



**Study Program of Nutrition and Feed Technology
Department of Nutrition and Feed Technology
Faculty of Animal Science
IPB University**

2023



IPB University
— Bogor Indonesia —



1st SEMESTER

IPB110A Religion Education

Module designation	Religion Education
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Drs. Romli, M.Ag
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Skilled in inventorying and analyzing verses of the Qur'an and Sunnah in the PAI Lab 2. Able to show and explain the verses of the Qur'an and Sunnah about science 3. Able to understand human concepts and human relations with religion 4. Able to decipher the 6 Pillars of Iman (Faith) to develop a noble personality 5. Able to demonstrate mahdhah and muamalah worship 6. Able to accustom noble behavior (morals) in the community environment.
Content	Religion Education course is taught in order to equip students with insight in Islamic knowledge comprehensively (broadly and deeply), encourage students to study, study and live the verses of Allah SWT (Qauliyah and Kauniyah) and not to be dichotomous and to give an understanding of human nature who need a guide to life (al Islam), both individually and socially in order to achieve happiness in this world and the afterlife.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments

Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	Mandatory Reading: Al-Qur'an and Translations, Islamic Religious Education Guidebook compiled by TIM PAI-IPB Additional Readings: 1. Miftah Faridz, 1999. Pokok-pokok ajaran Islam karya Mifta Faridz, Penerbit Pustaka. Jakarta 2. Yunahar Ilyas.1999. Kuliah Akhlak. LIPPI 3. Yusuf Qardhawy, 1997. Pengantar Kajian Islam (terjmhan.). Pustaka Kautsar. Jakarta. 4. Hamzah Yaqub, 1996. Etika Islam. CV. Diponegoro. Bandung 5. Yunahar Ilyas.2002. Kuliah Aqidah Islam. LPDI UMY. 6. Yusuf Qardhawy.1996. Tauhid dan Fenomena Kemusyrikan (terjmhn). Pustaka Progresif. Surabaya 7. Shalih bin Fauzan. 1999. Kitab Tauhid I (terjemahan). Darul Haq. Jakarta. Ismail Fauzi. Al- Islam dan Ilmu Pengetahuan

IPB110D Pancasila Education

Module designation	Pancasila Education
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 1 sch x 14 weeks = 11.6 minutes = 12 hours Discussion class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 30 minutes x 2 times x 14 weeks = 840 minutes = 15 hours Total: 2700 minutes = 45 hours
Credit points	1 SCH x (1.6) = 1.6 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to develop the character of defending the country in students, namely a sense of love for the motherland, awareness of the nation and state, loyalty to Pancasila, willingness to sacrifice, ability to defend the country, and the spirit of creating a sovereign, just and prosperous country. This course also encourages the practice of science and technology towards realizing the ideals of the nation in accordance with the Preamble of the 1945 Constitution.
Content	This course encourages the development of the character of defending the country in students, namely a sense of love for the motherland, awareness of the nation and state, loyalty to Pancasila, willingness to sacrifice, ability to defend the country, and the spirit of creating a sovereign, just and prosperous country. This course also encourages the practice of science and technology towards realizing the ideals of the nation in accordance with the Preamble of the 1945 Constitution.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance,



	active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	

IPB110E Civics Education

Module designation	Civics Education
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 1 sch x 14 weeks = 11.6 minutes = 12 hours Discussion class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 30 minutes x 2 times x 14 weeks = 840 minutes = 15 hours Total: 2700 minutes = 45 hours
Credit points	1 SCH x (1.6) = 1.6 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Students understand the vision, mission and goals of Civics Education. 2. Students identify disturbances and threats to the nation and the Republic of Indonesia and state defense efforts adapted to global challenges. 3. Students is able to analyze the formation of the Republic of Indonesia based on history and elements of the state formation, analyze the concept of national integration. 4. Student is able to explain the meaning of nationalism. 5. Student is able to analyze the importance of the state constitution. 6. Student is able to describe the atmosphere when making the 1945 Constitution. 7. Student is able to explain the meaning of the Preamble of the 1945 Constitution and its relationship with the Proclamation of Independence and the Body 8. Student is able to compare the implementation of the 1945 Constitution from time to time 9. Student is able to analyze and show changes in amendments to the 1945 Constitution, especially in state institutions as executors of people's sovereignty 10. Student is able to explain Pancasila as a system of philosophy and unity of precepts in Pancasila. 11. Student is able to analyze Pancasila as a source of values. 12. Describe the meaning of Pancasila as the basis of the

	state, comparing Pancasila as an open ideology with other ideologies, and its function as well as a national development paradigm. 13. Student is able to explain the problem of Indonesian citizenship. 14. Student is able to categorize the rights and obligations of Indonesian citizens. 15. Student is able to link the implementation of democracy with the enforcement of human rights. 16. Analyzing the implementation of democracy in Indonesia since the old order, new order and reform 17. Analyzing the efforts to promote, respect and uphold human rights in Indonesia and the world. 18. Student is able to relate the concept of geopolitics and archipelago insight. 19. Student is able to explain the concept of Indonesian territory. 20. Student is able to describe the implementation of national insights in national development. 21. Student is able to explain Indonesia's national resilience and implementation 22. Student is able to explain analyzing problems and formulating politics and national strategies. 23. Student is able to explain the principles of good governance in public organizations and state administration. 24. Student is able to explain the implementation of regional autonomy. 25. Student is able to categorize corrupt acts and the importance of efforts to prevent corruption.
Content	The Citizenship Education course provides an understanding of the importance of awareness of defending the country for the next generation of the Indonesian nation in fighting for and maintaining the integrity of the NKRI through the mastery and application of science and technology based on four basic consensuses, namely the values of Pancasila, the 1945 Constitution of the Republic of Indonesia, Bhinneka Tunggal Ika, and the Unitary State of the Republic of Indonesia. realizing sustainable national development based on the archipelago perspective, national resilience and national vigilance in line with the principles of democratization, regional autonomy, good governance, and anti-corruption character.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.



	Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Membangun Kesadaran Bela Negara Dr. Ir. Parlaungan Adil Rangkuti, M.Si. IPB Press 2. Paradigma Baru Pendidikan Kewarganegaraan. Winarno, S.Pd, M.Si. PT. Bumi Aksara: 2008 3. Cerdas Kritis dan Aktif Berwarganegara, Pendidikan Kewarganegaraan Untuk Perguruan Tinggi. Heru Herdiawanto, M.Si dan Jumanta Hamdayama, M.Si, Erlangga: 2010 4. Panduan Kuliah Pendidikan Pancasila untuk Perguruan Tinggi. Elly M. Setiadi, M.Si. Gramedia: 2007 5. Pendidikan Kewarganegaraan: Demokrasi, Hak Asasi Manusia, Masyarakat Madani. ICCE UIN dan Prenada Media: 2003

IPB1106 Indonesian Language

Module designation	Indonesian Language
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Student is able to understand and choose the right Indonesian vocabulary; skilled at writing papers according to their competencies; communicate verbally well; proud to speak Bahasa as the basis for applying the field of science according to its competence.
Content	This course contains material that enhances a sense of national love in the form of the history of the Indonesian language. Material related to improving language skills in the form of effective sentence writing includes spelling, word choice, and structure. The materials for reading and writing skills are in the form of techniques for composing paragraphs, composing texts, selecting readings, critical thinking, and compiling scientific papers. The material for oral language skills is in the form of an oral presentation. Student work in the form of outline paragraphs, paragraphs, types of text, slides, videos, and simple research papers.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance,



	active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	

BIO1102 Basic Biology

Module designation	Basic Biology
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Explaining the scope of biology, observe and explain the structure and metabolism of cells. 2. Observing and explaining the basic cellular reproduction and patterns of inheritance. 3. Observing and explaining the structure and expression of genes, and biotechnology. 4. Observing and explaining the diversity, structure and biological functions of organisms: monera, protists, fungi, plantae, animalia. 5. Observing and explaining the ecology: population, community, and ecosystem and bio conservation.
Content	This course aims to encourage students to actualize themselves through creativity based on the basic theory of biology, curiosity about phenomena related to biology, and exploring the biodiversity potential of Indonesia's biological resources. The theoretical basis that will be presented begins with information on the superiority of Indonesia's biological resources, followed by a discussion of actual phenomena and the provision of biological theories that underlie these phenomena, such as bioprospection of biological diversity (food for the world, renewable energy sources, bioremediation), biomimicry and body structure of organisms. which became the inspiration for creating a technological innovation, personalized medicine, sustainable environmental management through knowledge about the cycle of matter

	in nature, waste utilization, and biodiversity conservation. This course is equipped with practicum so that students better understand the theory provided.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Robert B. Jackson. 2014. Campbell Biology.10th. PearsonEducation, Inc. Neil A. Campbell, Jane B. Reece. 2008. Biology 8th. Pearson Benjamin Cummings: San Francisco.

EKO1101 General Economics

Module designation	General Economics
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After attending this course, student is able to understand of economics as a branch of science, understand the behavior of households, companies and markets in economic decision making, understand macroeconomics, problems and the actual conditions of Indonesian macroeconomics.
Content	The Economics course provides students with the ability to analyze the roles of decision makers, namely consumers (households), producers, and the government and how these decision makers interact in the market. The Economics course is also designed to give students the ability to analyze the role of innovation and technology from an economic point of view including the concept of digital economy and inclusive development for further use by students in decision-making processes in various applied fields.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time,



	(c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	Books for lecture class: Lipsey. R. G., P. O Steiner, and D. D. Purpis. 1987. Economics. Harper International Edition. Books for practical class: Penuntun Responsi Ekonomi Umum. 2013. Departemen Ilmu Ekonomi (IE), Fakultas Ekonomi dan Manajemen (FEM). IPB. Lipsey. R. G., P. O Steiner, and D. D. Purpis. 1987. Economics. Harper International Edition. 3 Gregory, M. 2006. Principles of Economics (Pengantar Ekonomi Mikro) Edisi 3. Salemba Empat.

IPB110C Innovative Agriculture

Module designation	Innovative Agriculture
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Hadi Susilo Arifin, M.S. (Koordinator) Kukuh Murtalaksono Ahmad Sulaeman, M.S. Budi Setiawan, M.S. I. Komang Gede Wiryawan Didi Sopandie Sugeng Santoso Ligaya ITA Tumbelaka Tania June Koekoeh Santoso
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After taking this course, students is able to explain agriculture in a broad sense and the supporting sciences.
Content	Providing knowledge, insight, experience, direct exposure, and stimulation to be creative and work in building innovative agriculture. The discussion covers agriculture broadly starting from the link between agricultural development and human life and civilization, natural resources and the environment, agro-maritime, agrarian and policies, agro-ecosystem services, climate and smart agriculture, sustainable and integrated agriculture, food, energy and health , biotechnology, smart agriculture, smart agriculture extension, agriculture startup, green and blue economy, present and future agriculture (challenges and solutions).



Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	AHN: Buku PIP Author AHN (Book 1-Soft File) KM: Buku Kumpulan Makalah (Book 2-Soft File) TGM: Buku Tantangan Generasi Muda (Hard File)

MAT1102 Mathematics and Logical Thinking

Module designation	Mathematics and Logical Thinking
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Student is able to explain basic mathematical concepts (interval, inequality and absolute value; function; limit and continuous function; derivative; integral; matrix; and system of linear equations). 2. Able to use basic mathematical techniques to solve simple mathematical problems. 3. 3) Able to apply basic mathematical concepts and techniques to solve applied problems.
Content	This course discusses the basic concepts of mathematics which include the concepts of mathematical logic, combinatorics, linear models (matrices and systems of linear equations), function models (linear and nonlinear functions), and linear programming. Students are expected to be able to analyze and make interesting judgments appropriate skills, communicate, express quantitative evidence, strengthen arguments or goals, build and train logical thinking (logical thinking ability).
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice

	Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Tim Penulis. Diktat Kuliah Landasan Matematika. Departemen Matematika FMIPA IPB, Bogor, 2017. 2. Varberg D, Purcell EJ, Rigdon SE. 2011. Kalkulus. Ed ke-9. Jilid 1. Susila IN, penerjemah. Jakarta (ID): Penerbit Erlangga. Terjemahan dari: Calculus. 9th Ed. 3. Stewart J. 2002. Kalkulus. Ed ke-4. Jilid 1. Susila IN, Gunawan H, penerjemah. Jakarta (ID): Penerbit Erlangga. Terjemahan dari: Calculus. 4th Ed.



2nd SEMESTER

IPB110F English

Module designation	English
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching Team
Language	English
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Able to applying "reading skills" in understanding texts in English; 2. Knowing the structure of language to support understanding of texts in English;
Content	This course is designed and structured to guide IPB University students so they can face the era of globalization with sufficient English language. The topics discussed are knowledge of grammar and reading techniques that are very useful such as: skimming, scanning, guessing meanings from context, text organization and transferring information.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of

	report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Abdulaziz, Helen Taylor, & Alfred D. Stover. 1980. Academic Challenges in Reading. Prentice-Hall, Inc. Englewood Cliffs, N.J. 2. Anson M. Chris, Schwegler A. Robert. 2001. The Longman Handbook for Writers and Readers, An Imprint of Addison Wesley Longman, Inc. 3. Dobbs, Carrie. 1989. Reading for a Reason. Prentice Hall Regents Englewood Cliffs, N.J. 4. Feverstein, Tamar and Miriam S. 1995. Enhancing Reading Comprehension in the Language Learning Classroom. Alta Book Center Pub. San Fransisco, California. 5. Grellet, Francois. 1981. A Practical Guide to Reading Comprehension Exercises. Cambridge University Press. 6. Hornby, A.S. 1991. Oxford Advanced Learner's Dictionary. Oxford UP. 7. Karen Blanchard et.al. 1997. For Your Information 3 Longman. 8. Kranhlee, Karl. 1976. Reading Together: A Reading Activities Text. St. Martin Press. 9. Labarca. Angela and James M. Hendrickson. 1984. Our Global Village. Harcourt Brace Jovanovich, Inc. 10. Latulippe, L.D. 1987. Developing Academic Reading Skills. Prentice Hall Regents, Englewood Cliffs, N.J. 11. Maingay, S. 1983. Making Sense of Reading: an Introduction to Reading Skills in English. Australia Nelson. 12. Marcelino, M. 1999. Materials for Foundations of Academic Writing Course. AMINEF, Jakarta. 13. Mickulecky, Beatrice S. 2004. More Reading Power, Reading for Pleasure, Comprehension Skills, Thinking Skills, Reading Faster. Pearson Education, Inc. 14. Oshima, Alice, and Ann Hogue. 1999. Writing Academic English. Longman. 15. Praninkas, Jean. 1975. Rapid Review of English Grammar. Prentice Hall. 16. Rowland, Black S. and Lisa Rosenthal. 1986. Academic English and Study Skills for International Students. Prentice Hall. N.J. 17. Skykes, J.B. 1989. The Concise Oxford Dictionary. Oxford UP. 18. The British Council. 1979. Reading and Thinking: Exploring Functions. Oxford UP. 19. Torres G, Eunice. Smith L. Michael. English for



	Fisheries Technology. National Bookstore, Inc. 20. Valerie Kay. 1985. Biological Sciences “Developing Reading Skill in English”. Pergamon Press. 21. Woods, Enid Nolan and David Foll. 1986. Penguin Advanced Reading Skills. Penguin Book Ltd. England. 22. https://en.wikipedia.org/wiki/Chart 23. https://en.wikipedia.org/wiki/Graph 24. https://www.ncsu.edu/labwrite/res/tablevsgraph/res-tablevsgraph.html 25. http://www.diffen.com/difference/Communism_vs_Fascism 20. http://www.diffen.com/difference/DNA_vs_RNA
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FIS1104 Physics Technology

Module designation	Physics Technology
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Student is able to use various physical formulations in the scope of solving simple physics problems and applying them to other fields.
Content	This course teaches students with various abilities to think and act scientifically by strengthening understanding and expanding insight into the concept of matter-energy and its interactions as well as being able to analyze and evaluate its use in the development of the latest technology.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)



Reading list	

KIM1104 Chemistry and Technology

Module designation	Chemistry and Technology
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. After taking this course, students will be able to explain the chemical linkages in life processes related to aspects of daily life. 2. After attending this lecture, students will be able to explain the relationship between chemistry and life, physical and chemical properties, and atoms as basic components of elements, compounds formed from elements, mixtures, pure and impure materials, and periodic tables.
Content	This course encourages students to actualize Chemistry as a central of science for the foundation of science and technology in the fields of agriculture, marine and tropical biosciences. The theoretical foundation begins with providing insight into the contribution of chemistry in the field of world technology, its relationship with other sciences, efficiency of atoms for product synthesis, dynamics and the rate of change of products and utilization of products for the development of technology for the welfare of living things.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice



	Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	Suchocki J. 2007. <i>Conceptual Chemistry: Understanding Our World of Atoms and Molecules</i>. Ed. Ke-3. San Fransisco (US): Pearson Benjamin Cummings.

KOM1102 Computational Thinking

Module designation	Computational Thinking
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. After taking this course, students will be able to explain the chemical linkages in life processes related to aspects of daily life. 2. After attending this lecture, students will be able to explain the relationship between chemistry and life, physical and chemical properties, and atoms as basic components of elements, compounds formed from elements, mixtures, pure and impure materials, and periodic tables.
Content	This course provides students with an overview of the VUCA world that students will face in the coming era and provides a basis for computational literacy and ethics in using information technology. More specifically, this course explains the process of identifying problems and formulating solutions by focusing on important information into generic solutions (abstraction), problem solving includes the process of breaking down problems into smaller subproblems (decomposition), looking for similarities in the pattern of a problem (pattern matching), and building a structured solution step (algorithm). This course shapes students' thinking patterns in expressing solutions in a series of structured steps that can be carried out with the help of computational technology. After taking this course students are expected to be able to apply problem solving methods through computational thinking



	methods.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	Suchocki J. 2007. <i>Conceptual Chemistry: Understanding Our World of Atoms and Molecules</i> . Ed. Ke-3. San Fransisco (US): Pearson Benjamin Cummings.

KPM1131 Sociology

Module designation	Sociology
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After attending this course student is able to understand the concepts, analyze situations and social changes in society, and identify social realities and problems at the level of groups, organizations, institutions, communities, and global by considering power and authority, ecology and gender. In addition, student is able to conduct sociological studies, communicate the results of studies for decision making based on qualitative and quantitative approaches that can be accounted for.
Content	This course aims to improve students' abilities to develop an inquiring mind based on sociological concepts and theories (aspects of knowledge), to train an anticipatory mindset towards the consequences of a process of change due to human action (reality and social problems) in society at various levels. level (understanding-attitude aspect), and Train a proactive response with interest to social change in society 1.0 to society 5.0 (application aspect) as well as introduce skills regarding methods of approach and solving social problems in society. Topics that will be presented in the course include (1) Understanding Society Sociologically; (2) Social Interaction: Building Cooperation and Functioning Social Conflict; (3) Community Portrait seen through the Lens of Social Structure; (4) Diversity and Existence of Indonesian

	Culture; (5) Dynamics of Social Institutions; (6) Group Dynamics in a Changing Society; (7) Bureaucracy and Corruption Prevention; (8) Dynamics of Stratification and Social Mobility in Indonesia in the Digital Age; (9) Power and Authority; (10) Communication: Knitting Social Relations; (11) Ecological Crisis and Ecological Modernization; (12) Gender, Equality and Social Inclusion; and (13) Social Change in the Flow of Globalization.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Charon, J.M. 1980. The Meaning of Sociology. Alfred Publishing Co. Inc. America. 2. Calhoun, C., et.al. 1994. Sociology (6th edition). McGraw-Hill, Inc. USA. 3. Wibisono, Koento. 1982. Arti Perkembangan Menurut Filsafat Positivisme Auguste Comte. Yogyakarta: Gadjah Mada University Press. 4. Gillin, J.L. & J.P. Gillin, 1954. Cultural Sociology (3rd printing). New York: The Macmillan Co. 5. Maiolo, J., et.al., 1991. Study Guide to Accompany Bassis, Gelles and Levine: Sociology An Introduction. McGraw-Hill, Inc. USA. 6. Soekanto, S., 1990. Sosiologi Suatu Pengantar. Jakarta: Rajawali Press. 7. Geertz, C. 1976. Agricultural Involution: process of ecological change in Indonesia. Berkeley: University of California Press. 8. Herskovits, M.J. 1955. Cultural Anthropology. New York: Alfred A. Knopf. 9. Koentjaraningrat (Ed.). 1979. Manusia dan Kebudayaan di Indonesia. Jakarta: Penerbit Djambatan. 10. Kluckhohn, F.R. 1961. "Dominant and variant value-orientation" in: FR Cluckhohn & HA Murray (Eds.), Personality in Nature, Society and Culture. New York: Alfred A Knoff. 11. Redfield, R. 1956. Peasant society and culture. Chicago: University of Chicago Press.

	12. Tan, M.G. 1973. "Masalah perencanaan penelitian" dalam Koentjaraningrat (Ed.), Metode-metode Penelitian Masyarakat. Jakarta: LIPI. 13. Dorn, J.A.A. van & C.J. Lammers. 1959. Modern Sosiologie een sijstematiscche inleiding. Utreacht Antwerpen: Het Spectrum. 14. Koentjaraningrat. 1964. Pengantar Antropologi, Jakarta: Penerbit Universitas. 15. 1979. Kebudayaan, Mentalitas dan Pembangunan. Jakarta: Gramedia. 16. MacIver, R.M. & C.H. Page. 1957. Society and Introductory Analysis. New York: Rinehart and Company, Inc. 17. Merton, R.K. 1967. Social Theory and Social Structure. New York: The Free Press. Polak, 18. J.B.A.F.M. 1966. Sosiologi: Suatu Buku Pengantar Ringkas. Jakarta: Penerbit dan Balai Buku "Ichtiar". 19. Soemardjan, S. & S. Soemardi (Eds.). 1974. Setangkai Bunga Sosiologi. Jakarta: Yayasan Badan Penerbit Fakultas Ekonomi Universitas Indonesia. 20. Uphoff, N. 1993. "Grassroots Organizations and NGOs in Rural Development: Opportunities with Diminishing States and Expanding Markets." World Development, Vol 21(4):pp607-622. 21. 1986. Local Institutional Development: An Analytical Sourcebook with Cases. New York: Kumarian Press. 22. Bierstedt, R. 1982. The Social Order. Bombay: Tata McGraw Hill Publishing. 23. Koentjaraningrat, 1979, "Isi konsep desa di Indonesia" dalam Koentjaraningrat (Ed.), Masyarakat Desa di Indonesia Masa Ini. Jakarta: Yayasan Penerbit Fakultas Ekonomi Universitas Indonesia. 24. Merton, R.K. 1967. Social Theory and Social Structure. New York: The Free Press. 25. Bassis, M.S., R.G. Jelles, and A. Levine, 1991, Sociology An Introduction, New York: Mc Graw Hill. 26. Berelson, B. & G.A. Steiner. 1964. Human Behaviour. Harcourt: Brase & World. 27. Etzioni, A. 1982. Organisasi-organisasi Modern. Jakarta: UI Press. 28. Himes (1976). The Study of Sociology An Introduction. Illinois: Scott, Foresman and Co. 29. Schoorl, J.W., 1982. Modernisasi. Jakarta: Gramedia. 30. Soekanto, S. 1983. Struktur Sosil Masyarakat. Jakarta: Gramedia. 31. Weber, Max. 1974. The Theory of Social and Economic Organization. New York: The Free Press. 32. Bierstedt, R. 1970. The Social Order An Introduction to Sociology. New York: McGraw Hill Book Co. 33. Calhoun, C. et al. 1994. Sociology An Introduction. McGraw Hill, Inc. 34. Sorokin, P.A. 1959. Social and Cultural Mobility. London: Collier-Macmillan Ltd. 35. Wertheim, W.F. 1959. Indonesian Society in
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	Transition A Study of Social Change. S'Gravenhage: W van Hoeve. 36. Nisbet, R.A. 1993. The Sociological Tradition. London: Transaction Publishers. 37. Mulyana, D. 2001. Ilmu Komunikasi: Suatu Pengantar. Bandung: Remaja Rosdakarya. 38. Lerner, D. 1978. Memudarnya Masyarakat Tradisional. Yogyakarta: Penerbit UniversitasGadjah Mada. 39. Wright, H. N. 1997. Komunikasi: Kunci Perkawinan Bahagia. Yogyakarta: PenerbitGloria. 40. Odum E.P., 1971 41. Ellen C. Semple (1911), 42. Carl Ritter dan Ellsworth Huntington. Alfred L. Kroeber. 1939 43. Arnold Toynbee (1947), 44. Harold & Margaret Sprout (1965) Moris Treilich (1967). 45. Julian H. Steward (1955). 46. Geertz (1963) 47. Ada Konflik Mangrove (Kompas, Senin 9 Juni2013) 48. Proyek Kanal Banjir Bebaskan Jakarta dari Banjir ? (M Clara Wresti dan Iwan Santosa 25 49. Petani Berhadapan dengan Kekuasaan (Sri Hartati Samhadi, Ahmad Arif, Maria Hartiningsih, Kompas, 11 April 2008) 50. Bappenas 2004 Konferensi Lingkungan hidup stochohm, swedia, 1972 51. Fakih. 1999. 52. ILO Indonesia. 1997. 53. KPP-PA. 2010. 54. Yulfita Raharjo. 2012. Sosialisasi PMK No. 93/PMK.02/2011 Bagi Eselon 1 dan II Bappenas. Jakarta: Bappenas 55. Simatauw et all. 2001. 56. Harper, C.L. 1989. Exploring Social Change. New Jersey: Prentice-Hall. 57. Sztompka, P. 1993. The Sociology of SocialChange. Oxford, Cambridge: Blackwell. 59. Suwarsono & A.Y. So. 1991. Perubahan Sosial dan Pembangunan di Indonesia: Teori-teoriModernisasi, Dependensi dan Sistem Dunia.Jakarta: LP3ES
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STK1111 Statistics and Data Analysis

Module designation	Statistics and Data Analysis
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching Team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Students able to understand the basic concepts of statistics, understanding of several terms in statistics (sample, population, data, etc.); various techniques for understanding data (data understanding), which include presenting and summarizing data, exploring the presence of extreme values, exploring patterns of distribution, exploring comparisons between groups, and exploring relationships between variables; modeling, which includes associations, correlations and recognition of linear regression models; understanding of several methods of data collection, data management as well as several techniques of presenting information in the presentation of analysis results, which can be applied to various applied fields, such as Agriculture, Biology, Social, Business, and so on. This course also forms the basis for further statistics courses such as Categorical Data Analysis, Regression Analysis, Experimental Design, Quality Control Statistics, and Time Series Analysis.
Content	This course explains the basic concepts of statistics, understanding of several terms in statistics (sample, population, data, etc.); various techniques for understanding data (data understanding), which include presenting and summarizing data, exploring the presence of extreme values, exploring patterns of distribution,

	exploring comparisons between groups, and exploring relationships between variables; modeling, which includes associations, correlations and recognition of linear regression models; understanding of several methods of data collection, data management as well as several techniques of presenting information in the presentation of analysis results, which can be applied to various applied fields, such as Agriculture, Biology, Social, Business, and so on. This course also forms the basis for further statistics courses such as Categorical Data Analysis, Regression Analysis, Experimental Design, Quality Control Statistics, and Time Series Analysis.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	

FPT1101 Innovative Animal Husbandry

Module designation	Innovative Animal Husbandry
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Dewi Apri Astuti
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 24 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After taking this course, students will have knowledge, insight and understanding of Animal Husbandry from time to time to developments in the modern, innovative Livestock Industry era.
Content	This course aims to provide knowledge, insight and understanding of Animal Husbandry from time to time to developments in the modern, innovative Livestock Industry era. The discussion begins with history and anthropology Livestock then community-based animal husbandry. Livestock Industry 4.0 and product logistics, feed and livestock commodities are delivered to support animal welfare and efficiency. The lecture was closed with an introduction to the livestock engineer professional program (PPI).
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.



	Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	

IPB110G Sports/Art

Module designation	Sports/Art
Semester(s) in which the module is taught	2 nd Semester
Person responsible for the module	Teaching team
Language	Indonesian
Relation to curriculum	Common Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 1 sch x 14 weeks = 11.6 minutes = 12 hours Discussion class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 30 minutes x 2 times x 14 weeks = 840 minutes = 15 hours Total: 2700 minutes = 45 hours
Credit points	1 SCH x (1.6) = 1.6 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	The form of activity depends on the Sports/Arts UKM or sports/arts club selected. If you take part in sports activities scheduled for PPKU, various theoretical and practical approaches are discussed in these activities, so that individuals can develop emotionally and intellectually in practice including movement formation, social-community formation, and physical growth by utilizing indoor gymnasium classrooms and the environment around the Dramaga IPB campus, as well as traditional activities.
Content	The form of activity depends on the Sports/Arts UKM or sports/arts club selected. If you take part in sports activities scheduled for PPKU, various theoretical and practical approaches are discussed in these activities, so that individuals can develop emotionally and intellectually in practice including movement formation, social-community formation, and physical growth by utilizing indoor gymnasium classrooms and the environment around the Dramaga IPB campus, as well as traditional activities.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments



	Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	



3rd SEMESTER

NTP1271 Animal Nutrition

Module Name	Animal Nutrition
Semester(s) in which the module is taught	3 rd Semester
Person responsible for the module	Despal Dewi Apri Astuti Toto Toharmat Dwierra Evvyernie. Widya Hermana Sumiati Rita Mutia Idat Galih Permana Dwi Margi Suci Sri Suharti Lilis Khotijah Arif Darmawan Rika Zahera
Language	Indonesian, English
Relation to curriculum	Foundational Literacy/Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Assignment: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Practicum class = 120 minutes x 1 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 4 times x 14 weeks = 3360 minutes = 56 hours Total: 8300 minutes = 138 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to explain the development of the science of nutrition, the composition of feed and animal bodies, feed consumption, evaluation of nutrient digestibility, feed energy content and partition, evaluation of the benefits of protein, minerals and vitamins, manipulation of nutritional processes and nutritional needs

Content	This course explains the development of the science of nutrition, feed and animal body composition, feed consumption, evaluation of nutrient digestibility, feed energy content and partition, evaluation of the benefits of protein, minerals and vitamins, manipulation of nutritional processes and nutrient requirements
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Mc.Donald, P., R.A.Edward,, J.F.D. Greenhalgh and CA Morgan. 2002. Animals Nutrition. 2. NRC. 1989. Nutrient requirement for dairy cattle. 3. NRC. 2009. Nutrient requirement for poultry 4. S. Lesson and D.J.Summers.2001. Nutrition of the chicken 5. E.J. Underwood and NF. Suttle. 2001. The Mineral Nutrition of Livestock 6. W.G.Pond, D.C.Church, KR Pond. 1995. Basic Animal Nutrition and Feeding

NTP1272 Nutritional Biochemistry

Module designation	Nutritional Biochemistry
Semester(s) in which the module is taught	3 rd Semester
Person responsible for the module	Asep Sudarman Sumiati Sri Suharti Rita Mutia Dilla Mareistia Fassah
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Able to understand the basic knowledge of integration process nutrition on the basis of biochemical process 2. Able to understand biochemical feed intake regulation 3. Able to understand mechanic, hydrolytic and fermentative digestion process of macro and micro nutrients 4. Able to understand nutrient absorption and transport 5. Able to understand nutrient metabolism 6. Able to understand biochemical synthesis of animal products (milk, meat and egg) 7. Able to understand nutrition manipulation of animal product biosynthesis 8. Able to understand metabolic disorders that occur in nutrition process

Content	Nutritional Biochemistry course is taught in order to provide knowledge or understanding in nutrition process integration based on biochemical process of macro and micro nutrient with its interactions, enzyme and hormone activities involving in nutrition process, that relate to animal product biosynthesis.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Riis PM. 1983 (Editor). Dynamic Biochemistry of Animal Production. Elsevier. New york. 2. Montgomery R, Thomas WC, Arthur AS. 1993. Biokimia. Jilid I. Terjemahan. Bagian Biokimia Fakultas Kedokteran UI. Binarupa aksara. Jakarta. 3. Mathews, C. K., K. E. van Holde, dan K. G. Ahern, 2000. Biochemistry. 3rd Ed. Addison-Wesley Publishing Co. 4. McDonald P, Edwards RA, Greenhalgh JFD, Morgan CA. 2011. Animal Nutrition. 7th Ed. Prentice hall. New York 5. Mello JPD (Editor). 2000. Farm animal Metabolism and Nutrition. CABI Publishing. 6. Underwood EJ, Suttle NF. 1999. The Mineral Nutrition of Livestock. 3rd Ed. CABI Publishing.

NTP1221 Feedstuffs

Module Name	Feedstuff
Semester(s) in which the module is taught	3 rd semester
Person responsible for the module	Prof. Dr. Ir. Nahrowi, M.Sc Prof. Dr. Ir. Erika Budiarti Laconi, MS Dr. Ir. M. Ridla, M.Agr Dr. Anuraga Jayanegara, S.Pt, M.Sc Rima Shidqiyya Hidayati Martin, S.Pt, M.Si
Language	English & Indonesia
Relation to curriculum	Foundational Literacy/Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion, Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Able to understand the feed glossary. 2. Able to understand the criteria of feedstuff quality. 3. Able to explain feed classification which are protein, energy and mineral vitamin resources. 4. Able to do physical evaluation of feedstuff through rapid test, organoleptic test and microscopy. 5. Able to do chemistry evaluation of feed stuff through proximate analysis, van Soest analysis and energy analysis. 6. Able to know well feed stuff resources based on classification, nutrient composition and nutrition quality. 7. Able to select feed stuff which is suitable for animal at different strain and physiologist status.
Content	The course contents are the knowledge of feed qualities criteria through physical and chemistry properties, introduction of conventional and non-conventional feedstuffs and its using for animal ration.

Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Ensminger, J.E. Oldfield and W.W. Heinemann, 1990. Feeds and Nutrition. Second Edition. The Ensminger Publishing Company. California, USA. 2. Morrison, F.B., 1959. Feed and Feeding. The Morrison Publishing Company. Clinton, Iowa 3. Mc Donald . 2002. Animal Nutrition. Longman Scientific and John & Sons Inc. New York. 4. Standar Nasional Indonesia (SNI) Pakan dan Ransum. 5. Hasil penelitian dan Journal Ilmiah Nasional dan Internasional AHN: Buku PIP Author AHN (Book 1-Soft File)

NTP1273 Physiology Nutrition

Module Name	Physiology Nutrition
Semester(s) in which the module is taught	3 rd Semester
Person responsible for the Module	Dewi Apri Astuti Lilis Khotijah Sri Suharti Asep Sudarman Sumiati Dilla Mareistia Fassah
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	1. Able to understand the function of cell organelle. 2. Able to understand the nervous system to regulate feed intake. 3. Able to understand the heart and function of blood circulation. 4. Able to understand the respiration function on metabolism process. 5. Able to understand the endocrine function on metabolism process. 6. Able to understand the digestive system, enzyme function and fermentative/non fermentative metabolism. 7. Able to understand absorption process and transportation system of nutrients. 8. Able to understand about metabolism processes of macro and micronutrients. 9. Able to understand about thermoregulation and

	excretion system.
Content	Course introduce student to the fate of nutrients in digestive tract since from mouth and deliver through the digestion system until end in large intestine. The nervous and endocrine system involve to regulate the metabolite, including the presence of oxygen. Deficiency and excess of nutrients which caused of disorder metabolism are also discussed integrated with regulation an excretion system.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading List	1. Melvic, J. S. 1970. Duke's Physiology of Domestic Animal. IXth ed. Comstock publ Assoc, Cornell University, Itacha 2. J.A.F. Rook and P.C. Thomas. 1983. Nutritional Physiology of Farm Animals. Longman Inc. NY 3. Piliang, W. G. dan S. Djojoseobagio. 2005. Fisiologi Nutrisi. IPB Press. Vol 1 dan 2 4. Cunningham 1997. Textbook of Veterinary physiology. 2nd Ed. WB Saunders Com. 5. William F. Ganong. 8th ed. Review of Medical Physiology. Lange Medical Publ.

NTP1211 Forage Resources and Pasture Science

Module Name	Forage Resources and Pasture Science
Semester(s) in which the module is taught	3 rd Semester
Person responsible for the module	Dr.rer.nat. Nur Rochmah Kumalasari, SPt, MSi Prof. Dr. Ir. Luki Abdullah, MSc.Agr Dr. Ir. Asep Tata Permana, MSc Prof. Dr. Ir. Panca Dewi MHKS, MSi Dr. Iwan Prihantoro, S.Pt., MSi
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/ intended learning outcomes	3. Able to understand and explain plant classification and morphology, grass and legume for forage; 4. Able to explain the adaptability rate and effect of environmental factors on plant growth, biomass production and forage quality
Content	This course is provided to understand and explain plant classification and morphology, grass and legume for forage, the plant adaptability rate and effect of environmental factors on plant growth, biomass production and forage quality.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.

	Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Bogdan A.V. 1977. Tropical Pasture and Fodder Plants (Grasses and Legumes). Longman and New York 2. Harlan. J.R. 1956. Theory and Dynamics of Grassland Agriculture. Van Nostrand Company, Inc. Newyork. 3. Humphreys, L.R. 1987. Tropical Pastures and Fodder Crops. John Wiley and Sons, Inc. New York. 4. Humphreys, L.R. 1991. Tropical Pastures Utilisation. Cambridge University Press. Cambridge. 5. Lawrence, GHM. 1955. Taxonomy of Vascular Plants. The Macmillan Company, New York. 6. Lemaire, et al. 2000. Grassland Ecophysiology and Grazing Ecology. Cabi Publishing. 7. Pearson and Ison.1987. Agronomy of Grassland Systems. Cambridge University Press. Cambridge. 8. Pratt, Dj and M.D. Gwyne. 1971. Rangeland Management and Ecology in East Africa. Hodder and Stoughton. London. 9. Simpson, A.W. 1952. Range Management. Principles and Practices. John Wiley and Sons, Inc. New York. 10. Tow. P.G. and Alec L. 2001. Competition and Succession in Pastures. Cabi Publishing. 11. Wallis De Vries, M.F., J.P. Bakker and S.E. Van Wieren. 1998. Grazing and Conservation Manageent. Kluwer Academic Publisher. 12. Whitehead, D.C. 2000. Nutrient Elements in Grassland. Cabi Publishing

NTP1251 Nutrition of Milk Biosynthesis

Module Name	Nutrition of Milk Biosynthesis
Semester(s) in which the module is taught	3 rd Semester
Person responsible for the module	Despal Idat Galih Permana Dwierra Evvyernie A Toto Toharmat Rika Zahera
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5420 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to explain development and function of mammary glands, rumen and digestion organs function in milk biosynthesis, feed and nutrient (carbohydrate, protein, energy, vitamin and mineral) utilization for milk biosynthesis, metabolic diseases related to milk production, structure and hormone during dry, calving, and lactation periods, and compares milk biosynthesis in different dairy animals
Content	This course explains the development and function of mammary glands, digestion organs and nutrient utilization for milk biosynthesis, metabolic diseases related to milk production, structure and hormone during dry, calving, and lactation periods, and compares milk biosynthesis in different dairy animals.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments

Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), assignment (30%).
Reading list	1. Schmidt, G. H. 1971 Biology of Lactation (San Fransisko: Freeman & Company Limited) 2. Moran J 2005 Tropical dairy farming : feeding management for small holder dairy farmers in the humid tropics (Australia : Landlinks Press) 3. Webster, John 2020 Understanding the dairy cow. Thrid Edition. (Hoboken: Wiley-Blackwell) 4. NRC. 2001. Nutrient requirements of dairy cattle. 7th Revised Edition. (Washington, D.C.: National Academy Press) 5. Despal, Zahera R, Nuraina N, Rosmalia A, Anzhany D and Agustiyani I 2021 Ternak Perah Presisi (Bogor: IPB Press) 6. Despal, Permana I G, Toharmat T and Amirroennas D E 2017 Pemberian Pakan Sapi Perah (Bogor: IPB Press)



4th SEMESTER

NTP1274 Microbiology Nutrition

Module Name	Microbiology Nutrition
Semester(s) in which the module is taught	4 th Semester
Person responsible for the module	Sri Suharti I Komang G. Wiryawan Dwierra Evvyernie Dilla Mareistia Fassah
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After studying this course, the students understand and are able to explain the basic knowledge in nutrition microbiology that cover fermentative digestive tract and its microbes, rumen and non-rumen microbial characteristics and activities in nutrition process, microbiological manipulation of nutrition process and its application, utilization of probiotics and antibiotics and its effects and effects of antimicrobial substances on animal nutrition for growth and production. - The students understand the basic knowledge of fermentative digestive tract, nutrient fermentation and Microbes present in digestive tract. - The students understand microbial roles in fermentative digestion - The students understand rumen and non-rumen bacteria, protozoa and fungi - The students understand rumen and non-rumen microbial activities in nutrition process of carbohydrate an energy source - The students understand lipid hydrolysis & bio-hydrogenation by rumen and non-rumen microbes

	f. The students understand protein and other nitrogen source degradation and microbial protein bio-synthesis g. The students understand nutrition vitamin and mineral roles in microbial growth and nutrient fermentation activities in fermentative digestive tract h. The students understand microbiological manipulation and its application in nutrition process i. The students understand digestive tract probiotics, antibiotics and antimicrobial substances
Content	The course describes basic knowledge in nutrition microbiology and its application that relate to nutrition and animal feed. The objective of this course is to provide basic knowledge or understanding in nutrition microbiology covering fermentative digestive tract and its microbes, rumen and non-rumen microbial characteristics and activities in nutrition process, microbiological manipulation of nutrition process and its application, utilization of probiotics and antibiotics and its effects and effects of antimicrobial substances on animal nutrition for growth and production.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Arora, S. P., 1989. Pencernaan Mikroba pada Ruminansia. Gajah Mada University Press. Yogyakarta. 2. Brock, T. D., 1997. Brock's Biology of Microorganisms. 8th ed. (eds. M. T. Madigan, J. M. Martinko and J. Parker). Prentice Hall International, Inc. New Jersey. 3. Church, D. C., 1988. Digestive Physiology and Nutrition, 2nd ed. O & B Books, Inc. Oregon. 4. Clarke, R. T. J., and T. Bauchop, 1977. Microbial Ecology of the Gut. Academic Press, Inc. London.

	5. Dwidjoseputro, D., 1998. Dasar-dasar Mikrobiologi. Cetakan Ketigabelas. Penerbit Djambatan. Jakarta. 6. Fuller, T., 1992. Probiotics, The Scientific Basis. University Press. Cambridge. 7. Fuller, R., 1992. Applications and Practical Aspects. University Press. Cambridge. 8. Gordon, G. L. R., and M. W. Phillips, 1988. The role of anaerobic gut fungi in ruminants. Nutrition Research Reviews 11: 133-168. 9. Hobson, P. N., 1988. The Rumen Microbial Ecosystem. Elsevier Applied Science. London. 10. Hobson, P. N., and C. S. Stewart. 1997. The Rumen Microbial Ecosystem. Blackie Academic & Professional/Chapman & Hall. London. 11. Hungate, R. E., 1966. The Rumen and Its Microbes. Academic Press. New York. 12. Kamra, D. N., and N. N. Pathak, 1996. Nutritional Microbiology of Farm Animals. Vikas Publishing House Pvt., Ltd. New Delhi.
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NTP1212 Crop Cultivation and Pasture Technique

Module Name	Crop Cultivation and Pasture Technique
Semester(s) in which the module is taught	5 th semester
Person responsible for the module	Dr. Iwan Prihantoro, S.Pt, MSi Prof. Dr. Ir. Luki Abdullah, M.Sc.Agr Dr. Ir. Asep Tata, M.Sc Dr.rer.nat. Nur Rochmah Kumalasari, S.Pt, M.Si Prof. Dr. Ir. Panca Dewi MHKS, MSi
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course 3. NTP241
Module objectives/intended learning outcomes	1. Able to understand how to establish the pasture. 2. Able to understand the grazing systems and grazing pressure. 3. Able to understand the ranch facilities and infrastructure. 4. Able to understand how to implementation of pastures supplementation. 5. Able to understand how to calculate and analysis stocking rate, carrying capacity and botanical composition. 6. Able to understand silage and hay.
Content	This course will learn pasture establishment method, pasture management and evaluation, ranch facilities, forage conservation technology, pasture land conservation.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments

Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Crowder L.V. and H.R. Chheda. 1982. Tropical Grassland Husbandry. Longman. New York. 2. Humphreys, L.R. 1987. Tropical Pastures and Fodder Crops. John Wiley and Sons, Inc. New York. 3. Humphreys, L.R. 1991. Tropical Pastures Utilisation. Cambridge University Press. Cambridge. 4. Suttie, J.M. 2000. Hay and Straw Conservation. FAO. Rome. 5. Unesco. 1979. Tropical Grazing Land Ecosystems. France. 6. Webster and. 1980. Agriculture in the Tropics. Longman. New York. 7. Pratt, P.J. and M.D. Gwynne. 1971. Rangeland Management and Ecology in East Africa. Hodder and Stoughton. London. 8. Sampson, A.W. 1952. Range Management. Principles and Practices. John Wiley and Sons, Inc. New York.

NTP1222 Feed Processing Technology

Module Name	Feed Processing Technology
Semester(s) in which the module is taught	4 th semester
Person responsible for the module	Prof. Dr. Ir. Nahrowi, M.Sc Prof. Dr. Ir. Erika Budiarti Laconi, MS Dr. Ir. M. Ridla, M.Agr Dr. Anuraga Jayanegara, S.Pt, M.Sc Rima Shidqiyya Hidayati Martin, S.Pt, M.Si
Language	English & Indonesia
Relation to curriculum	In-Depth Study Program Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion, Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Able to explain and apply the objectives and advantages scope of course and their relation with the other courses and classification of feed technology. 2. Able to explain and apply feed stuffs physic properties and its correlation with feed processing and storing. 3. Able to explain and apply feed stuffs chemistry properties and its correlation with feed processing and technology. 4. Able to explain and apply physical feed technology and its influence within nutrition quality. 5. Able to explain and apply mechanical feed technology and its influence within nutrition quality. 6. Able to explain and apply chemistry feed technology and its influence within nutrition quality. 7. Able to explain and apply biological feed technology and its influence within nutrition quality. 8. Able to explain and apply feed storage system and management.

Content	The course contents are the aim, function and advantage of feed processing technology, physical and chemistry feed properties, classification of feed processing technology (mechanic-physic, chemistry and biology) and its influence within nutrition quality, storage ability and its use for animal effectively.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Ensminger, J.E. Oldfield and W.W. Heinemann, 1990. Feeds and Nutrition. Second Edition. The Ensminger Publishing Company. California, USA. 2. Morrison, F.B., 1959. Feed and Feeding. The Morrison Publishing Company. Clinton, Iowa 3. Mc Donald . 2002. Animal Nutrition. Longman Scientific and John & Sons Inc. New York. 4. Standar Nasional Indonesia (SNI) Pakan dan Ransum. 5. Hasil penelitian dan Journal Ilmiah Nasional dan Internasional AHN: Buku PIP Author AHN (Book 1-Soft File)

Reading list	1. Toharmat, T. 2003. Nutrisi dan Manajemen Pemberian Pakan Sapi Perah. <i>Hand out</i> Kuliah. Departmen Nutrisi dan Makanan Ternak. Institut Pertanian Bogor. Bogor. 2. Sutardi, T. 1982. Pemberian Pakan Pada Sapi Perah. Diktat Kuliah. Departmen Nutrisi dan Makanan Ternak. Institut Pertanian Bogor. Bogor. 3. Garnworthy, P.C. 1988. Nutrition and Lactation in the Dairy Cows. Butterworths. London. 4. Haresign, W. and D.J.A. Cole. 1988. Recent Development in Ruminant Nutrition 2. Butterworths. London. 5. Broster, W.H., and H. Swan. 1980. Feeding Strategy for the High Yielding Dairy Cow. EAAP Publication No.25. Granada Publishing. London. 6. Falconer, I.R. 1971. Lactation. Proc. International Symposium. The 17th Easter School in Agric. Sci. 1970. Butterworths. London. 7. NRC (National Research Council). 1988. Nutrition Requirements of Dairy Cattle. 6 th revised Edition. National Academy Press. Washington D.C. 8. NRC (National Research Council). 1981. Nutrition Requirements of Dairy Goats. National Academy Press. Washington D.C. 9. QDPI (Queensland Dept. of Primary Industries). 1983. The Dairy Calf in Queensland. Queensland Department of Primary Industries. Brisbane. 10. Payne, J.M. 1989. Metabolic and Nutritional Disease of Cattle. Blackwell Scientific Publication. Oxford.
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NTP1252 Precision Dairy Nutrition

Module Name	Precision Dairy Nutrition
Semester(s) in which the module is taught	4 th semester
Person responsible for the module	Despal Idat Galih Permana Dwierra Evvyernie A Toto Toharmat Rika Zahera
Language	Indonesian, English
Relation to curriculum	In-depth Prodi Course
Teaching methods	Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Assignment: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Practicum class = 120 minutes x 1 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 4 times x 14 weeks = 3360 minutes = 56 hours Total: 8300 minutes = 138 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course 3. NTP1271
Module objectives/intended learning outcomes	Able to plan dan evaluate feeding programs with precision technology for a sustainable dairy cattle business
Content	This course studies the dairy livestock production system following the development of Industry 4.0 technology to increase productivity, maintain high production persistence, efficient production systems, and utilize precise nutrients for environmental sustainability.
Examination forms	Midterm exam, Final exam, Quizzes, Project, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice and Project Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.

	Assessment of students' achievement using proportion as follow: midterm exam (20%), final exam (20%), quiz (5%), project (50%). The proportion of practicum score consists of project assignment (40%), report paper (20%), practicum (20%), participations (10%), and oral presentation (10%)
Reading list	[1] Despal, Zahera R, Nuraina N, Rosmalia A, Anzhany D and Agustiyani I 2021 <i>Ternak Perah Presisi</i> (Bogor: IPB Press) [2] Despal, Permana I G, Toharmat T and Amirroennas D E 2017 <i>Pemberian Pakan Sapi Perah</i> (Bogor: IPB Press) [3] NRC (National Research Council). 2001. Nutrition Requirements of Dairy Cattle. 7 th revised Edition. National Academy Press. Washington D.C.

NTP1261 Nutrition for Ruminant Meat Biosynthesis

Module Name	Nutrition for Ruminant Meat Biosynthesis
Semester(s) in which the module is taught	4 th semester
Person responsible for the module	Dilla Mareistia Fassah Dewi Apri Astuti I Komang G. Wiryawan Asep Sudarman Didid Diapari Lilis Khotijah Sri Suharti
Language	Indonesian, English
Relation to curriculum	In depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion, Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Able to understand and know the objectives and the benefit of this course, the whole materials given and obey all the rules given in this course. 2. Able to explain the livestock's functions, how to increase meat production, some programs relating to meat production, to explain the effect of body weight, feed consumption and digestibility on beef cattle. Factors affected consumption, consumption's limiting factors and feed efficiency on the animal. 3. Able to explain the characteristic of beef cattle industry. 4. Able to explain the cow-calf program based on characteristics and the scale of the business, source of benefits, feeding practice for heifers, cows, calves and bull, rearing systems and the effect of the relationship between nutrition and reproduction on meat production efficiency. Body Scoring with Nutrition

	status and reproduction. 5. Able to explain something related to Stocker raising, from nutritional or non-nutritional aspects. 6. Able to explain several factors that causes stress and how to treat and overcome it; The Meaning and the objectives and nutritional and non-nutritional treatments in preconditioning and conditioning programs. 7. Able to explain what is finish program; what are the benefits and loss, fattening systems and the roles and influences of nutrition in fattening. 8. Able to explain the whole management practices in feedlot industry, start from choosing the feeder cattle until marketing the finish cattle. 9. Able to explain factors affects meat quality and grading. 10. Able to explain the objective of special finish program, the role of Colostrum, milk replacer, starter ration, diseases, raising calves in pasture and herding cattle in pasture. 11. Able to explain the objective of goat and sheep nutrition in meat production.
Content	This course discusses about some nutritional and non-nutritional aspects that covers utilization and requirements, feeding practice and more over discuss about the role of nutrition in producing product in each program in Beef Cattle Industry.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments, Project Based Learning
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments, Project Based Learning Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (15%), final exam (15%), practicum (60%), quiz (10%). The proportion of practicum score consists of project based learning (50%), practicum exam (10%)
Reading list	1. Parakkasi, A. 1999. Ilmu Nutrisi dan Makanan Ternak Ruminan. Universitas Indonesia Press. Jakarta, Indonesia. 2. National Research Council. 1984. Nutrient Requirement of Beef Cattle (8th ed). National Academy Press, Washington DC. 3. Journals of Animal Science



	4. Parakkasi, A.1989. Ilmu Nutrisi dan Makanan Ternak-Monogastrik. Angkasa, Bandung. 5. Ensminger, M.E. 1991. Animal Science. 9th Ed/ Interstate Publisher, Inc. Danville 6. Lawrie, R.A. 1974. Meat Science. Penterjemah A. Parakkasi. UI Press. 7. Perry, T.W. 1980. Beef Cattle Feeding and Nutrition. Academic Press, New York, USA. 8. M. Lema, Dept. of Food & Animal Science Alabama A & M University, Normal AL 35762.
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NTP1241 Precision Commercial Poultry Nutrition

Module Name	Precision Commercial Poultry Nutrition
Semester(s) in which the module is taught	4 th Semester
Person responsible for the module	Dwi Margi Suci Sumiati Rita Mutia Widya Hermana Arif Darmawan
Language	Indonesian
Relation to curriculum	In depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After completing this course students can understand the national and international poultry industry, apply the nutrient requirements and feed additives as well as rearing and feeding management for commercial broiler and laying chickens.
Content	This course discusses the development of the national and international poultry industry, application of nutrient requirements and feed additives as well as rearing and feeding management for commercial broiler and laying chickens.
Examination forms	Midterm exam, practicum report (project-based learning) group and individually.
Study and examination requirements	Cognitive: Midterm exam, Quizzes, group assignment, individual assignment. Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance,

	active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), project based learning (55%), class discussion participation (10%)
Reading list	1. Commercial Poulltry Nutrition (Leeson and Summers) 2008 2. Domestic duck production (Cherry and Morris, 2008) 3. Pakan Itik Pedaging dan Petelur (Dwi Margi Suci, 2013) 4. Peluang memelihara entog secara intensif (Dwi Margi Suci 2013) 5. Pakan Ayam (Dwi Margi Suci, Widya Hermana, 2012)



5th SEMESTER

NTP1331 Feed Manufacture Technology

Module Name	Feed Industry
Semester(s) in which the module is taught	5 th Semester
Person responsible for the module	Heri A. Sukria Yuli Retnani Indah Wijayanti Sazli Tuter Risyahadi
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	This course discusses the overview of the feed industry, isik characteristics, the flow of the feed production process in feed mills starting from purchasing raw materials for the feed industry (purchasing), receiving (receiving), quality control, warehousing, processing, loading, marketing, as well as the working principle and operation of production machines including grinding, mixing, pelleting, crumbling, wafering, exstruder and expander techniques, machine and tool maintenance techniques, packaging techniques, feed products, changes in physical and nutritional value of ingredients during prossesing, process flow diagram of production system
Content	This course introduces about feed industry, process feed production in feed industry, raw materials of feed industry, operating of production equipments and machines infeed industry, ie. Technique of grinding, technique of mixing, technique of pelleting, tehnikue of extrusion and expansion, flow diagram process of feed production system, nutrition value changing of raw materials dirung processing, maintenance of equipments and machines, also technique of packaging.

Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Feed Manufacturing Technology (H.Post, 1976) 2. Feed Manufacturing Technology IV (Mcelhiney, 1994) 3. Agricultural Process Engineering (S.M. Henderson and R.L.Perry, 1976) 4. Sifat Fisik Pangan(M.A Wirakartakusumah, K.abdulah and A.M. syarief, 1992) 5. Teknologi Penyimpanan Pangan (R.Syarief dan Halid, 1992) 6. Food Process Engineering (D.R. Heldman dan R.P.sigh, 1980, 1976) 7. Elements of food Engineering (J.C Harper, 1976) 8. Food Engineering principles and selected application (M.Loncin dan R.L. Merson, 1979) 9. Feed International Magazines(A.Watt Publication , USA) 10. Feed Quality Assurance (Timothy, J.herman, 1994) 11. Extrusion of Food volume I dan 2 (J.M.Harper, 1979) 12. Effect of Heating on Foodtuffs (R.J. Priestley, 1979) 13. Teknologi Pengemasan Pangan (R.Syarieff,s.Santaus dan St. Isiyana B. 1988) 14. Animal Feed Science Technology vol 61 (M.Thomas dan A.F.B Van der Poel, 1996) 15. Commercial Chicken Production Manual (North, 1978) 16. The Agricultural Note Book Facts and Figures for Farmer s inFarming (Mc.Connell's, 1979)

NTP1375 Reproductive Nutrition

Module Name	Reproductive Nutrition
Semester(s) in which the module is taught	5 th semester
Person responsible for the module	Dr. Ir. Lilis Khotijah, MSi Prof. Dr. Ir. Dewi Apri Astuti, MS Prof. Dr. Ir. Sumiati, MSc Dr.Ir. Dwi Margi Suci, MS Dr. Ir. Rita Muia, MSc Dr Dilla Mareistea, MSc
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Problem Base Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course 3. NTP1375
Module objectives/intended learning outcomes	- Students are able to explain the types and roles of the main nutrients that are important for the development and function of the reproductive organs of ruminants and poultry - Students are able to prepare rations according to needs, and provide them for successful reproduction (breeding) of ruminants and poultry
Content	The topics covered in this course are: the role, needs and utilization of macro and micro nutrients in the female reproductive phase (preparation for mating, ovulation, follicular formation, fetal growth, pregnancy, birth and readiness for re-breeding) and male reproduction (libido, spermatogenesis) in ruminants as well as the role and use of nutrients for poultry breeding programs (males, females, egg production).

Examination forms	Midterm exam, Final exam, Quizzes, Assignments, Problem base leaning (PBL)
Study and examination requirements	Participatory Activity: 10% Project Yield: 40% Cognitive/Knowledge - Task: 5%, Quiz: 5%, Midterm: 20%, - final exams 20%
Reading list	1. J. J. Robinson. Nutrition In The Reproduction Of Farm Animals Nutrition Research Reviews (1990), 3, 253-216 2. J.J. Robinson *, C.J. Ashworth, J.A. Rooke, L.M. Mitchell, T.G. McEvoy. 2006. Nutrition and fertility in ruminant livestock. Animal Feed Science and Technology 126 : 259–276 3. Bindari¹ , Sulochana Shrestha¹ , Nabaraj Shrestha¹ And Tara Nath Gaire. Effects Of Nutrition On Reproduction- A Review Advances In Applied Science Research, 2013, 4(1):421-429 ISSN: 0976-8610 CODEN (USA): AASRFC 421 Pelagia Research Library Yugal Raj 4. Jurnal nasional dan internasional terkait nutrisi reproduksi 5. Mc Donald et al. Animal Nutrition. seventh Edition 6. Buswell, J. F., Haddy, J. P., & Bywater, R. J. (1986). Treatment of pregnancy toxemia in sheep using a concentrated oral rehydration solution. <i>The Veterinary Record</i>, 118(8), 208–209. 7. Hafez ESE, Hafez B 2000. Reproduction in Farm Animals Ed. Ke 7. Philadelphia: Lippincott Williams & Wilkins. 8. Senger PL. 2005. Pathways to Pregnancy and Parturation. Current Conception Inc. Washington : Washington State University Research and Technology Park. 9. Proceedings, Applied Reproductive Strategies in Beef Cattle September 11 and 12, 2007 Billings, Montana NUTRITION AND REPRODUCTION INTERACTIONS Rick Funston University of Nebraska, West Central Research and Extension Center, North PlatteZ 10. Nutrient Requirements of Poultry. Ninth Revised Edition, 1994. National Research Council. 11. NRC. 2007. <i>Nutrient Requirment of Small Ruminants : sheep, goats, cervids and New World Camelids</i>. Washington (WA): National Academy Press.

NTP1376 – Methodology and Experimental Design

Module Name	Methodology and Experimental Design
Semester(s) in which the module is taught	5 th semester
Person responsible for the module	Despal Idat Galih Permana Toto Toharmat Nur Rochmah Kumalasari Rika Zahera
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 1 sch x 14 weeks = 700 minutes = 12 hours Assignments: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Practicum class : 120 minutes x 1 sch x 14 weeks = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5560 minutes = 92 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to plan research, make research proposals, carry out research and process data and present results in oral (presentation) and written (text, tables and pictures) form.
Content	This course studies the basics of research, exploratory research, regression and correlation, design of experimental environments with RAL, RAK, BSL, and experimental treatment designs with factorial and split plots, data analysis with descriptive and inferential statistics (T-Test, Anova and Ancova, SPSS software applications, techniques for drawing conclusions and presenting data.
Examination forms	Midterm exam, Final exam, Quizzes, Project, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice and Project Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance,

	active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (20%), final exam (20%), quiz (5%), project (50%). The proportion of practicum score consists of project assignment (40%), report paper (20%), practicum (20%), participations (10%), and oral presentation (10%)
Reading list	1. Matjik, A.A. dan Sumertajaya, I.M. 2006. Perancangan Percobaan dengan Aplikasi SPSS dan Minitab. 2nd Edition. IPB Press, Bogor 2. Aunuddin, 2005. Statistika: Rancangan dan Analisa Data. IPB Press, Bogor. 3. Gasperz, V. 1991. Metode Perancangan Percobaan: untuk Ilmu-ilmu Pertanian, Ilmu-ilmu Teknik, Biologi. CV Armico, Bandung. 4. Statistik non Parametrik. 2013. http://asep.lecture.ub.ac.id/files/2011/12/Statistik-Non-Parametrik.pdf [download: 1 September 2013] 5. Writing a thesis or dissertation. http://www.yale.edu/graduateschool/writing/forms/Writing%20Theses%20and%20Dissertations.pdf [download: 1 September 2013] 6. Guideline to write a scientific paper. http://www.sci.sdsu.edu/~smaloy/MicrobialGenetics/topics/scientific-writing.pdf [download: 1 September 2013]

NTP1377- Precision Feed Formulation

Module Name	Precision Ration Formulation
Semester(s) in which the module is taught	5 th semester
Person responsible for the module	Idat Galih Permana Sri Suharti Rita Mutia Widya Hermana Dwi Margi Suci Rika Zahera
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Assignment: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Practicum class = 120 minutes x 1 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 4 times x 14 weeks = 3360 minutes = 56 hours Total: 8300 minutes = 138 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to explain nutrient requirement standard for various livestock and pet animals, nutrient composition, utilization of feed supplement and additives, and make precision feed formulations for various livestock and pet animals with computer-based.
Content	This course explain precision feed formulation technique for various animals with computer-based.
Examination forms	Midterm exam, Final exam, Quizzes, Project, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice and Project Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time,

	(c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (20%), final exam (20%), quiz (5%), project (50%). The proportion of practicum score consists of project assignment (40%), report paper (20%), practicum (20%), participations (10%), and oral presentation (10%)
Reading list	1. I.G. Permana dan J. Jachja. 2003. Formulasi Ransum Ternak. Fakultas Peternakan. IPB. Bogor 2. Feed Management System. 2000. Brill Formulation Tutorial. SFM. 3. G. M. Pesti and B. R. Miller. 2001. Animal Feed Formulation – Economics and Computer Applications. Champman and Hall, New York. 4. National Research Council. 2001. Nutrient Requirements of Dairy Cattle, 7th edition. National Academic Press, Washington 5. National Research Council. 2000. Nutrient Requirements of Beef Cattle, 7th edition. National Academic Press, Washington 6. National Research Council. 1994. Nutrient Requirements of Poultry, 9th edition. National Academic Press, Washington 7. National Research Council. 1995. Nutrient Requirements of Laboratory Animal, 4th edition. National Academic Press, Washington 8. National Research Council. 1985. Nutrient Requirements of Sheep, 6th edition. National Academic Press, Washington 9. National Research Council. 1989. Nutrient Requirements of Horses, 5th edition. National Academic Press, Washington.

NTP1313 Application of Smart Techniques on Forage Production

Module Name	Application of Smart Techniques on Forage Production
Semester(s) in which the module is taught	5 th Semester
Person responsible for the module	Prof. Dr. Ir. Panca Dewi MHKS, MSi Dr. Iwan Prihantoro, S.Pt, MSi Prof. Dr. Ir. Luki Abdullah, M.Sc.Agr Dr. Ir. Asep Tata, M.Sc Dr.rer.nat. Nur Rochmah Kumalasari, S.Pt, M.Si
Language	Indonesian
Relation to curriculum	In depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	The students will be able to explain various aspects related to the latest technology in forage cultivation and pasture; including fodder hydroponic, forage plant tissue culture, the aseptic propagation of plants from small plant parts, such as stems or leaves for mass production of high-quality forage plants, improving their genetics, and addressing issues related to plant diseases, molecular biology of forage plants, including their breeding, genomics, and biotechnological advancements that lead to improved traits such as drought resistance, enhanced nutritional content, or better growth characteristics, application of forage plant biotechnology to improve forage plants' characteristics and overall performance for better livestock feed, the application of modern biotechnological approaches to improve forage production and livestock nutrition.
Content	This course explains various aspects related to the latest technology in forage cultivation and pasture; including fodder hydroponic, forage plant tissue culture, the aseptic propagation of plants from small plant parts, such as

	stems or leaves for mass production of high-quality forage plants, improving their genetics, and addressing issues related to plant diseases, molecular biology of forage plants, including their breeding, genomics, and biotechnological advancements that lead to improved traits such as drought resistance, enhanced nutritional content, or better growth characteristics, application of forage plant biotechnology to improve forage plants' characteristics and overall performance for better livestock feed, the application of modern biotechnological approaches to improve forage production and livestock nutrition.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Blair, J., J. Nippert, and J. Briggs. 2014. Grassland Ecology. Dalam: Ecology and the Environment, the Plant Sciences 8. Ed. R.K. Monson. Springer Science+Business Media. New York. 2. Finn, J., N. Hoekstra and A. Lüscher. 2014. Plant diversity in agricultural grasslands – a sustainable adaptation option to climate change? Technology Updates: Crops, Environment and Land Use. https://www.teagasc.ie/media/website/publications/2014/6096_Plant_diversity_and_weather_adaptation_J.pdf [Diakses 4 Oktober 2016] 3. Hidayat, N., C. Talib and A. Pohan. 2001. Produktivitas padang penggembalaan rumput alam untuk menghasilkan sapi bibit di Kupang Timur, Nusa Tenggara Timur. Seminar Nasional Teknologi Peternakan dan Veteriner. 345-350 4. Hostiou, N. & B. Dedieu. 2009. Diversity of forage system work and adoption of intensive techniques in dairy cattle farms of Amazonia. Agron. Sustain. Dev. 29: 535–544 5. Mannetje L.T., C. Batello & J. Suttie. 2007. Plant Genetic Resources of Grassland and Forage Species. Comission on Genetic Resources for Food and Agriculture 6. Orr D.W. 2002. The nature of design: ecology, culture, and human intention. Oxford University



	Press. New York
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NTP1241 Local and Exotic Poultry Nutrition

Module Name	LOCAL AND EXOTIC POULTRY NUTRITION
Semester(s) in which the module is taught	5 th Semester
Person responsible for the module	Dwi Margi Suci Sumiati Rita Mutia Widya Hermana Arif Darmawan
Language	Indonesian
Relation to curriculum	In depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 1 sch x 14 weeks = 700 minutes = 12 hours Practicum: 180 minutes x 1 sch x 14 weeks = 2520 minutes = 42 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8240 minutes = 137 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	3. Registered in this course 4. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	After completing this course students can find solutions to problems in various local and exotic poultry farming to advance animal husbandry by making efficient business designs. Course Learning Achievements 1. Be Able to analyze the benefits of information and technology development of local and exotic poultry nationally 2. Be able to apply information and technology to open a business using efficient feeding management and cultivation 3. Be able to collect various research and innovation information about local poultry to promote livestock business 4. Be able to find problems and find solutions to promote local poultry farming business 5. Be able to improve soft skills: be responsible, creative, innovative, and be able to work together and communicate well

Content	This course discusses the development of local poultry and exotic poultry (ducks, local chickens, quails, geese, turkeys and ornamental birds) in Indonesia, discusses feeding management and cultivation as well as the development of research on local and exotic poultry
Examination forms	Midterm exam, Final exam, Quizzes and practicum report (problem based learning) group and individually.
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, group assignment, individual assignment. Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam and final exam (20%), practicum group (55%), individually assignment (15%). class discussion participation (10%)
Reading list	6. Commercial Poultry Nutrition (Leeson and Summers) 2008 7. Domestic duck production (Cherry and Morris, 2008) 8. Pakan Itik Pedaging dan Petelur (Dwi Margi Suci, 2013) 9. Peluang memelihara entog secara intensif (Dwi Margi Suci 2013) 10. Pakan Ayam (Dwi Margi Suci, Widya Hermana, 2012) 11. various articles on local poultry

NTP1323 Application of Feed Additive in Ration

Module Name	Application of Feed Additive in Ration
Semester(s) in which the module is taught	5 th semester
Person responsible for the module	Anuraga Jayanegara Nahrowi Muhammad Ridla Rima Shidqiyya Hidayati Martin Dwierra Evvyernie Rita Mutia Sumiati Asep Sudarman Dwi Margi Suci Rika Zahera
Language	Indonesian
Relation to curriculum	In-Depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion, Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	4. Registered in this course 5. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	7. Able to explain and apply the objectives and advantages scope of course and their relation with the other courses and classification of feed additive. 8. Able to explain and apply feed additive and its influence to ruminants 9. Able to explain and apply feed additive and its influence to poultry
Content	This course will discuss the use of additive feed in accordance with its functions both to improve nutrient value (supplements) and or increase the usability of feed and the efficiency of using feed in livestock (additives) as well as livestock health and the environment.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments

Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	9. Ensminger, J.E. Oldfield and W.W. Heinemann, 1990. Feeds and Nutrition. Second Edition. The Ensminger Publishing Company. California, USA. 10. Morrison, F.B.,1959. Feed and Feeding. The Morrison Publishing Company. Clinton, Iowa 11. Mc Donald . 2002. Animal Nutrition. Longman Scientific and John & Sons Inc. New York. 12. Standar Nasional Indonesia (SNI) Pakan dan Ransum. 13. Hasil penelitian dan Journal Ilmiah Nasional dan InternasionalAHN: Buku PIP Author AHN (Book 1-Soft File).

NTP137B Field Practice

Module Name	Field Practice
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Ir. Dwi Margi Suci, MS
Language	Indonesian
Relation to curriculum	Final Year Project
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Field work: 5400 minutes x 1 time = 5400 minutes = 90 hours Writing article: 540 minutes x 1 time = 540 minutes = 9 hours Attending seminar: 60 minutes x 35 time = 2100 minutes = 35 hours Presentation: 60 minutes x 1 times = 60 minutes = 1 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Student has to choose topics on nutrition and feed technology as their subject of research and scientific writing. 3. Thesis can be done after the summary of research is approved by the supervisor(s) and finished the experiment 4. Student has to take 105 credits
Module objectives/intended learning outcomes	Affective: Indicates the behavior, layout and appearance speak polite and educated. Cognitive Psychomotor: Ability to communicate ideas and knowledge formally in writing and orally Affective-Psychomotor: Understanding the definition and role of their potential and be able to search, find and select facts and information related to capture fisheries applications
Content	Field practice report
Examination forms	Seminar article evaluation, presentation evaluation
Study and examination requirements	Cognitive: Writing, Seminar, Presentation Psychomotor: Writing Skill, Analysis Skill, Programming Skill, Presentation Skill Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.



Reading list	1. Kamus Besar Bahasa Indonesia (KBBI), 2. Pedoman Ejaan Bahasa Indonesia yang Disempurnakan, English Thesaurus Guides, English Grammar Guides 3. Buku Pedoman Penulisan Karya Ilmiah IPB
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6th SEMESTER

NTP1378 Digital Technology on Feed and Nutrition

Module Name	Digital Technology on Feed and Nutrition
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Idat Galih Permana Despal Anuraga Jayanegara Nur Rochmah Kumalasari
Language	Indonesian
Relation to curriculum	Final Year Project
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5420 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to explain the various application of digital technology in Industry 4.0 including feed information system, digital animal monitoring, precision feeding system, satellite based pasture management, automatic management and housing monitoring, GHG monitoring system, advance research on rumen fermentation, nano technology, nutrigenomic and mobile applications.
Content	This course explains developments in the application of digital technology in Industry 4.0 of Animal Nutrition and Feed Science.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (25%), final exam (25%), project assignment (40%), participations (10%)

Reading list	1. Despal, Zahera R, Nuraina N, Rosmalia A, Anzhany D and Agustiyani I 2021 <i>Ternak Perah Presisi</i> (Bogor: IPB Press) 2. Gargiulo, J., Lyons, N., Masia, F., Beale, P., Insua J. Correa-Luna M, Garcia, S. (2023). Comparison of Ground-Based, Unmanned Aerial Vehicles and Satellite Remote Sensing Technologies for Monitoring Pasture Biomass on Dairy Farms. <i>Remote Sensing</i> 15 (11), 2752.https://doi.org/10.3390/rs15112752 3. Lyons, N. A., Gargiulo, J. I., Clark, C. & Garcia, S. C. (2021). Technology and Robotic Milking in Dairy Production. <i>Encyclopedia of Dairy Sciences</i>. Elsevier. https://doi.org/10.1016/B978-0-12-8187661.00289-0

FPT1402 Animal Logistic

Module Name	Animal Logistic
Semester(s) in which the module is taught	6 th semester
Person responsible for the module	Rudi Afnan
Language	Indonesian
Relation to curriculum	Foundational Literacy/ Academic Core Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Able to understand: 1. Supply chain system for production materials and livestock output 2. Risk management in livestock logistics 3. Regulation of livestock logistics
Content	Discusses the supply chain system for production materials and livestock output, the role of trading, information systems, marketing problems and consumer characteristics. It also discusses risk management in the process of livestock production and logistics, which includes technical standards, efficiency and infrastructure, logistic networks, as well as livestock logistics regulations.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm & Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element/variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort
Reading list	



NTP1362 Draught and Various Conservation Animal Nutrition

Module Name	Draught Animal Nutrition
Semester(s) in which the module is taught	6 th semester
Person responsible for the module	Didid Diapari Lilis Khotijah Dewi Apri Astuti Dilla Mareistia Fassah
Language	Indonesian
Relation to curriculum	In depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 50 minutes x 3 times x 14 weeks = 2100 minutes = 35 hours Total: 5420 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	1. Able to understand the term in Draught and Various Conservation Animal Nutrition. 2. Able to understand the digestive system, the function of enzyme and some hormones involve in nutrient digestibility as well the function in draught and various conservation animals. 3. Able to calculate the feed and nutrient requirement of the animal and able to explain the fate of nutrients in the animal digestive system.
Content	This course studies the scope of draught and various conservation animals, the function and role of draught and various conservation animals in Indonesia as well as studying nutritional needs and preparing good rations.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance,

	active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (15%), final exam (15%), practicum (60%), quiz (10%).
Reading list	1. Pillner, S 1992. The Horse Nutrition and Feeding. Blackwell Science Ltd, London. 2. NRC, 1989. Nutrient Requirements of Horses. Fifth Revised Edition 3. Soehardjono, O 1990. Kuda. Yayasan Pamulang 4. Parakkasi, A. 1990. Makanan Ternak Monogastrik.

NTP1324 Feed Quality Control and Policy

Module Name	Feed Quality Control and Policy
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Nahrowi Erika Budiarti Laconi M. Ridla Anuraga Jayanegara Rima Shidqiyya Hidayati Martin
Language	English & Indonesia
Relation to curriculum	In-Depth Study Program Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion, Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Discussion class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 40 minutes x 6 times x 14 weeks = 3480 minutes = 58 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	General Learning Outcomes: After studied this course for one semester the students able to evaluate feedstuff and ration quality due to the standardization and policy that were applied in the feedstuffs and ration quality control. Specific learning outcomes: After studied this lecture, students will able to explain: - The objectives, advantages, and scope of course and their relation with the other courses - The criteria of feedstuff quality due to physical and chemistry - Nutrient damages and their analysis methods - National Policy and quality standard and their implementation - International Policy and quality standard and their implementation - Feed quality assurance and Its implementation

	g. Total quality management Policy and Its implementation on feed industries h. Good Manufacturing Practice Standardization and Its implementation i. Good Laboratory Practice Standardization and Its implementation j. HACCP Standardization and Its implementation
Content	This course is an obligatory for students at Department of Animal Nutrition and Feed Technology, Faculty of Animal Science, Bogor Agricultural University. The course contents are knowledge of criteria and assessment of feed quality both in the field and feed factory, rules and policy of total quality management, HACCP of feed factory, feed Standardization and policy that were applied in the feed quality control.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Ensminger, J.E. Oldfield and W.W. Heinemann, 1990. Feeds and Nutrition. Second Edition. The Ensminger Publishing Company. California, USA. 2. Morrison, F.B.,1959. Feed and Feeding. The Morrison Publishing Company. Clinton, Iowa 3. Mc Donald . 2002. Animal Nutrition. Longman Scientific and John & Sons Inc. New York. 4. Standar Nasional Indonesia (SNI) Pakan dan Ransum.

NTP1314 The Providing and Planning of Forage Livestock

Module Name	The Providing and Planning of Forage Livestock
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Luki Abdullah Panca Dewi MHKS Iwan Prihantoro Asep Tata Permana
Language	Indonesian
Relation to curriculum	In depth Prodi Course
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course 3. NTP241
Module objectives/intended learning outcomes	General learning outcomes : After study this course for one semester the students can comprehend and explain about the provision of development programs forage fodder in an efficient and sustainable. Specific learning outcomes : - Students understand Increased capacity of ruminant livestock population - Students understand People livestock development areas - Students understand the SWOT analysis - Students understand integrated Farming system with Crop, plantation - Students understand about agrosylvypastures - Students understand the pasture financing
Content	In this course students will get knowledge about the concept of planning, the provision greenery, the

	characteristics of livestock development areas popular and commercial farms, the method of measurement potential provision of green areas, the patterns provision of forage, the region, cross-sectoral programs, and financing Pastures
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Clay, D. E. & J. F. Shanahan (Editor). 2011. GIS Applications in Agriculture, Volume 2: Nutrient Management for Energy Efficiency. CRC Press, London 2. David, F. R. 1987. Strategic Management. Prentice Hall. New Jersey. 3. Fakultas Peternakan. 1985. Peta Potensi Wilayah Penyebaran dan Pengembangan Peternakan. Kerjasama. Dirjen Peternakan dengan Fakultas Peternakan. 4. Hen C.P. and C. Satjipanon. 1993. Strategies for suitable forage-based livestock production in Southeast Asia. FAO. 5. Konvalina, P. 2012. Organic Farming and Food Production. Intech. Rijeka, Croatia 6. Mohamed Behnassi, M., S. A. Shahid & J D'Silva (Ed). 2011. Sustainable Agricultural Development. Springer. 7. Muda, I. 2008. Teknik Survei dan Pemetaan Jilid 3. Direktorat Pembinaan Sekolah Menengah Kejuruan, Direktorat Jenderal Manajemen Pendidikan Dasar dan Menengah, Departemen Pendidikan Nasional, Jakarta. 8. Mullen B.F and H.M. Shelton. 1994. Integration of Ruminants into Plantation Systems in Southeast Asia. Psoceedings of workshop at Lake Toba, North Sumatra. Indonesia. 9. Nell, A.J. and D.H.L. Rollinson. 1974. The Requirement and Availability of Livestock Feed in Indonesia. Jakarta. 10. Plucknett. D.L. Managing Pastures and Cattle under Coconuts. Colorado.



	11. Rangkuti, F. 1998. Analisis SWOT Teknik Membedah Kasus Bisnis. Gramedia. Jakarta 12. Sampson, A.W. 1952. Range Management. Principles and Practices. John Wiley and Sons, Inc. New York. 13. Thenkabail, P, J. G. Lyon, H. Turrall & C. Biradar (Editor). Remote Sensing of Global Croplands for Food Security. CRC Press, London. 14. Newton, J.2004. Profitable Organic Farming. Blackwell Science.
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NTP1332 Management FeedMill

Module Name	Management Feed Mill
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Yuli Retnani Indah Wijayanti Heri Ahmad Sukria Sazli Tuter Risyahadi
Language	Indonesian
Relation to curriculum	In-depth Prodi Courses
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class: 50 minutes x 2 sch x 14 weeks = 1400 minutes = 23 hours Discussion class: 60 minutes x 2 sch x 14 weeks = 1680 minutes = 28 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 60 minutes x 6 times x 14 weeks = 4780 minutes = 80 hours Total: 8100 minutes = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course 3. NTP1331
Module objectives/intended learning outcomes	General learning outcomes : After study this course for one semester, the students can comprehend and explain about variables input, process, and output in a feed industry processing, and can explain managerial aspects of feed industry. Specific learning outcomes : - Students understand qualitative and quantitative approaches in developing alternatives of plant layout, and facilities planning. - Students learn the methodologies of developing efficient layout for various production/service system, focus on modern plant layout and material handling practices. - Students become skilled in using computer software in computer aided layout - Students understand the importance of interrelationship with management planning, product and process engineering (assignment methods and sequence jobs) and production control. - Students understand the methodologies of developing efficient warehousing layout, minimizing

	shrink at storage, processing and feedout that can have a significant economic impact and should be minimized through good manufacturing practices. f. Students understand how to intergrate topics such as supply chain management, automated systems, industrial ergonomics and quality into facilities planning. g. Students understand that all process controls relevant to the safety of the feed ingredients being produced must be demonstrably effective and managed in accordance with formal HACCP plan principles. h. Students understand that product recall procedures can approached by seven tools method and measured by statistical quality control. i. Students understand that using programme of internal auditing procedures can ensure that all activities of feed management industry should be effectively on operational systems.
Content	The Feedmill Management course discusses aspects of feed production management on an industrial scale which includes aspects of feedmill site planning and feasibility study. planning and supervision of operations, production management, warehousing management, quality control management and quality assurance. In this lecture will also be discussed about statistical quality control techniques and GMP, HACCP and ISO 22000 (2005) certification planning
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: midterm exam (35%), final exam (35%), practicum (30%). The proportion of practicum score consists of report (50%), quiz (15%), attendance (10%), and practicum examination (25%)
Reading list	1. Manajemen Produksi dan Operasi. (Herjanto, 1999) 2. Introduction to <i>Statistical Quality Control</i> (Montgomery, 1991) 3. Teknik Penuntun Pengendalian Mutu (Ishikawa, K., 1989) 4. Alat Peningkatan Mutu (Jilid 1 - 2, Chang R.Y. dan M.E. Niedzwiecki, 1999)



	5. Operations Management (Heizer, J., dan Render, B, 1999) 6. Analisis Sistem Terapan Berdasarkan Pendekatan Teknik Industri (Vincent Gasperst, 1992) 7. Pengantar Teknik Industri (Hari Purnomo, 2004) 8. Feed Manufacturing Technology V (AFIA, 2005) 9. Aplikasi Teknik Pengambilan Keputusan dalam Manajemen Rantai Pasok (Marimin dan Nurul magfiroh, 2011)
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NTP1379 Scientific Writing and Presentation Methods

Module Name	Scientific Writing and Presentation Methods
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Rita Mutia Widya Hermana Nur Rochmah Kumalasari Indah Wijayanti Dilla Mareistia Fassah Rima Shidqiyya Hidayati Martin
Language	Indonesia
Relation to curriculum	Final Year Project
Teaching methods	Contextual Learning, Cooperative Learning, Discussion, Project Based Learning
Workload (inc. Contact hours, self-study hours)	Lecture class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Discussion class: 60 minutes x 1 sch x 14 weeks = 840 minutes = 14 hours Exam: 120 minutes x 2 times = 240 minutes = 4 hours Self-study: 40 minutes x 6 times x 14 weeks = 3480 minutes = 58 hours Total: 5400 minutes = 90 hours
Credit points	2 SCH x (1.6) = 3.2 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	Students are able to write abstracts, introductions, materials and methods, results and discussion, conclusions from the final project and are able to present them properly and correctly.
Content	This course covers understanding the philosophy of science and technology; explanation of the essence of research and development; explanation of transliteration reporting language; library search; explanation of the procedures for preparing proposals; explanation of the completion of the thesis in accordance with the rules of scientific writing at IPB; popular scientific and scientific journal writing; and self-preparation techniques for making presentations
Examination forms	Assignments, Presentation, Projects



Study and examination requirements	Cognitive: Assignments, Presentation, Projects Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort. Assessment of students' achievement using proportion as follow: projects (65%), assignment (25%), paicipation (10%)
Reading list	Pedoman Penulisan Karya Ilmiah IPB University



7th SEMESTER

IPB400 Community Service Program (KKN-T)

Module Name	Community Service Program (KKN-T)
Semester(s) in which the module is taught	7 th Semester
Person responsible for the module	Iwan Prihantoro
Language	Indonesian
Relation to curriculum	Final Year Project
Teaching methods	2 months including debriefing and community service
Workload (inc. Contact hours, self-study hours)	• Lecture class : 50 minutes • Proposal • Mapping location • Workshop x 2 • Program implementation ; 5 hours x • Field evaluation • Report • Exam 3 x 45 hours = 135 hours
Credit points	3 SCH x (1.6) = 4.8 ECTS
Required and recommended prerequisites for joining the module	4. Registered as a student of KKN-T IPB in Dit AP IPB 5. Following lectures and practicing briefing (100%) KKN-T. 6. Take the debriefing exam. 7. Students who lack attendance in attending lectures and briefing practice (item 2), is not allowed to follow debriefing exams, and debriefing courses were given zero marks. 8. Carry out activities in the field / work area. College student required to live on site (mondok) during the KKNP implementation time, including Saturdays and Sundays; 9. Draft KKN-T reports per work area and submit to the IPB KKN-T Implementing Committee at the Faculty two weeks after completion of KKN-T. 10. Take the exam conducted by DPL two weeks after draft report submitted. 11. Submit the final KKN-T report that has been signed by DPL and approved by the Head of LPPM IPB no later than two week after the KKN-T exam to the KKN-T Secretariat at LPPM 1 copy and 1 CD softcopy of the report and to The Secretariat of the Faculty KKN-T Committee is 6 copies.
Module objectives/intended learning outcomes	1. Develop students knowledge, attitudes, and skills in identifying, planning, implementing and

	evaluating community empowerment programs in the agricultural sector in a broad sense, including in the field animal husbandry and in integrated environmental (multi and inter-disciplinary between professions in IPB), 2. Increase awareness and commitment, and prepare students to skilled in communicating and collaborating among profession in overcoming problems in society, 3. Preparing students to be able to develop networks cooperation in problem solving efforts to fulfill needs in the dynamics of actual life in society.
Content	This course provides learning experience for student to apply their knowledge and skills for community service program.
Examination forms	Midterm exam, Final exam, Quizzes, Assignments
Study and examination requirements	1. Debriefing (attendace, active, effort, exam) 2. Field (supervisors and village head) 3. Reports and Exams 4. Assessed from the element/variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.
Reading list	IPB University Guide book of Community Service Program

NTP147A Capstone Project

Module Name	Capstone Project
Semester(s) in which the module is taught	7 th Semester
Person responsible for the module	Rima Shidqiyya Hidayati Martin Dwi Margi Suci Rita Mutia Sazli Tutar Risyahadi Rika Zahera Widya Hermana
Language	Indonesian
Relation to curriculum	Final Year Project
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Lecture class Capstone design Discussion Program implementation Monitoring and evaluation Presentation and final exhibition
Credit points	4 SCH x (1.6) = 6.4 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Minimum 80% attendance in this course
Module objectives/intended learning outcomes	a. Students is able to identify problems in the fields of Animal Nutrition and Feed Technology b. Students is able to make planning and solution of problems c. Students is able to apply their competency to solve problems d. Students able to communicate, discuss, and cooperate for solving the problems
Content	In this course students will get field experience to identify and make a plan in groups to provide solution of the problems in farm or feed industry.
Examination forms	Project based learning
Study and examination requirements	Cognitive: Presentation, Discussion Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.



	Assessment of students' achievement using proportion as follow: capstone design (25%), logbook and monitoring (20%), documentation (5%), poster report (25%), and final exhibition (25%)
Reading list	



8th SEMESTER

NTP147C Seminar

Module Name	Seminar
Semester(s) in which the module is taught	8 th Semester
Person responsible for the module	Rima Shidqiyya Hidayati Martin Dwi Margi Suci Rita Mutia Sazli Tuttur Risyahadi Rika Zahera Widya Hermana
Language	Indonesian
Relation to curriculum	Final Year Project
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Writing article: 540 minutes x 1 time = 540 minutes = 9 hours Attending seminar: 60 minutes x 35 time = 2100 minutes = 35 hours Presentation: 60 minutes x 1 times = 60 minutes = 1 hours Total: 2700 minutes = 45 hours
Credit points	1 SCH x (1.6) = 1.6 ECTS
Required and recommended prerequisites for joining the module	1. Registered in this course 2. Student has to choose topics on nutrition and feed technology as their subject of research and scientific writing. 3. Seminar presentation can be done after the summary of research is approved by the supervisor(s). 4. Student has to take 105 credits
Module objectives/intended learning outcomes	Affective: Indicates the behavior, layout and appearance speak polite and educated. Cognitive Psychomotor: Ability to communicate ideas and knowledge formally in writing and orally Affective-Psychomotor: Understanding the definition and role of their potential and be able to search, find and select facts and information related to capture fisheries applications
Content	Thesis Seminar
Examination forms	Seminar article evaluation, presentation evaluation
Study and examination requirements	Cognitive: Writing, Seminar, Presentation Psychomotor: Writing Skill, Analysis Skill, Programming Skill, Presentation Skill Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.



Reading list	1. Kamus Besar Bahasa Indonesia (KBBI), 2. Pedoman Ejaan Bahasa Indonesia yang Disempurnakan, English Thesaurus Guides, English Grammar Guides 3. Buku Pedoman Penulisan Karya Ilmiah IPB

NTP147D Undergraduate Thesis

Module Name	Undergraduate Thesis
Semester(s) in which the module is taught	8 th Semester
Person responsible for the module	Rima Shidqiyya Hidayati Martin Dwi Margi Suci Rita Mutia Sazli Tuter Risyahadi Rika Zahera Widya Hermana
Language	Indonesian
Relation to curriculum	Final Year Project
Teaching methods	Contextual Learning, Cooperative Learning, Discussion
Workload (inc. Contact hours, self-study hours)	Conducting experiment: 15480 minutes x 1 time = 15480 minutes = 258 hours Writing article: 600 minutes x 1 time = 600 minutes = 10 hours Presentation: 120 minutes x 1 times = 120 minutes = 2 hours Total: 16200 minutes = 270 hours
Credit points	6 SCH x (1.6) = 9.6 ECTS
Required and recommended prerequisites for joining the module	5. Registered in this course 6. Student has to choose topics on nutrition and feed technology as their subject of research and scientific writing. 7. Thesis can be done after the summary of research is approved by the supervisor(s) and finished the experiment 8. Student has to take 105 credits
Module objectives/intended learning outcomes	Affective: Indicates the behavior, layout and appearance speak polite and educated. Cognitive Psychomotor: Ability to communicate ideas and knowledge formally in writing and orally Affective-Psychomotor: Understanding the definition and role of their potential and be able to search, find and select facts and information related to capture fisheries applications
Content	Thesis Seminar
Examination forms	Seminar article evaluation, presentation evaluation
Study and examination requirements	Cognitive: Writing, Seminar, Presentation Psychomotor: Writing Skill, Analysis Skill, Programming Skill, Presentation Skill Affective: Assessed from the element /variables



	achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.
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