment	Forms of Assessment	Quantity (%)
	1	Affective	Participation	10
	2	Task	Study group presentations, Q&A	10
	3	Practises	Report	20
	4	Mid-semester test	Written test	20
	5	Final semester test	Written test	40
	TOTAL			100
Media EmILOyed	Notebook/Komputer/Handphone, Zoom Meeting dan Mulawarman Online Learning System (MOLS)			
Reading list	Giovannini, L. et al. (2021) 'Reproductive and developmental biology of <i>Acroclisoides sinicus</i> , a hyperparasitoid of scelionid parasitoids', <i>Biology</i> , 10, pp. 1–18 Karenina, T. et al. (2019) 'Abundance and species diversity of predatory arthropods inhabiting rice of refuge habitats and synthetic insecticide application in freshwater swamps in South Sumatra , Indonesia', <i>Biodiversitas</i> , 20(8), pp. 2375–2387. doi: 10.13057/biodiv/d200836			

MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND INTENDED LEARNING OUTCOMES (ILO)

CLO 1	Students learn to observe and formulate problems about the Relationship between Insect Ecology and Integrated Pest Control Systems and Sustainable Agriculture and write them in a paper as well as presentations and discussions
CLO 2	Students learn to use of genetic engineering and biological agents for environmentally friendly and sustainable agricultural production
CLO 3	Students learn to use the process of making environmentally friendly OPT control products with genetic engineering

	Intended Learning Outcomes (ILO)							
	ILO 1	ILO 2	ILO 3	ILO 4	ILO 5	ILO 6	ILO 7	ILO 8
CLO 1	1	3	0	2	0	0	0	0
CLO 2	1	3	0	2	0	0	0	0
CLO 3	1	3	0	2	0	0	0	0