



DOKUMEN OF

MODULE HANDBOOK

AQUACULTURE STUDY PROGRAM

1st Semester

No.	Course Code	Course	Year	Semester	Credit	ECTS
<i>Mandatory courses</i>						
1.	KI 1121	English	1	1	2(2-0)	3.2
2.	KI 1134	Mathematics	1	1	3(3-0)	4.8
3.	MKU 1224	Pancasila education	1	1	2(2-0)	3.2
4.	KIBDP 1132	Water chemistry and physics	1	1	3(2-1)	4.8
5.	KIBDP 1133	Principles of processing fishery products	1	1	3(2-1)	4.8
6.	KIBDP 1334	Principles of aquatic microbiology	1	1	3(2-1)	4.8
7.	MKU 1224	Indonesian	1	1	2(2-0)	3.2
8.	KI 1239	Principles of aquaculture	1	1	3(2-1)	4.8

MODULE HANDBOOK

Module designation	Indonesian
Semester(s) in which the module is taught	1 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	1. Small Group Discussion 2. Role-Play and Simulation
Workload (incl. Contact hours, self-study hours)	Theory (2 credits) 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines
Content	1. History, Function and Position of Indonesian 2. Variety of languages 3. Enhanced Spelling Writing 4. Effective sentences 5. Paragraph Development 5. Writing scientific essays (systematic essays scientific, quoting techniques, techniques of compiling a list library and statement in scientific essays and presentation.
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Alwi, H., Dardjowidjojo, S., Lapoliwa, H., and Moeliono, A.M. 2003. Standard Grammar of Indonesian. Third edition. Hall Pustaka, Jakarta. 486 p. 2. Satata, S., Suhardjono, D.W., Sadikin, M.R. 2019. Language Indonesia for Higher Education. Wacana Partner Publisher Media, Bogor. 326 p.

MODULE HANDBOOK

Module designation	English
Semester(s) in which the module is taught	1 / First year
Person responsible for the module	English lecturer team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	1. Small Group Discussion 2. Role-Play and Simulation 3. Self-Directed Learning
Workload (incl. Contact hours, self-study hours)	Theory (2 credits) 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines
Content	1. Simple present tense 2. Present Continuous Tense 3. Simple past tense 4. Past Continuous Tense 5. Past Perfect Tense 6. Past Perfect Continuous Tense 7. Simple Future Tense 8. Future Continuous Tense 9. Future Perfect Tense 10. Future Perfect Continuous Tense 11. Past Future Perfect Continuous Tense Adjective, Adverb, Preposition, Conjunction, Question Tags, Capital, Subjunctive, Degrees Comparison of Adjective, Direct and indirect speech, case, passive voice, conditional Sentence, Gender, Interjection.
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Huddleston, R.H., and Pullum, G. K. 2010. A Student's Introduction to English Grammar. Cambridge University Press. 320 p. 2. Renandya, W. A., and Widodo, H.P. (Eds). 2016. English Language Teaching Today. Linking Theori and Practice. Springer. 309 p.

MODULE HANDBOOK

Module designation	Principles of processing fishery products
Semester(s) in which the module is taught	1 / first year
Person responsible for the module	Dr. Priyo Santoso, S.Pi., MP
Lecturer	Dr. Priyo Santoso, S.Pi., MP Asriati Djonu, S.Pi., MP
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<p>1. The level of freshness of fishery products</p> <p>2. The principle of handling fishery products</p> <p>3. Handling of fishing fish</p> <p>4. Handling of Non -Fish Catching</p> <p>5. Handling fish from aquaculture</p> <p>6. Handling of Non -Fish Products</p> <p>7. Project Handling of Fishery Products</p> <p>8. Processing of traditional fishery products</p> <p>9. Modern Fishery Product Processing</p> <p>10. Fishery Product Processing Processing</p>
Soft skill attribute	Discipline

Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Agustini, T. W., Fahmi, A.S., dan U. Amalia. 2009. Diversivication Fisheries Products. Badan Penerbit Universitas Diponegoro. Semarang 2. Hadiwiyoto, S. 1993. Teknologi Pengolahan Hasil Perikanan Jilid 1. Liberty. Yogyakarta 3. Zailanie, K. 2015. Fish Handling. Universiitas Brawiaya Press. Malang 4. Royani, D.S, Marasabessy, I dan J. Santoso. 2015. Rekayasa Alat Pengasapan Ikan Tipe Kabinet (Model Oven). Jurnal Aplikasi Teknologi Pangan 4 (2). 5. Swastawati, F. dan I. Wijayanti. 2009. Dasar-dasar Teknologi Pengolahan Ikan. Badan Penerbit Universitas Diponegoro. Semarang

MODULE HANDBOOK

Module designation	Principles of aquaculture
Semester(s) in which the module is taught	1 / first year
Person responsible for the module	Dr. Ir. Yudiana Jasmanindar, M.Sc
Lecturer	Dr. Ir. Yudiana Jasmanindar, M.Sc Dr. Ir. Agnette Tjendanawangi, M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion, group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-5: Able to design systems and aquaculture technology</p>
Content	<ol style="list-style-type: none"> Introduction to Aquaculture Fundamentals Definition of freshwater aquaculture, brackish and sea Basic unit of pond ecosystem History Aquaculture Type of aquaculture Physical, Chemistry, Aquatic Biology Factors Ecology of pond ecology Food chain Use of Feed Energy Estimation of Quantity and Natural Feed Quality Fish pond management, carrying capacity of ponds and Shrimp/fish growth.
Soft skill attribute	Discipline

Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Jahncke, M. L., Spencer, E., Reilly, G. A., Martin, R. E., and Cole, E. 2002. Public, Animal, and Environmental Aquaculture Health Issues 1st ed. Wiley-onerscience. 204 p. 2. Landau, M. 1991. Introduction to Aquaculture. 1st edition. John Wiley & Sons. 464 p. 3. Lucas, J. S., Southgate, P. C., and Tucker, C. S. (Eds). 2018. Aquaculture: Farming Aquatic Animals and Plants 3rd Ed. Wiley-Blackwell. 664 p. 4. Mukti, A., T., Arief, M., and Hastuti, W. H., 2019. Textbook on principles of aquaculture. Airlangga University Press, Surabaya. 5. Pillay T.V.R. 2004. Aquaculture and Environment. 2nd ed. Wiley-Blackwell. 208 p. 6. Pillay, T.V.R. and Kutty, M.N. 2005. Aquaculture, Principles and practices. 2nd ed. Wiley-Blackwell. 640 p. 7. Schmittou, H.R., Jian, Z., and Cremer, M. C. 2004. Principles and Practicals of Pond Aquaculture Using 80:20 System. American Soybean Association.

MODULE HANDBOOK

Module designation	Water chemistry and physics
Semester(s) in which the module is taught	1 / first year
Person responsible for the module	Ir. Felix Rebhung, M.Agr., Ph.D
Lecturer	Ir. Felix Rebhung, M.Agr., Ph.D Welem Turupadang, S.Pi., M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture and concept explanation Experimental demonstration group discussion
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	<p>1. Basic Aquaculture</p> <p>2. Physiology of Aquatic Organisms</p>
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>

Content	<p>a. Water Physics: Density and viscosity of water Hydrostatic Pressure and Pascal Law Archimedes style and floating principles</p> <p>b. Aquatic Chemistry: pH, acidity, and alkalical water Acid-base equilibrium in water Water pollution and its impact on water quality</p>
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<p>1. Alabaster & Lloyd. 1986. Water Quality Criteria for Freshwater Fish</p> <p>2. Boyd, CE. 1982. Water Quality Management for Pond Fish Culture. Elsevier Scientific Publishing Company,</p> <p>3. Odum, E.P. 1993. Fundamental of Ecology (Dasar-dasar Ekologi) Penerjemah: Tjahjono Samingan. Gadjah Mada University Press.</p>

MODULE HANDBOOK

Module designation	Mathematics
Semester(s) in which the module is taught	1 / First year
Person responsible for the module	Dr. Priyo Santoso, S.Pi., MP
Lecturer	Dr. Priyo Santoso, S.Pi., MP Wesly Pasaribu, S.Pi., M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	1. Small Group Discussion 2. Self-Directed Learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p>

Content	<p>1. Real Numeral System; Rational and irrational numbers; Operations on real numbers; Characteristic of Field</p> <p>2. Inequality; Absolute value; Square Root; Square</p> <p>3. Quadrineral Coordinate System, Point Distance, Straight Line, slope of line</p> <p>4. The point of intersection of the curve; Draw an equation graph</p> <p>5. Definition of Function; Drawing function; Sum operation and Multiplication, Composition of Functions and Trigonometric Functions</p> <p>6. Definition of Limit; Limit Theorem; Continuity of function</p> <p>7. Definition of Derivative Through Limit; derivate search rules; Sinus and Cosinus derivate</p> <p>8. Linear of Equations System; Form Matrix from Linear System of equations; Solution System Linear of Equations; Sigma notation Σ</p>
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) $\geq 80\%$ so they can join the exam</p> <p>Assessment of competency achievement using a theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid -test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<p>1. Eddy Supramono, et al., 2000, Basic Mathematics, State University MALANG - JICA Project.</p> <p>2. Taufik Raman R., 2004. Basic Mathematics Revised Edition, Bandung: Imstep Jica.</p> <p>3. Afidah Khairunnisa, 2014, Basic Mathematics for University, Ministry of National Education -Dikti</p>

MODULE HANDBOOK

Module designation	Principles of aquatic microbiology
Semester(s) in which the module is taught	1 / first year
Person responsible for the module	Dr. Ir. Nicodemus Dahoklory, M.Si
Lecturer	Dr. Ir. Nicodemus Dahoklory, M.Sc Dr. Yudiana Jasmanindar, S.Pi., MP
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	1. Small Group Discussion 2. Discovery Learning 3. Self-Directed Learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>CPL-2: Mastering the theoretical Concepts of the Field of Water Cultivation, especially in the field of mariculture</p> <p>CPL-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>CPL-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<p>1. The basic nature of bacteria</p> <p>2. Name</p> <p>3. Chinese quality</p> <p>4. Relationship between the Main and Bacteria</p> <p>5. Growth and breeding in the waters</p> <p>6. Virus structure and composition</p>
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Austin, B., and Austin, D. A. 2012. Bacterial Fish Pathogens: Diseases of Farmed and Wild Fish, 5th Edition. Springer, Chichester. 2. Baron, E., Fibegold, S. M. and Peterson, L. R. 1994. Diagnostic Microbiology. 9th edition. Mosby, Toronto. 3. Madigan, M. T., Martinko, J. M., Bender, K. S., Buckley, D. H. and Stahl, D. A. 2015. Brock Biology of Microorganisms (Fourteenth Edition.). Pearson, Boston. 4. Tortora, G.J., Funke, B. R., Christine L. C., D. Weber, and Bair, W. 2018. Microbiology: An Introduction (13th Edition). Pearson. 960 p. 5. Woo, P.T.K., 2006. Fish Diseases and Disorders Vol. I. Protozoan and Metazoan Infections. Second edition. Library of Congress cataloging in Publication Data British Library, London, U.K.

MODULE HANDBOOK

Module designation	Pancasila Education
Semester(s) in which the module is taught	1 / year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	1. Small Group Discussion 2. Role-Play and Simulation
Workload (incl. Contact hours, self-study hours)	Theory (2 credits) 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines
Content	1. Definition of Pancasila, Revitalization, Pancasila in the Study History of the Indonesian Nation 2. Pancasila in the study of the nation's history 3. Pancasila as the basis of the state 4. Pancasila as a state ideology 5. Pancasila as a philosophical system 6. Pancasila as an ethical system 7. Pancasila as a basis for the development of science
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)
Study and examination requirements	If students attend lectures (including not present due to illness or permission) >= 80% so they can join the exam Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.

Reading List	<ol style="list-style-type: none"> 1. Latif, Y. 2009. Plenary State, Actuality and Historicity of Pancasila. Gramedia, Jakarta. 2. Wisudo, B., Subkhan, E., Paat, L.F., Paat, J.P., Haryanto, Y., Djiwa, V.D. 2012. Pancasila which educated the critical literacy module for Pancasila education. Tifa Foundation, Jakarta. 3. Latif, Y. 2014. Exemplary Springs, Pancasila in Action. Mizan, Bandung. 4. Hidayat, F. 2017. Pancasila: Perspective of the Founder of the Republic of Indonesia and its Problematic. Personal Archives Publisher. 5. Sutrisno, S. 2006. Philosophy and Ideology of Pancasila. Andi Publisher, Yogyakarta. 6. UIN Jakarta ICCE Team. 2003. Democracy, Human Rights and Civil Society. Prenada Media, Jakarta. 7. The 1945 Constitution results of amendments. 8. Director General of Higher Education. 2006. Pancasila Course Module Book Dirjen Dikti, Jakarta.
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2nd Semester

No.	Course Code	Course	Year	Semester	Credit	ECTS
<i>Mandatory courses</i>						
1.	MKU 1223	Religious education	1	2	2(2-0)	3.2
2.	MKU 1121	Indonesia civic education	1	2	2(2-0)	3.2
3.	KI 1238	Principles of fishery	1	2	3(2-1)	4.8
4.	KIBDP 1233	Oceanography	1	2	3(2-1)	4.8
5.	KIBDP 1234	Fishery socio-economic	1	2	3(2-1)	4.8
6.	KIBDP 1235	Principles of fish genetics	1	2	3(2-1)	4.8
7.	MKP 1221	Archipelagic dry land cultivation	1	2	2(2-0)	3.2
8.	KIBDP 1439	Parasites and fish diseases	1	2	3(2-1)	4.8

MODULE HANDBOOK

Module designation	Buddhist Religious Education
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<ol style="list-style-type: none"> 1. Confidence in God Almighty 2. The noble properties of God 3. Values of morality and humanity 4. Loyalty to the nation and state and support world peace, tolerance to others social and academic relations.
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>

Reading List	<p>1. Directorate General of Learning and Student Affairs. 2016. Buddhist Religious Education Textbook for Higher Education. Directorate General of Learning and Student Affairs of the Ministry of Research, Technology and Higher Education, Jakarta. 260 p.</p>
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MODULE HANDBOOK

Module designation	Hindu Religious Education
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes</p> <p>3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes</p>
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>1. God's teachings</p> <p>2. Morality</p> <p>3. The universe</p> <p>4. Motivation to have noble character, based on Universal Hindu values, teach work ethics, concepts Clear thinking, commitment, and integrity.</p>
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>

Reading List	<ol style="list-style-type: none"> 1. Directorate General of Learning and Student Affairs. 2016. Hindu Religious Education Textbook for Higher Education. Directorate General of Learning and Student Affairs of the Ministry of Research, Technology and Higher Education, Jakarta. 302 p. 2. Directorate General of Hindu Community Guidance Ministry of Religion of the Republic of Indonesia. 2012. Wariga Main Material. Module 1-6, Jakarta.
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MODULE HANDBOOK

Module designation	Islamic education
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes</p> <p>3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes</p>
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>1. The concept of divinity in Islam</p> <p>2. Faith and piety</p> <p>3. Implementation of faith and piety in modern life</p> <p>4. Human nature according to Islam</p> <p>5. Law, Human Rights and Democracy in Islam (Understanding)</p> <p>6. Islamic law and the contribution of Indonesian Muslims</p> <p>7. Ethics, Morals and Morals, Science and Technology and Arts In Islam</p> <p>8. Harmony between religious communities, civil society and welfare of the people</p> <p>9. Islamic economics</p> <p>10. Islamic Culture and Islamic Political System.</p>
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Anis, M. 2013. Islam and Democracy, Regional Perspective Al-Faqih. Mizan Publisher, Bandung. 2. Shihab, Q. 2014. Miracles of the Qur'an. Mizan Publisher, Bandung. 3. The Ministry of Religion's Author Team. 2009. Development The personality of Islamic religious education at the college General high. Director General of Islamic Higher Education, Jakarta. 4. Salahudin, A. 2013. Character Education, Based Education Religion and culture. Pustaka Setia, Bandung. 5. Congratulations, K. 2012. Morals of Sufism, Efforts to Achieve The smoothness of mind and divine closeness. Kalam noble, Jakarta.

MODULE HANDBOOK

Module designation	Catholic Christian Religious Education
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes</p> <p>3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes</p>
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>1. Human Nature and Dimensions</p> <p>2. God Almighty</p> <p>3. Jesus Christ always accountable his faith in church life and society</p> <p>4. Ability to act in accordance with the morals of Catholic religion as well as having the ability to apply science, mathematics and technology to solve problems according to the rules scientific and morality.</p>
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	1. Ende. Vatican Council Document II. Nusa Indah, Jakarta.

MODULE HANDBOOK

Module designation	Protestant Christian Religious Education
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>This course explains how to make religion as a source of values and guidelines in the development of Christian personality that upholds human dignity and ranking. This course is presented based on the KBK (Competency Based Curriculum) component, which consists of competencies, substance of study, substances and the entire learning process including methodology and evaluation. The substance of the study is a topic that has been determined by the Directorate General (Ditjen) of Higher Education through Decree No.38/Dikti/Kep/2002.</p>
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	1. Lai. 1990. Bible New Translation, Al-Kitab Institution.

MODULE HANDBOOK

Module designation	Archipelagic dry land cultivation
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	Dr. Priyo Santoso, S.Pi., M.P
Lecture	Dr. Priyo Santoso, S.Pi., M.P Ir Ridwan Tobuku, M.Sc
Language	Indonesian
Relation to curriculum	University study course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	Theory (2 credits) 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines
Content	1. Definition, Scope and Characteristics of Dry Land Areas Island; 2. Culture of the Community in the Dry Land Areas 3. Potential resources of the islands dry land area 4. Ecological and Economic Role of Land Resources dry islands 5. Advantages of Kompatarif Islands Dry Land Areas 6. Islands dry land resource management technology 7. Development of the Fisheries and Maritime Industry in the Region Islands dry land 8. Development of ecotourism and agro -tourism in land areas dry islands
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Benu FL and Mudita IW, 2013. Revisitation of Dry Land. Light discussion about dry land and land agriculture Dry. JP II Publishing House, Jakarta. 2. Christanty L, Moosa MK, Soekarno and Abrar M, 2008. Coastal and marine ecosystems: Potential and friendly use Environment. Coremap LIPI, Jakarta. 3. Bustami DA, Christanty L and Imron M, 2008. Ecosystem Coastal and sea: threats, disasters and management. Coremap LIPI, Jakarta 4. Sallata MK, Nugroho Hysk. 2019. Management of Dry Land. Andi Publisher. 5. KKP, 2019. Future Sea of the Nation: Sovereignty, Sustainability, prosperity. KKP RI, Jakarta

MODULE HANDBOOK

Module designation	Principles of fish genetics
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	Dr. Ir. Yulianus Linggi, M.Sc
Lecturer	Dr. Ir. Yulianus Linggi, M.Si Asriati Djonu, S.Pi., MP
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, group discussion, case study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<ol style="list-style-type: none"> 1. The scope of the basics of fish genetics 2. DNA and genes 3. DNA replication and gene expression 4. Mendel Law in Fish Genetics 5. DNA isolation 6. Chromosomes 7. Cell division 8. Gametogenesis 9. Fertilization 10. Main selection application 11. Case Study of Fish Genetics
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Genetika Dan Reproduksi Ikan oleh Dr. Ir. Gusrina, M.Si 2. Biotechnology and Genetics in Fisheries and Aquaculture oleh A.R. Beaumont and K. Hoare 3. Nugroho, E. 2018. Aplikasi Ilmu Genetika Dalam Program Pemuliaan Di Perikanan Air Tawar. Jakarta. KKP-BRSDM 4. Purdom, C. E. 1993. Genetic and Fish Breeding. Chapman & Hall 2-6 Boundary Row. London 5. Marks, K. K., Rathipriya, A and A. K. Pandian. 2021. Fish genetic and breeding. Delhi. Narendra

MODULE HANDBOOK

Module designation	Indonesia civic education
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	University compulsory course team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	Lecture in class 100 minutes, 14 times in class /semester
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines
Content	<ol style="list-style-type: none"> 1. Scope of Citizenship Education 2. National Identity 3. State and Constitution 4. Relations between citizens and countries 5. Democracy in Indonesia 6. State and Human Law 7. Geopolitics of Indonesia 8. Geostrategic Indonesia 9. National Integration
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) >= 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>

Reading List	<ol style="list-style-type: none"> 1. Adib, M., Santoso, L., and Triharso, A. 2013. Pancasila and Citizenship Education: An Introduction Building Nation Character. Airlangga University Press, Surabaya. 2. Kaelan and Ahmad, Z. 2010. Citizenship Education for Higher Education. Paradigm, Yogyakarta. 3. Sumarsono. 2005. Citizenship Education. Gramedia Pustaka, Indonesia. 4. Srijanti, A. R. 2009. Citizenship Education in Higher Education Develops State Certificate Ethics. Salemba Empat, Jakarta. 5. Subhan, S. 2011. Civil Education (Civil Education) Political Education, Nationalism and Democracy. Focus Media, Bandung. 6. Winarno. 2013. New Paradigm of Citizenship Education Guidelines for Lecture at the third edition of Higher Education. Bumi Aksara, Surakarta.
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MODULE HANDBOOK

Module designation	Oceanography
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si
Lecturer	Prof. Dr. Ir. Marcelien DJ. RATOE OEDJOE, M.Sc Welem Turupadang, S.Pi., M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>

Content	<ol style="list-style-type: none"> 1. The main nature and complexity of the sea and the Indonesian sea area 2. Sea physical properties 3. Topography 4. Tidal 5. Current 6. waves 7. brightness 8. Temperature 9. Salinity 10. Nitrogen 11. dissolved oxygen 12. KRBONDIOCSIDE 13. Phosphate 14. Ph 15. Alkalinity 16. Organic material 17. Sea Pollution and Oceanographic Relations in the Field Aquaculture, arrest and processing.
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Dijkstra, H. A. 2008. Dynamical Oceanography. (1st ed.). S Pinger. 407 p. 2. Garrison, T. and Ellis, R. 2015. Oceanography: An Invitation to Marine Science. Brooks Cole Publ. 640 p. 3. Gibson, R. N., Atkinson, R.J.A., and Gordon, J.D.M. (Eds). 2006. Oceanography and Marine Biology: An Annual Review. Vol. 44. (1st ed.). CRC Press. 536 p. 4. Hutabarat, S. and Evans, S.M. 1985. Introduction to Oceanography. UI Press, Jakarta. 159 p. 5. Miller, C.B. and P. A. Wheeler. 2004. Biological Oceanography. (2nd ed.). Wiley-Blackwell Publ. USA. 474 p. 6. Stewart, R. H. 2008. Introduction to Physical Oceanography. Department of Oceanography Texas A&M University. 351 p. 7. Thurman H. V., and Trujillo, A.P. 2003. Introductory Oceanography. (10th ed.). Person Prentice Hall. 624 p.

MODULE HANDBOOK

Module designation	Parasites and fish disease
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	Dr. Yudiana Jasmanindar, S.Pi.,M.Si
Lecturer	Dr. Yudiana Jasmanindar, S.Pi.,M.Si Wesly Pasaribu, S.Pi, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion, case study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Basics of Aquatic Microbiology
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. Parasiter disease in fish based on the cause disease 2. host 3. Predilection 4. Anatomical pathology and clinical symptoms 5. Pathogenesis and how to prevent and overcome them 6. Parasitarian diseases caused by protozoa: Ichthyoptiriasis, Trichodiniasis, Costiasis, Tetrahymeniasis, Myxosporeiasis, trypanosomiasis and coccidiosis, 7. Parasiter disease caused by arthropods and crustaceans, namely: argulosis, lernaeosis, and ergasilosis 8. Parasiter disease caused by worms (helminth) namely: Trematodosis. Cestodosis, nematodosis, and Acanthocephaliasis.
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Klaus, R. 2005. Marine Parasitology. CABI and CSIRO Publishing, UK. 592 p. 2. Leatherland, J.F. and Woo, P.T.K.. 1998. Fish Disease and Disorders Volume 2: Non-Infectious Disorders. Ontario Veterinary Collage and Department of Zoology University of Guelph Canada. CABI Publishing. 3. Murrell, K. D., and Fried, B. (Eds.). 2007. Food-borne parasitic zoonoses: fish and plant-borne parasites. Vol. 11. Springer Science & Business Media. 429 p. 4. Woo, P. T., and Buchmann, K. (Eds.). 2012. Fish parasites: Pathobiology and Protection. CABI. 400 p.

MODULE HANDBOOK

Module designation	Principles of fishery
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	Dr. Sunadji, MP
Lecturer	Dr. Sunadji, MP Dr. Yudiana Jasmanindar, M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, assessment and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-5: Able to design systems and aquaculture technology</p>
Content	<ol style="list-style-type: none"> Basis of Maritime Affairs and Fisheries Panca/Sapta Fisheries Business Commerce/Fisheries Business Management Fishing tools and methods Commerce/Fisheries Business Management Important Role of Fisheries, Environmental Preservation and ecotourism Freshwater Cultivation, Brackish Water Cultivation, Cultivation sea water Traditional Processing Methods Modern Processing Methods (Food) Modern Processing Methods (Non -Food)
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. FAO. (2012). Code of Conduct for Responsible Fisheries. Food and Agriculture Organization of the United Nations. 2. Dykstra, C. R. (2016). Fisheries Ecology and Management. Oxford University Press. 3. Caddy, J. F. (1999). Marine catchment basin effects versus impacts of fisheries on semi-enclosed seas. Reviews in Fish Biology and Fisheries, 9(3), 311-356. 4. Husain, H., & Samidjan, I. (2012). Catch Fishing at Sea. Deepublish Publishers. 5. Harahap, A. H., & Ambo-Rappe, R. (2016). Basic fishing. Bumi Aksara Publishers.

MODULE HANDBOOK

Module designation	Fishery socio-economic
Semester(s) in which the module is taught	2 / first year
Person responsible for the module	Dr. Ir. Sunadji, MP
Lecturer	Dr. Ir. Sunadji, MP Dr. Francy Ch. Liufeto, S.Pi.,M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discovery learning, group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>

Content	<ol style="list-style-type: none"> 1. Understanding Economics, and Economics 2. Scope of Economics 3. Consumer Behavior Theory 4. Demand theory 5. The theory of supply 6. Price balance 7. Elasticity of demand and supply 8. Producer behavior 9. Production theory in company activities 10. Aggregate Demand 11. Aggregate Demand 12. Consumption, Savings
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Ekonomi Perikanan: Teori, Kebijakan dan Penegelolaan (Akhmad Fauzi) 2. Ekonomi Peikanan: Kajian Pemberdayaan Masyarakat Pesisir Berbasis Teknologi Tepat Guna

3rd Semester

No.	Course Code	Course	Year	Semester	Credit	ECTS
<i>Mandatory courses</i>						
1.	KIBDP 1232	Biochemistry	2	3	3(2-1)	4.8
2.	KIBDP 15314	Fish health management	2	3	3(2-1)	4.8
3.	KI 13314	Ichthyology	2	3	3(2-1)	4.8
4.	KI 13315	Aquatic ecology	2	3	3(2-1)	4.8
5.	KIBDP 1333	Physiology of aquatic organisms	2	3	3(2-1)	4.8
6.	KIBDP 1335	Aquaculture data and information processing	2	3	3(2-1)	4.8
7.	KIBDP 15312	Water quality management	2	3	3(2-1)	4.8

MODULE HANDBOOK

Module designation	Biochemistry
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si
Lecturer	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si Ir. Felix Rebhung, M.Agr.,Ph.D
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. The role of biochemistry in the life of living things 2. The role of carbohydrates, lipids, proteins, nucleic acids, enzymes, coenzymes, cell structure and function 3. Carbohydrate metabolism 4. Lipid metabolism 5. Metabolism of protein and amino acids 6. Hormone metabolism 7. Carbohydrate anabolism 8. Protein Anabolism 9. Lipid anabolism.

Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Garret, R.H., and Grisham, C.M. 1999. Biochemistry (2 ed). Cengage Publ. 2. Murray, R. K., Bender, D.A., Botham, K.M., Kennelly, P. J., Rodwell, V. W., and Weil, P. A. 2008. Harper's Illustrated Biochemistry. 28th ed. McGraw Hill Med. 704 p. 3. Nelson, D. L., and Michael M. Cox, M. M. 2004. Lehniger's Principles of Biochemistry (7th ed.) W.H Freeman PUBL. 1312 p. 4. Pratt C. W and Cornely, K. 2017. Essential BioChemistry. 4th ed. Wiley-Blackwell Publ. 744 p. 5. Seager, S.L. and Slabaugh, M.R. 2014. Chemistry for Today: General, organic, and biochemistry (8th ed). Brooks/Cole, USA.

MODULE HANDBOOK

Module designation	Aquatic ecology
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Dr. Ir. Nicodemus Dahoklory, M.Si
Lecturer	Dr. Ir. Nicodemus Dahoklory, M.Si Dr. Yudiana Jasmindar, S.Pi., M.Si Welem L. Turupadang, S.Pi., G.Dip.Sc., M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. The reciprocal relationship between living things and biotic and abiotic environment 2. Principle and Definition of Ecology 3. Ecosystem concept 4. Limiting factors 5. energy flow 6. Biogeochemical cycle 7. Energy Dynamics 8. Changes in the population and community of freshwater, estuaries and Sea

Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Barnes, R. S. K (Ed). 2009. Fundamentals of Aquatic Ecology. 2nd ed. Wiley-Blackwell Publ. 280 p. 2. Costa-Pierce (Ed). 2008. Ecological Acuaculture: The Evolution of the Blue Revolution. Wiley-Blackwell Publ. 400 p. 3. Hall, C.A.S and Day, J.W. 1997. Ecosystem modeling in Theory and Practice; An Introduction with Case Histories. John Wiley and Sons, New York. 4. Maitland, P. S., and Morgan, N. C. 1997. Conservation Management of Freshwater Habitats: Lakes, River, and Wetlands. (1st ed). Springer Netherlands. 5. Smith, R. L. 1990. Ecology and Field Biology. Harper Collin Publisher. New York.

MODULE HANDBOOK

Module designation	Physiology of aquatic organisms
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Dr. Ir. Agnette Tjendanawangi, M.Si
Lecturer	Dr. Ir. Agnette Tjendanawangi, M.Si Dr. Priyo Santoso, S.Pi, MP
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, Discussions and Case Study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<p>1. Concept of Aquatic Animal Physiology;</p> <p>2. sensing system and nervousness;</p> <p>3. Endocrine system;</p> <p>4. Osmoregulation and blood circulation system;</p> <p>5. Respiratory and digestive system;</p> <p>6. Metabolic system;</p> <p>7. Reproductive system.</p>
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Evans, D. H., and Klaiborne, J.B. 2006. The Physiology of Fishes. (3rd ed). CRC Press. USA. 2. Evans, D.H., Klaiborne, J. B., and Currie, S. 2014. The Physiology of Fishes Founts Fourth Edition. Taylor and Francis Group London. New York. 482 p. 3. Farrell, A. P. 2006. The Physiology of Tropical Fishes. Elsevier London. New York. 642 p. 4. Fujaya, Y. 2004. Fish Physiology (Basic Technical Development Fishery). Rineka Cipta, Jakarta 5. Hoar, W. S. and Randall, D. J. 1988. Fish Physiology. Academic Press Inc., London.

MODULE HANDBOOK

Module designation	Ichtiology
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Ir. Ridwan Tobuku, M.Sc
Lecturer	Ir. Ridwan Tobuku, M.Si Asriati Djonu, S.Pi., M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<p>1. Introduction</p> <p>2. Fish morphology</p> <p>3. Fish classification</p> <p>4. Classification</p> <p>5. Indra organs</p> <p>6. Integument system</p> <p>7. Muscularis system</p> <p>8. Frame system</p> <p>9. Digestive system</p> <p>10. NERVE SYSTEM</p> <p>11. Hormone System</p> <p>12. Circulatory System</p> <p>13. Respiratory System</p> <p>14. Urinary and Genital System.</p>

Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Allen, C.J. 2005. Grilk's Student Animal Life Resource: Fishes. Thomson Gale. Farmington Hills, Bernhard, Canada. 2. Baldiseroto, B., Mancera, J.M., and Kapoor, B. G. 2007. Fish Osmoregulation. Science Publisher, New Hampshire, USA. 3. Bone, Q. and Moore, R. Biology of Fishes. 2008. 3th ed. Taylor and Francis Group, New York. 497 p. 4. Vans, D.H., Klaiborne, J. B. and Currie, S. (Eds). 2013. The Physiology of Fishes. 4th ed. CRC Press. 491 p. 5. Asin, M. 1992. Vertebrate Zoolology. Wijaya Sinar Publisher, Surabaya. 6. Lagler, K. F., Bardach, J. E., Miller, R. R., and May Passino, D. R. 2011. Ichthyology. 2nd ed. Wiley India PVT. Ltd. 7. Moyle, P.B. and Cech, J.J. 2004. Fishes: An Introduction to Ichthyology. Pearson Benjamin Cummings, San Francisco. 745 p. 8. Piska R. S. and Naik J. K. 2006. Introduction to Fish Biology and Ecology. Osmania University. 353 p. 9. Saanin, H. 1995. Taxonomy and Key to Identify Fish (1 and 2). Binacipta, Jakarta. 10. Sjafei, D. S., Rahardjo, M. F., Affandi, R., Brojo, M. and Sulistiono. 1992. Fish Physiology II. Fish reproduction. Postgraduate IPB, Bogor. 11. Triastuti, J. and L. Sulmartiwi, L. 2012. ICHTYOLOGY Textbook: External anatomy. PT. Revka Petra Media, Surabaya. 76 p. 12. Triastuti, J. and Sulmartiwi, L. 2013. Ichtyology Textbook: Internal anatomy. PT. Revka Petra Media, Surabaya. 155 p.

MODULE HANDBOOK

Module designation	Fish health management
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Dr. Yuliana Salosso, S.Pi.MP
Lecturer	Dr. Yuliana Salosso, S.Pi.MP Dr. Yuudiana Jasmanindar, S.Pi.M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, group discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	<ol style="list-style-type: none"> 1. Parasites and Fish Diseases 2. Fundamentals of Aquatic Microbiology
Module objectives/intended learning outcomes	<p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. Fish Health Management Principles 2. Application of the right fish farming technique 3. Provision of proper feeding 4. Giving immunostimulants 5. Provision of vaccines 6. Giving probiotics 7. Water quality management 8. Bioremediation 9. Biosecurity 10. Fish Carantine 11. fish health monitoring

Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Salosso Y. 2022. Bahan Ajar Manajemen Kesehatan Ikan. Fakultas Kelautan dan Perikanan Undana 2. Anonymous. 2002. Pengelolaan kesehatan Ikan Budidaya Laut. Balai Budidaya Laut lampung, Direktorat jendral Perikanan dan Budidaya, Departemen kelautan dan Perikanan. Lampung. 3. Conroy D.A and R.I. Herman. Textbook of Fish Diseases. Published by Gustav Fischer verlag, Jena, DDR. 4. Handajani, H dan S.Samsundari. 2005. Parasit dan Penyakit Ikan. Penerbit Universitas Muhammadiyah, Malang. 5. Moller, H and K. Andreas. 1986. Diseases and Parasites of Marine fishes. Verlag Moller Sternwartenweg 32. D-2300 Keil, FRG. 365 6. Noga, E.J. Fish Disease, Diagnosis and Treatment. Second edition. Wiley-Blackwell, A John Wiley & Sons, inc, Publication. New York, London Toronto Sydney, Tokyo, Singapore. 7. Schaperclaus, W. H. 1992. Fish Diseases. Volume I, A.A. Balkema/ Rotterdam. Schaperclaus, W. H Editor Kulow, and K. Schreckenbach. 8. Schaperclaus, W. H. 1992. Fish Diseases. Volume II, A.A. Balkema/ Rotterdam. Schaperclaus, W. H Editor Kulow, and K. Schreckenbach. 9. Stoskopf, M.K. 1993. Fish Medicine. W.B. Saunders Company, Harcourt Brace Jovanovich, Inc, Philadelphia, London, Tomato, Montreal, Sydney Tokyo. 10. Zonneveld, N. E.A. Huisman and J.H. Boon. 1992. Prinsip-Prinsip Budidaya Ikan. Penerbit PT Gramedia Pustaka Utama. Jakarta 11. Salosso, Y. 2021. Parasit dan penyakit Ikan Teleostei. Penerbit Deepublis.

MODULE HANDBOOK

Module designation	Water quality management
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Dr. Priyo Santoso, S.Pi, MP
Lecturer	Dr. Priyo Santoso, S.Pi, MP Dr. Ade Y.H. Lukas, S.Pi., M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Principles of aquaculture
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. Definition of water as a medium for aquaculture and The Importance of Water Quality Management 2. Water Physical Parameters: Light intensity, brightness, temperature, smell, and taste 3. Chemical nature of water: salinity, nitrogen, oxygen dissolved, CO₂, pH, phosphate, alkalinity, salinity, organic material, BOD, COD, PO₄, NO₂, NO₃, NH₄, NH₃, Fe, Pb, S, Mn, CL, and Potassium 4. Biological Parameters: The types of plankton beneficial and control 5. Water quality management in public waters, including: Reservoir, watershed and estuarine 6. Drying, including: Definition, Composition and Function of ponds, ponds, soil types for ponds and ponds as well drying 7. Calcification: Definition and purpose, type of lime, effect enforcement of water quality 8. Fertilization: type of fertilizer, determining the dose of fertilizer, the effect of fertilizer rights to water quality 9. Aeration: aerator, oxygenation satay, oxygen transfer and Determination of the number of aerators 10. Filter and Recirculation: Various Filters (Physics, Chemistry, and biology) and recirculation methods in cultivation sea, fresh and brackish. 11. Water Quality Project
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>

Reading List	<ol style="list-style-type: none"> 1. Jahncke, M. L., Spencer, E., Reilly, G. A., Martin, R. E., and Cole, E. 2002. Public, Animal, and Environmental Aquaculture Health Issues 1st ed. Wiley-onerscience. 204 p. 2. Landau, M. 1991. Introduction to Aquaculture. 1st edition. John Wiley & Sons. 464 p. 3. Lucas, J. S., Southgate, P. C., and Tucker, C. S. (Eds). 2018. Aquaculture: Farming Aquatic Animals and Plants 3rd Ed. Wiley-Blackwell. 664 p. 4. Mukti, A., T., Arief, M., and Hastuti, W. H., 2019. Textbook on principles of aquaculture. Airlangga University Press, Surabaya. 5. Pillay T.V.R. 2004. Aquaculture and Environment. 2nd Ed. Wiley-Blackwell. 208 p. 6. Pillay, T.V.R. and Kutty, M.N. 2005. Aquaculture, Principles and practices. 2nd ed. Wiley-Blackwell. 640 p. 7. Schmittou, H.R., Jian, Z., and Cremer, M. C. 2004. Principles and Practicals of Pond Aquaculture Using 80:20 System. American Soybean Association.
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MODULE HANDBOOK

Module designation	Aquaculture data and information processing
Semester(s) in which the module is taught	3 / second year
Person responsible for the module	Dr. Ir. Sunadji, MP
Lecturer	Dr. Ir. Sunadji, MP Suleman, S.S.T.Pi., M.P
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, discovery learning, case study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Experimental design
Module objectives/intended learning outcomes	<p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>1. Selection of Cultivation Types for Aquaculture Industry</p> <p>2. Assessment of an industry with SWOT analysis</p> <p>3. Sources of capital and business analysis</p> <p>4. Types of Education Flow</p> <p>5. Input technology in the scope of aquaculture industry</p> <p>6. Management of Aquaculture Industrial Financial Management</p> <p>7. Finding and analyzing problems in development aquaculture industry</p> <p>8. Risk management</p> <p>9. Financial Management Management</p> <p>10.case Study Fisheries Data Processing</p>

Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Muhammad Yusuf dan Lukman D. 2019. Analisis Data Penelitian, Teori dan aplikasi dalam bidang perikanan. IPB Press. Bogor 2. Abu Bakar S., Aida Sartimbul., Defri Yona., Feni Irawati., Ledhyane., Hariyan., Nurin Hidayati., Syarifah, H.J. S., M. Arif Z.F dan M.Arif R. 2020. Aplikasi Sistem Informasi Geografis dalam Bidang Perikanan. UB Press. Malang 3. Johar Arifin. 2019. Menguasai Microsof Excel 2019. PT. Elex Media Komputindo. Jakarta 4. Yudhy Wicaksono dan Solusi Kantor. 2021. Mengolah Data Statistik dengan MS Excel. PT. Elex Media Komputindo. Jakarta

4th Semester

No.	Course Code	Course	Year	Semester	Credit	ECTS
<i>Mandatory courses</i>						
1.	KIBDP 1436	Aquaculture engineering	2	4	3(2-1)	4.8
2.	KIBDP 1437	Fish nutrition	2	4	3(2-1)	4.8
3.	KIBDP 14310	Natural feed culture	2	4	3(2-1)	4.8
4.	KIBDP 14312	Fish reproductive physiology	2	4	3(2-1)	4.8
5.	KI 16317	Scientific method	2	4	3(2-1)	4.8
6.	MKP 1612	Anti-corruption education	2	4	1(1-0)	1.6
7.	KIBDP 14313	Ornamental fish and aquascape	2	4	3(2-1)	4.8
8.	KIBDP 14314	Fresh, brackish, and marine aquaculture management	2	4	3(2-1)	4.8

MODULE HANDBOOK

Module designation	Anti-corruption education
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Ir. Sunadji, MP
Lecturer	Dr. Ir. Sunadji, MP Dr. Francy Ch. Liufeto, S.Pi.,M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture and discussion
Workload (incl. Contact hours, self-study hours)	<p>Theory (1 SKS)</p> <p>1. Lecture in class 1 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 1 SKS x 60 Minutes x 14 Meetings = 1,680 minutes</p> <p>3. Self Study 1 SKS x 60 Minutes x 14 Meetings = 1,680 minutes</p>
Credit points	1 CU = 1.6 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-1: Having morals, ethics, and nationalism and responsibility in carrying out their duties independently</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>1. Definition and Understanding of Corruption</p> <p>2. The impact of corruption on society</p> <p>3. Principles and Ethical Values</p> <p>4. Individual roles and responsibilities</p> <p>5. Transparency and Accountability</p>
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	1. Prof. Dr. H. Muh. Arifin, M.Pd. 2018. Pendidikan Anti-Korupsi: Teori, Strategi, dan Implementasi. Penerbit PT Remaja Rosdakarya.

MODULE HANDBOOK

Module designation	Fish reproductive physiology
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Ir. Yulianus Linggi, M.Si
Lecturer	Dr. Ir. Yulianus Linggi, M.Si Dr. Ir. Agnette Tjendanawangi, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, assignments, project base learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. Fish Reproduction Cycle 2. Reproductive Structure 3. Reproductive hormone 4. Fertilization 5. Spawning 6. External fertilization vs. Internal 7. Incubation period 9. Morphological changes during reproduction 9. Reproductive strategy

Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Drawbridge, M., & Okihiro, M. (2007). Comprehensive Produksi benih ikan Plan. California: Californian Departement of Fish and Game Oceanside Fis Pathology Laboratory. 2. Jayakumar, R., & Nazar, A. (2013). Marine Fish Produksi benih ikan Concept, Design and Construction. Tamil: Central Marine Fisheries Research Institute, Cochin (CMFRI) . 3. Ueberscar, B. (2019). Instruction Manual for Solar Powered Produksi benih ikan Operation. Bunda Campus Farm: Gesellschaft fur Marine Aquaculture. 4. William S. Hoar dan David J. Randall. 1983. Fish Physiology, Volume IX - Reproduction, Part A: Endocrine Tissues and Hormones. Academic Press.

MODULE HANDBOOK

Module designation	Ornamental fish and aquascape
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Franchy Ch. Liufeto, S.Pi, M.Si
Lecturer	Dr. Franchy Ch. Liufeto, S.Pi, M.Si Immaria Fransira, M.P
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, group discussion, discovery learning, project Based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Principles of Aquaculture
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<p>1. Freshwater ornamental fish</p> <p>2. Sea water ornamental fish</p> <p>3. Ornamental plants</p> <p>4. Substrate on Akuaskap</p> <p>5. Akuaskap facilities and infrastructure</p> <p>6. Breeding and hatchery of ornamental fish</p> <p>7. Design and manufacture of containers</p> <p>8. Design and layout of aquaskap</p> <p>9. Feed and feeding</p> <p>10. Health management</p> <p>11. Management of water quality</p>

Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Farmer, G. 2020. Aquascaping: A Step-By-Step Guide to Planting, Styling, and Maintaining Beautiful Aquariums. Skyhorse Publishing. 321 pages 2. Walstad, D. 2013. Ecology of the Planted Aquarium: A Practical Manual and Scientific Treatise for the Home Aquarist. Echinodorus Publishing. 193 pages 3. Alderton, D. 2019. Encyclopedia of Aquarium and Pond Fish. DK Publishing. 402 pages 4. Tullock, J. 2007. Freshwater Aquarium Models: Recipes for Creating Beautiful Aquariums That Thrive. Wiley Publishing Inc. 307 pages 5. ----- 2007. Saltwater Aquarium Models: Recipes for Creating Beautiful Aquariums That Thrive. Wiley Publishing Inc. 289 pages 6. Jennings, G. 2018. 500 Freshwater Aquarium Fish: A Visual Reference to the Most Popular Species. Firefly Books. 528 pages 7. Hiscock, P. 2003. Encyclopedia of Aquarium Plants. Interpet Publishing. 201 pages 8. Jim, M. O. 2014. Aquarium Making: Fishkeeping and Maintenance. 30 pages 9. Gay, J. 2005. The Perfect Aquarium: The Complete Guide to Setting Up and Maintaining an Aquarium. Octopus Publishing Group Ltd. 552 pages 10. Skomal, G. 2006. Saltwater Aquarium 2nd Edition. Wiley Publishing Inc. 129 pages

MODULE HANDBOOK

Module designation	Fresh, brackish, and marine aquaculture management
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Yuliana Salosso, S.Pi., M.P
Lecturer	Dr. Priyo Santoso, S.Pi., M.P Dr. Yuliana Salosso, S.Pi., M.P
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8. ECTS
Required and recommended prerequisites for joining the module	Principles of aquaculture
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. The scope and potential of freshwater, brackish and sea cultivation 2. Characteristics of Freshwater Cultivan, Brackish and Sea, as well as the application of the system/cultivation method 3. Planning, location selection and preparation of freshwater, brackish and sea cultivation containers. 4. Management of Seed Handling and Maintenance 5. Management of feeding 6. Water quality management 7. Fish Health Management 8. Harvest and Marketing Management 9. Problems in Freshwater Cultivation Management 10. Analysis of Brackish Air Cultivation Management 11. Solution for Problem in Aquaculture Management Sea water
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Freshwater Aquaculture, 2013. Ahilan B. Daya Publishing House, India 2. Budidaya Ikan, 2013. Amalia R, Marsi, Ferdinand HT. Agromedia, Jakarta. 3. Prinsip-prinsip Budidaya Ikan, 1991, Zonneveld N, Huisman EA, Boon JH. Gramedia Pustaka Utama, Jakarta.

MODULE HANDBOOK

Module designation	Scientific method
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Yudiana Jasmanindar, S.Pi.,M.Si
Lecturer	Dr. Yudiana Jasmanindar, S.Pi.,M.Si Dr. Yuliana Salosso, S.Pi.,MP
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion, case study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p>
Content	<ol style="list-style-type: none"> 1. Scientific Procedure 2. Type of Research 3. The formulation of the research period 4. Research Variables 5. Research Design 6. Instruments and Data Collection Techniques 7. Analysis of research results 8. Making research proposals and how to compile reports.
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Jackson, S. L. 2009. Research Methods and Statistic A Critical Thinking Approach. Thord Edition. Wadworth Cengage Learning Belmont USA. 449 p. 2. Marczyk, G. R., DeMatteo, D., and Festinger, D. 2005. Essential of Research Design and Methodology. (1st Ed). John Wiley & Sons. 3. Overturf, K. 2009. Molecular Research in Aquaculture. Wiley-Blackwell Publishing Iowa USA. 407 p.

MODULE HANDBOOK

Module designation	Fish nutrition
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Ir. Agnette Tjendanawangi, M.Sc
Lecturer	Dr. Ir. Agnette Tjendanawangi, M.Sc Ir. Felix Rebhung, M.Agr., Ph.D
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Biochemistry
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<p>1. Nutritional value</p> <p>2. Carbohydrate metabolism</p> <p>3. Lipida metabolism</p> <p>4. Metabolism of Animo Acid</p> <p>5. Metabolism of vitamins and minerals</p> <p>6. Feed ingredients</p> <p>7. Probiotics</p> <p>8. Anti Nutrition</p> <p>9. Antioxide</p> <p>10. Nutritional defense</p> <p>11. Bioenergy and digestibility to support aquaculture.</p>

Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Craig, S., Helfrich, L.A., Kuhn, D., and Schwarz, M.H. 2009. Understanding Fish Nutrition, Feeds, and Feeding. Political Science. 18 p. 2. FAO, 1980. Fish Feed Technology. United Nations Development Program Food and Agriculture Organization of the United Nations, Rome. 3. Halver, J. (ed). 2013. Fish Nutrition. Elsevier. 4. Horwitz, W., and Latimer, G.W. 2005. Official Methods of Analysis of Aoac International. 18th ed. Gaithersburg, Md.: Aoac International. 5. Lim, C. and Webster, C.D. 2001. Nutrition and Fish Health. Food Products Press, New York. 6. Merrifield, D.L. and Ringo, E. (Eds). 2014. Aquaculture Nutrition: Gut Health, Probiotics and Prebiotics. John Wiley & Sons. 7. Ramseyer, L.J. and Garling, D.L. 1997. Fish Nutrition and Aquaculture Waste Management. ILLINOIS-Indiana Sea Grant Program, Publication CES-305. 8. Tacon, A.G.J. 1990. Standard Methods for the Nutrition and Feeding of Farmed Fish and Shrimp. ARGENT PUBL. 9. Tacon, A.G. 1992. Nutritional Fish Pathology: Morphological Signs of Nutrient Deficiency and Toxicity in Farmed Fish (Vol. 85, No. 22). Food & Agriculture Org.

MODULE HANDBOOK

Module designation	Natural feed culture
Semester(s) in which the module is taught	4 / second year
Person responsible for the module	Dr. Ade H. Lukas, S.Pi, M.Sc
Lecturer	Dr. Ade H. Lukas, S.Pi, M.Sc Dr. Ir. Nicodemus Dahoklory, M.Sc Ir. Ridwan Tobuku, M.Sc
Language	Indnesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Aquatic Ecology
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. The basic concept of natural feed 2. Types of Potential Natural Feed 3. Sterilization of environmental factors 4. Nutrient Natural Feed 5. Isolation technique 6. Phytoplankton Culture Techniques (Diatomae and Non-Diatom) 7. Zooplankton culture techniques (artemia, branchionus) 8. Harvesting and Post Harvest Handling Techniques 9. Nutrient enrichment 10. Natural feed development aspects for aquaculture. 11. Natural feed production projects
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Lampung Sea Cultivation Center. 2002. Phytoplankton and Zooplankton Cultivation. Directorate General of Aquaculture. Department of Maritime Affairs and Fisheries. Sea Cultivation Series No: 9. ISBN: 979-95483-9-X. 2. Chojnacka, K., Wieczorek, P.P., Schroeder G., and Michalak, I. 2018. Developments in Applied Phycology 8 Algae Biomass: Characteristics and Applications. 1st ed. Springer International Publishing. 146 p. 3. Pereira, L. 2018. Therapeutic and nutritional uses of algae. CRC Press. 2018. 673 p. 4. Richmond, A., and Hu, Q. 2013. Handbook of Microalgal Culture. Applied Phycology and Biotechnology. Second edition. Wiley Blackwell 5. SU, H.M. 2000. Production and Utilization of Live Feeds in Aquaculture. In Advanced Aquaculture. Taiwan Fisheries Institute. 6. Støttrup, J. G. and Mcevoy, L. A. 2003. Live Feeds in Marine Aquaculture. Blackwell Science Ltd, A Blackwell Publishing Company

MODULE HANDBOOK

Module designation	Aquaculture engineering
Semester(s) in which the module is taught	4 / third year
Person responsible for the module	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si
Lecturer	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si Dr. Ir. Yulianus Linggi, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, group presentations and project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Principles of aquaculture
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. Location suitability 2. Planning and engineering containers and equipment Cultivation 3. Structure and design of aquaculture containers 4. Management of water and land 5. Production process 6. Management of Waste The results of aquaculture activities 7. Aquaculture Engineering Project
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Wheaton FW. 1977. Aquacultural Engineering. Maryland. US: A Wiley-Interscience Publication 2. Kyung H. Yoo, Claude E. Boyd. 1994. Hydrology and Water Supply for Pond Aquaculture-Springer US 3. Lekang. 2005. Aquaculture Engineering. Second Edition. Willey Blackwell. A John Wiley & Sons, Ltd., Publication 4. Boyd, CE, Tucker CS. 1992. Water Quality and Pond Soil Analyses for Aquaculture. Australia : Auburn University, AL. 183 p. 5. Buluyut, S.A. 1984. Inland Aquaculture Engineering. Food and Agricultural Organization. Rome, Italy. 6. Costa-Pierce BA, editor. 2002. The History of Aquaculture in Traditional Society. Oxford. Blackwell Science. 7. Handajani H, Hastuti SD. 2002. Budidaya Perairan. Malang: Bayu Media dan UMM press. 8. Hutchinson et al. 2004. Recirculating aquaculture system: Minimum standard for design, construction, and management. Inland Aquaculture Association of South Australia Inc. 9. Spellman, FR. 2003. Handbook of Water and Wastewater Treatment Plant Operations. CRC Press LLC.

5th Semester

No.	Course Code	Course	Year	Semester	Credit	ECTS
<i>Mandatory courses</i>						
1.	KIBDP15326	Feeding technology and management	3	5	3(2-1)	4.8
2.	KIBDP16324	Aquaculture industry development	3	5	3(2-1)	4.8
3.	KIBDP15327	Invertebrate animal cultivation technology	3	5	3(2-1)	4.8
4.	KIBDP15324	Principles of aquaculture biotechnology	3	5	3(2-1)	4.8
5.	KIBDP15325	Management of hatchery production	3	5	3(2-1)	4.8

MODULE HANDBOOK

Module designation	Principles of aquaculture biotechnology
Semester(s) in which the module is taught	5 / third year
Person responsible for the module	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si
Lecturer	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si Dr. Ir. Yulianus Linggi, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<ol style="list-style-type: none"> 1. Introduction to Aquaculture Biotechnology 2. Cell culture and tissue 3. Selective breeding 4. Hybridization and artificial insemination 5. Transgenic aquaculture 6. Aquaculture Biotechnology of the Environment 7. Use of probiotics and prebiotics
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Manoj Sharma, Pankaj Guleria, dan Saurabh Bhatia. 2019. Bioteknologi Akuakultur: Prinsip dan Aplikasinya. Penerbit: Studium Press LLC. 2. Madhu Mrudula, Omana Joy, dan Sherly Williams E. 2016. Bioteknologi dalam Akuakultur. Penerbit: LAP Lambert Academic Publishing. 3. Adolfo Álvarez-González dan Domenico Caruso. 2018. Akuakultur Modern: Bioteknologi dan Aplikasinya. Penerbit: Wiley-Blackwell.

MODULE HANDBOOK

Module designation	Management of hatchery production
Semester(s) in which the module is taught	5 / third year
Person responsible for the module	Dr. Ir. Yulianus Linggu, M.Si
Lecturer	Dr. Ir. Yulianus Linggu, M.Si Dr. Ir. Agnette Tjendanawangi, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lecture, discussion and project -based learner
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Principles of aquaculture
Module objectives/intended learning outcomes	<p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. Male and female reproductive organs in fish, crustaceans, mollusks, echinoderms and their functions 2. Gonad maturation and its mechanism in fish, crustaceans, molluska, and echinodermata 3. Factors that influence the process of maturation of the gonad 4. Gonad maturation stimulation techniques in fish, crustases, mollusks, and echinoderms 5. Factors that influence the spawning process 6. Spawning stimulation techniques in fish, crustaceans, Molluska, and Echinnodermata 7. Factors that influence the quality of eggs and sperm in fish 8. Development of embryos, hatching eggs, and maintenance larvae
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Tang, M. 1999. Reproduksi Ikan.. IPB Press. 2. Effendie, 1997. Biologi Perikanan. IPB Press 3. I. Effendi. 2002. Pengantar Akuakultur. Jakarta: Penebar Swadaya,

MODULE HANDBOOK

Module designation	Aquaculture industry development
Semester(s) in which the module is taught	5 / third year
Person responsible for the module	Dr. Francy Ch. Liufeto, S.Pi.,M.Si
Lecturer	Dr. Ir. Sunadji, MP Dr. Francy Ch. Liufeto, S.Pi.,M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, discovery learning, group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	<p>1. Basics of Management</p> <p>2. Basics of aquaculture</p> <p>3. Fisheries and Maritime Entrepreneurship</p>
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. Selection of Cultivation Types for Aquaculture Industry 2. Assessment of an industry with SWOT analysis 3. Sources of capital and business analysis 4. Types of Education Flow 5. Input technology in the scope of aquaculture industry 6. Management of Aquaculture Industrial Financial Management 7. Finding and analyzing problems in development aquaculture industry 8. Risk management 9. Financial Management Management
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Perumusan kebijakan pengembangan industri perikanan: studi kasus rumput laut oleh Satker Dewan Kdelautan KKP tahun 2010 2. Muhammad S., 2011. Kebijakan Pembangunan Perikanan & Kelautan: Pendekatan Sistem, Universitas Brawijaya Press. 3. Muh. Fihsar dan Poltak, H. 2020. Manajemen Usaha Perikanan, Ahli Media Press. 4. Herry, 2021. Manajemen Risiko Bisnis, Jakarta, Penerbit Buku Kompas. 5. Langevelt, M, J., 1971, terj., Manajemen Keuangan Dan Bisnis; Teori dan Aplikasi, Gramedia Pustaka Utama Jakarta

MODULE HANDBOOK

Module designation	Feeding technology and management
Semester(s) in which the module is taught	5 / third year
Person responsible for the module	Dr. Ir. Agnette Tjendanawangi, M.Sc
Lecturer	Dr. Ir. Agnette Tjendanawangi, M.Sc Ir. Ridwan Tobuku, M.Sc
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	<ol style="list-style-type: none"> 1. Fish nutrition 2. Basics of Aquaculture
Module objectives/intended learning outcomes	<p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. Nutritional needs of fish, crustaceans and economical mollusks important 2. Sources of Feed Raw Materials and Alternative Raw Materials 3. Application of fermented technology 4. Feed formulation 5. Analysis of the efficiency of feed utilization 6. Economical Analysis of Feed 7. Application of feeding
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Chris Neaaves. 2002. Nutrition Module. Fish Program Training Nutrition, Feeds and Feeding. 2. Aj Tacon. 2007. Shrimp and Fish Nutrition and Feed Management. Central Institue Brackish Water Aquaculture. 3. Laurel J. Ramseyer. Fish nutrition and aquaculture waste Management. 4. Steven Graig. Understanding Fish Nutrition, Feeds, and Feeding. 5. Good Aquaculture Practices. Fish Feed Management. Agriculture, Fisheries and Conservation Management. 6 Fish Feed Technology. FAO 1980

MODULE HANDBOOK

Module designation	Invertebrate animal cultivation technology
Semester(s) in which the module is taught	5 / third year
Person responsible for the module	Dr. Ir. Yulianus Linggi, M.Si
Lecturer	Dr. Ir. Yulianus Linggi, M.Si Ir. Ridwan Tobuku, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Lectures, discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Principles of aquaculture
Module objectives/intended learning outcomes	<p>ILO-5: Able to design systems and aquaculture technology</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<p>1. Introduction to Animal Avertebrate Water</p> <p>2. Biology and Morphology</p> <p>3. Maintenance and Management of Maintenance Media</p> <p>4. Selection of species</p> <p>5. Feed and nutrition</p> <p>6. Reproduction and breeding</p> <p>7. Disease Control and Parasites</p> <p>8. Environmental and Conservation Aspects</p> <p>9. Application of technology</p>
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Browne, R. A., & Sahoo, P. K. (Eds.). (2017). "Live feeds in marine aquaculture. "John Wiley & Sons. 2. Brown, M. R. (ed.). (2019). "Nutritional Marine Invertebrate Broodstock and Larval Development. "Academic Press. 3. Dhert, P., & Lavens, P. (Eds.). (2018). "Artemia: Basic and Applied Biology. "Springer. 4. Wallace, R.L. and Taylor, W. K., 2002. Invertebrate Zoolology. A Laboratory Manual. Sixth Edition. Prentice Hall. Upper Saddle River. 5. Tidwell, J.H., and Coyle, S.D. (Eds.). (2016). Crustacean Aquaculture. John Wiley & Sons, Inc. 6. Lee, P.G. (2019). The significance of molluscan aquaculture in Asia. Reviews in Fisheries Science & Aquaculture, 27 (4), 417-428.

Even Semester (*Elective course*)

No.	Course Code	Course	Year	Semester	Credit	ECTS
<i>Elective Course</i>						
1.	KI 1122	Fundamentals of management	3	Even	2(2-0)	3.2
2.	KIBDP 15321	Macroalgae Cultivation Technology	3	Even	3(2-1)	4.8
3.	KI 12310	Limnology	3	Even	3(2-1)	4.8
4.	KI 13316	Fisheries and Marine Entrepreneurship	3	Even	3(2-1)	4.8
5.	KI 13211	Sociology of Coastal and Islands Communities	3	Even	2(2-0)	3.2
6.	KI 13313	Invertebrates	3	Even	3(2-1)	4.8
7.	KIBDP 1435	Fisheries Extension	3	Even	3(2-1)	4.8
8.	KIBDP 14311	Experimental design	3	Even	3(2-1)	4.8
9.	KIMSA 15318	Conservation of water resources	3	Even	3(2-1)	4.8
10.	KIBDP 16325	Pathology and toxicity	3	Even	3(2-1)	4.8
11.	KIMSA 1232	Water sports	3	Even	3(1-2)	4.8
12.	KIBDP 16326	Management of Aquatic Environment	3	Even	3(2-1)	4.8
13.	KIBDP 16327	Self-development	3	Even	2(2-0)	3.2

MODULE HANDBOOK

Module designation	Invertebrates
Semester(s) in which the module is taught	Even / year if
Person responsible for the module	Dr. Ir. Yulianus Linggi, M.Si Ir. Ridwan Tobuku, M.Si
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<ol style="list-style-type: none"> 1. Morphology and Anatomy 2. Physiology (movement, food and how to eat, breathing and excretion) 3. Reproduction 4. Classification 5. Economic Value of Animals Avertebrate Water which includes Protozoa, Porifera, Cnidaria, Platyhelminthes, Aschelminthes, Annelida, Mollusca, Crustacea, Uniramia, and Echinodermata.
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Barnes, R.D., 1982. Invertebrate Zoology, 4 Th Ed. Saunder College, Philadelphia, Holt Saunders Japan, Tokyo. 2. Brusca, R, C, and Brusca, G.J. 2003. Invertebrates. 2nd ed. Sinauer Associates, Inc. PUBL. 903 p. 3. Dahuri, R. 2003. Sea Biodiversity. PT Gramedia Utama, Jakarta. 4. Eisle, R. 2009. Compendium of Trace Metals and Marine Biota: Vol. 1. Plants and invertebrates. Elsevier Science Publisher. 5. Gosling, E. 2003. Bivalve Molluscs. Blackwell Publ. USA. 6. Nozeires, C. 2003. Marine Species Identification. Guide for St. Lawrence. Part 2 Marine Invertebrates, Maurice Lamontagne Institue 7. Shimek, R.L. 2004. Marine Invertebrates. TFH PUBL. Neptune City. 8. Subekti, S., Kismiyati, Rosmanida, Andriyono, S. and Pursetyo, K. P. 2016. Textbooks of Air Avertebrates. Global Persada Press, Surabaya. 9. Wallace, R.L. and Taylor, W. K., 2002. Invertebrate Zoology. A Laboratory Manual. Sixth Edition. Prentice Hall. Upper Saddle River. 10. Webb, J.E, Wallwork, J.A and Ellgood, J.H, 1980. Guide to Invertebrate Animals. Second edition. The Macmillan Press Ltd., London.

MODULE HANDBOOK

Module designation	Fundamentals of management
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ir. Sunadji, M.P.
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	1 theory (2 credits) 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions
Content	1. Introduction to Management 2. Planning and decision making: 3. Organizational Structure 4. Motivation theory. 5. Operational and Strategic Control 6. Business Ethics 7. Performance and compensation management 8. Operational management 9. Financial Management 10. Marketing Management: 11. Innovation and Management of Change
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Draft, R. L. (2018). Management (14th ed.). South-western College Pub. 2. Robbins, S. P., Coulter, M., & Decenzo, D. A. (2017). Fundamentals of Management (10th ed.). Pearson. 3. Kinicki, A., & Williams, B. K. (2018). Management: A Practical Introduction (8th ed.). McGraw-Hill Education. 4. Koontz, H., Weihrich, H., & Cannice, M. (2017). Management: A global perspective (15th ed.). McGraw-Hill Education. 5. Lussier, R. N., & Achua, C. F. (2018). Leadership: Theory, Application, & Skill Development (6th ed.). Cengage Learning.

MODULE HANDBOOK

Module designation	Fisheries and Marine Entrepreneurship
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Franchy Ch. Liufeto, S.Pi., M.Si
Lecturer	Dr. Franchy Ch. Liufeto, S.Pi., M.Si Dr.Ir. Sunadji, MP
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<p>1. Basic Concepts of Entrepreneurship</p> <p>2. Entrepreneurial Opportunities and Challenges</p> <p>3. Business Analysis</p> <p>4. Business Plan (Business Plan)</p> <p>5. Entrepreneurial Assistance, Business Reports.</p>
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Alma, B. 2014. Entrepreneurship. Alfabeta. Bandung. 296 p. 2. Directorate General of Learning and Student Affairs. 2013. Entrepreneurship Teaching Module. Directorate General Higher Education, Ministry of Education and Culture. Jakarta. 317 p. 3. Maulidah, S. 2012. Introduction to Agribusiness Management. Universitas Brawijaya Press. 251 p. 4. Rindjin, K. 2004. Business Ethics and Its Implementation. Gramedia General Library. Jakarta. 147 p. 5. Scarborough, N. M. 2011. Essential of Entrepreneurship and Small Business Management. 6th ed. Prentice Hall. New Jersey. 305 p. 6. Wijatno, S. 2009. Introduction to Entrepreneurship. Grasindo. Jakarta. 277 p.

MODULE HANDBOOK

Module designation	Conservation of water resources
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ade Yulita Hesti Lukas, S.Pi.,M.Si ; Dr. Ir. Sunadji, MP
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lectures, discussions, group presentations
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. Description and scope of conservation 2. Management of Aquatic Conservation Areas 3. Conflicts in water conservation 4. Fisheries Supervision in Water Conservation Areas 5. Water conservation areas as an economic foundation Blue 6. Management of aquatic conservation areas for fisheries Sustainable 7. Conservation at species and population levels 8. Opportunities and challenges of fish resource conservation 9. Types of Conservation Areas 10. Status of Aquatic Conservation Area 11. Conservation of fish species
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Anonim, 2013. Melaksanakan Aturan dan Perundang-Undangan Perikanan. Bahan Ajar Diklat Konservasi (Perikanan Berkelanjutan). 2. http://www.bphn.go.id/data/documents/10pm030.pdf Peraturan Menteri Kelautan dan Perikanan Nomor Per.30/MEN/2010 Tentang Rencana Pengelolaan Dan Zonasi Kawasan Konservasi Perairan. Diakses pada tanggal 5 Desember 2014. 3. http://www.kkp.go.id/stp/index.php/arsip/c/834/. Sejarah Perkembangan Kawasan Konservasi Perairan Indonesia. Diakses pada tanggal 4 Desember 2014. 4. http://www.kkp.go.id/stp/index.php/arsip/c/834/. Sejarah Perkembangan Kawasan Konservasi Perairan Indonesia. 5. http://www.menlh.go.id/pendanaan-kawasan-perlindungan-di-indonesia/. Pendanaan Kawasan Perlindungan.

MODULE HANDBOOK

Module designation	Limnology
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Ir.Ridwan Tobuku, M.Si
Person responsible for the module	Ir.Ridwan Tobuku, M.Si Suleman,S.Pi.,M.Si
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p>
Content	<ol style="list-style-type: none"> 1. Definition of Limnology 2. Physical factors 3. Chemical factors 4. Biological factors 5. Organic and inorganic materials in water 6. Phosphor and nitrogen 7. Nitrogen, oxygen and CO₂ balance in the waters 8. Classification of Lentic Waters 9. Classification of Lontik Waters 10. Productivity of freshwater
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Dumont, H.J. (Ed.). 2011. The Nile: Origin, Environment, limnology and human use (monographiae biologicae). Springer, USA. 2. O'Sullivan, P., and Reynolds, C. S. (Eds). 2004. The Lakes Handbook: Limnology and Limnetic Ecology. Vol. 1. Wiley-Blackwell. 708 p. 3. Piska, R. S. and Naik, J. K. 2006. Introduction to Fish Biology and ecology. Osmania University. 353 p. 4. Stewart, R.H. 2009. Introduction to Physical Oceanography. Orange Grove Texts Plus. 351 p. 5. Thornton, K.W., Kimmel, B.L. and Payne, F. E. 1990. Reservoir Limnology: Ecological Perctive. Wiley Publ. 256 p. 6. Wetzel, R. 2001. Lymnology. Lake and River Ecosystem. (3rd ed). Academic Press, USA. 1006 p.

MODULE HANDBOOK

Module designation	Macroalga Cultivation Technology
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Prof. Dr. Ir. Marcelien Dj. Ratoe Oedjoe, M.Si Dr. Yuliana Salosso, S.Pi.MP
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lectures, group discussions, project -based learning
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Fundamental of aquaciltute
Module objectives/intended learning outcomes	<p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>

Content	<ol style="list-style-type: none"> 1. Introduction to knowing seaweed and history seaweed cultivation 2. Benefits of Seaweed: Phytocoloid, Primary Metabolites, secondary metabolites and benefits 4. Location selection: Ecological, technical, hygienic factors, Social, economic and legal aspects 5. Seaweed Cultivation Method:, Basic Loose Method, Floating Method (Longline), Raft Method 6. Procurement and Selection of Seeds: Asexual Seed Collection nature, seeds of cultivation, seeds of tissue culture, Seed sexual procurement. 7. Maintenance: maintenance of seaweed, maintenance facilities, predator/disease control, harvest 8. Cultivation of Gracilaria spp: Cultivation is added, cultivated in sea waters 9. Ceuler Cultivation Spp: Cultivation in Ponds, Cultivation at sea 10. Analysis of Seaweed Cultivation Business 11. Seaweed cultivation project
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission)> = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>

Reading List	<ol style="list-style-type: none"> 1. Sulistijo. 2002. Peluang Dan Tantangan pengembangan Bisnis Budidaya Rumput Laut di Indonesia. Makalah disampaikan pada seminar Nasional Bisnis Akuakultur di Indonesia pada tanggal 30 Oktober 2002 di Surabaya. 2. Winarno, F.G. 1996. Teknologi Pengolahan Rumput Laut. Pustaka Sinar Harapan. Jakarta. 111 hal. 3. Salosso, 2020. Bahan Ajar Teknologi Budidaya Makroalga. 4. Anonim. 1996. Budidaya, Pengolahan, dan Pemasaran Rumput Laut. Penebar Swadaya. Jakarta. 99 hal 5. Andarias, I. 1997. Prospek Pengembangan Budidaya Rumput Laut dalam mentongsong Era Globalisasi. Makalah disampaikan di Depan Rapat Senat Luar Biasa Universitas Hasanuddin pada Hari Senin, 14 Mei 1997. di Makassar. 21 hal. 6. Badan Koordinasi Penanaman Modal Daerah Propinsi NTT. 2004. Profil Investasi Budidaya Rumput Laut di Nusa Tenggara Timur. Badan Koordinasi Penanaman Modal Daerah Propinsi NTT. Kupang. 7. Ditjen perikanan Budidaya. 2006. Buku Petunjuk Rumput Laut 2004. Ditjen Perikanan Budidaya. Jakarta. 8. Hidayat, A. 1994. Budidaya Rumput Laut. Penerbit Usaha Nasional. Surabaya. 96 hal 9. Kadi, A dan Atmaja, W.S. 1988. Rumpit Laut (Algae), Jenis, Reproduksi, Budidaya dan Pascapanen. Penerbit Penebar Swadaya. Jakarta. 10. Mintarjo dan Minjoyo. 1992. Suatu Tinjauan tentang Teknologi Produksi Jenis Rumput Laut Tropis yang Bernilai Ekonomis. Direktorat jendral Perikanan bekerjasama dengan International Development Research Centre. Jakarta. 50 hal 11. Sediadi, A dan Budiarto, U. 1998. Rumput Laut Komoditas Unggulan. Gracindo, Jakarta. 27 hal. 12. Sulaeman dan Parenrangi, A. 2005. Pengembangan Budidaya Rumput Laut. Makalah disampaikan pada Lokakarya Pemberdayaan Masyarakat Pesisir di NTT Melalui Kegiatan Budidaya Perairan, pada Tanggal 20-21 Oktober 2005 di Kupang. 14 hal 13. Salosso dkk, 2016. Kajian Metabolit sekunder dan Metabolit Primer Makroalga di Perairan Teluk Kupang untuk Menentukan arah pemanfaatannya. Laporan Penelitian. Fakultas Perikanan dan Kelautan Undana.
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MODULE HANDBOOK

Module designation	Water sports
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ir. Yulianus Linggi, M.Si
Lecturer	Dr. Ir. Yulianus Linggi, M.Si Welem Turupadang, S.Pi., M.Sc
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture and discussion
Workload (incl. Contact hours, self-study hours)	<p>Theory (1 SKS)</p> <ol style="list-style-type: none"> 1. Lecture in class 1 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 1 SKS x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 1 SKS x 60 Minutes x 14 Meetings = 1,680 minutes <p>Practicum (2 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 2 credits x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 2 credits x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<ol style="list-style-type: none"> 1. Introduction to Water Sports 2. Types of Water Sports 3. Safety and Safety aspects 4. Techniques and Strategies in Water Sports
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) $\geq 80\%$ so they can join the exam</p> <p>Assessment of competency achievement using a theoretical value of 30% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 70% practicum. Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Kholid, .M.M. 2017. Teknik Dasar Renang. Penerbit: Pena Karya 2. Rahardjo, E.W. 2015. Pembinaan Olahraga Air. Penerbit: Raja Grafindo Persada 3. Hardiman, S. 2017. Selam Bebas dan Snorkeling. Penerbit: Deepublish

MODULE HANDBOOK

Module designation	Pathology and toxicity
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Ir. Felix Rebhung, M.Agr., Ph.D
Lecturer	Ir. Felix Rebhung, M.Agr., Ph.D Welem Turupadang, S.Pi., M.Sc
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion, group presentation, case study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	<p>1. Fundamental of aquaculture</p> <p>2. Physiology of aquatic organisms</p>
Module objectives/intended learning outcomes	<p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<p>1. Introduction to Pathology and Toxicology</p> <p>2. Organ and System Pathology:</p> <p>3. Toxicological Mechanisms:</p> <p>4. Classification and type of poison:</p> <p>5. Environmental pathology and toxicology:</p> <p>6. Toxicity Test:</p> <p>7. Handling of Emergency Toxicology:</p> <p>8. Case Study and Examples of Diseases</p>
Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) >= 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Hadiwidodo, T.A., 2017. Toksikologi Lingkungan untuk Ikan dan Hewan Air. Penerbit: IPB Press. 2. Yusrizar, H. 2020. Dasar-dasar Toksikologi Lingkungan: Pencemaran dan Dampaknya pada Perairan. Penerbit: Deepublish 3. Hartoko, A. 2019. Toksikologi Lingkungan: Dasar-dasar dan Aplikasi pada Organisme Air. Penerbit: UMM Press.

MODULE HANDBOOK

Module designation	Self-development
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ir. Agnette Tjendanawangi, M.Si
Lecturer	Dr. Ir. Agnette Tjendanawangi, M.Si Welem Turupadang, S.Pi., M.Sc
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion, group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (2 credit)</p> <ol style="list-style-type: none"> Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<ol style="list-style-type: none"> Self-ageness Goal Settings Time Management Communication Skills Emotional Intelligence Stress Management Career Development Leadership and Teamwork
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a theoretical value of 30% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 70% practicum. Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Stephen R. Covey. 1989. The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change. Penerbit: Simon & Schuster. 2. Waringin, D. 2018. Marketing Revolution: Pemikiran Kreatif dari Manusia Liar. Penerbit: PT. Gramedia Pustaka Utama. 3. Teguh, M. 2017. Mario Teguh Golden Ways: Jalan Menuju Sukses dan Bahagia. Penerbit: PT. Gramedia Pustaka Utama.

MODULE HANDBOOK

Module designation	Fisheries Extension
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ir. Sunadji, MP
Lecturer	Dr. Ir. Sunadji, MP Suleman, S.S.T.Pi., M.P
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lectures, discussions, group presentations
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>LO-2: Able to master the theoretical concepts of aquaculture, especially in the field of mariculture</p> <p>ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines</p>
Content	<ol style="list-style-type: none"> 1. Government counseling and policy 2. Objectives of the Counseling Organization 3. The link between research and counseling 4. Methods for influencing human behavior 5. Counseling Ethics 6. Background Use of Fisheries Counseling 7. Counseling Method 8. Extension program planning 9. Evaluation and Monitoring 10. Participate fishermen/fish farmers in the program counseling organizational organization and management counseling

Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Subagio, dkk, 2012, Modul Kewirausahaan Penyuluh Perikanan, STP Jurluhkan, Bogor 2. Kartasapoetra, A.G., 1988. Teknologi Penyuluhan Pertanian. Bumi Aksara, Jakarta 3. Mardikanto, T., 1999. Penyuluhan Pembangunan Pertanian, Universitas Sebelas Maret, Surakarta. 4. Padmowihardjo, S., 2000. Metode Penyuluhan Pertanian, Universitas Terbuka, Jakarta. 5. Samsudin, U. 1987. Dasar-dasar Penyuluhan dan Modernisasi Pertanian, Bina Cipta, Bandung. 6. Setiana, L. 2005. Teknik Penyuluhan dan Pemberdayaan Masyarakat. Ghalia, Indonesia. 7. Soedijanto, 2004. Menata Kembali Penyuluhan Pertanian di Era Agribisnis, Departemen Pertanian, Jakarta. 8. Suhardiono, 1992. Penyuluhan Petunjuk Bagi Penyuluh Pertanian. PT Erlangga. 9. Pedoman Umum Penyelenggaraan Penyuluhan Perikanan, Departemen Kelautan Dan Perikanan, 2002.

MODULE HANDBOOK

Module designation	Experimental design
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr Yudiana Jasmanindar, S.Pi., M.Si
Lecturer	Dr Yudiana Jasmanindar, S.Pi., M.Si Wesly Pasaribu, S.Pi., M.Si
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, tutorial/simulation, small group discussion, case study
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <p>1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes</p> <p>2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes</p> <p>Practicum (1 credit)</p> <p>1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes</p> <p>2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes</p>
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	Scientific method
Module objectives/intended learning outcomes	<p>ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture</p> <p>ILO-3: Able to manage data and convey information in the field of aquaculture and provide various alternative solutions</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<p>1. Statistics and scientific methods</p> <p>2. Basic Principles of Experiment Design</p> <p>3. Complete random design</p> <p>4. Complete group random design</p> <p>5. Factorial Design Experiment</p> <p>6. Factorial rack design experiment</p> <p>7. Different analysis</p> <p>8. Handling Problems in Various Analysis</p> <p>9. Application or Statistics Program Package</p> <p>10. Case Study</p>

Examination forms	Assessment covers written tests (midterm examination, semester final exams, practicum exams, quiz), assignments, project results, participatory activities
Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 50% (including 10% quiz, 10% assignment, 15% mid-test and 15% final test) and 50% project (25% participatory activity and 25% project results). Students pass competence if they get a minimum point is 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Mattjik, A.A., Sumertajaya I.M. 2013. Perancangan Percobaan dengan Aplikasi SAS dan Minitab Jilid 1. IPB Press 2. Satstrosupadi A. 2000. Rancangan Percobaan Praktis Bidang Pertanian. Edisi Revisi. Penerbit Kanisius 3. Montgomery, D.C. 2017. Design and Analysis of Experiments, 9th edition. John Willey & Son, Inc 4. Johnson R.A., Bhattacharyya. 2010. Statistics : principles and methods. New York : John Wiley and Sons Inc

MODULE HANDBOOK

Module designation	Sociology of Coastal and Islands Communities
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ir. Sunadji, M.P.
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	1 theory (2 credits) 1. Lecture in class 2 Credit x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes 3. Self Study 2 Credit x 60 Minutes x 14 Meetings = 1,680 minutes
Credit points	2 CU = 3.2 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	ILO-2: Able to master the theoretical concept of aquatic cultivation, especially in the field of mariculture ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines
Content	1. Introduction to the sociology of coastal communities 2. Coastal community social system 3. Culture of Coastal Community 4. Coastal community economy 5. conflict and social change 6. The role of gender in coastal communities 7. Policy and Management of Coastal Resources
Examination forms	Assessment covers written tests (middle exams and semester final exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using a value of 25% soft skill, 15% assignment, 30% mid -test and 30% final test. Students pass competence if they get a minimum point 60.</p>
Reading List	<ol style="list-style-type: none"> 1. Kusen, E. 2003. Local Institutional Development of Coastal Resource Management: A Social Learning Perspective. Coastal Management. 2. Mardiansyah. 2011. Sosiologi Masyarakat Pesisir. Penerbit: Pustaka Pelajar. 3. Anshori, M. 2012. Kearifan Lokal Masyarakat Pesisir: Kajian Sosiologi Pedesaan. Penerbit: CV Budi Utama.

MODULE HANDBOOK

Module designation	Management of Aquatic Environment
Semester(s) in which the module is taught	Even / third year
Person responsible for the module	Dr. Ir. Yulianus Linggi, M.Si
Lecturer	Dr. Ir. Yulianus Linggi, M.Si Dr. Yudiana Jasmindar, S.Pi., M.Si
Language	Indonesian
Relation to curriculum	Elective courses
Teaching methods	Lecture, discussion and group presentation
Workload (incl. Contact hours, self-study hours)	<p>Theory (2 credits)</p> <ol style="list-style-type: none"> 1. Lecture in class 2 SKS x 50 Minutes x 14 Meetings = 1,400 minutes 2. Structural Assignment 2 credits x 60 minutes x 14 meetings = 1,680 minutes 3. Self Study 2 credits x 60 minutes x 14 meetings = 1,680 minutes <p>Practicum (1 credit)</p> <ol style="list-style-type: none"> 1. Academic activities in the laboratory 1 SKS x 120 minutes x 14 meetings = 1,680 minutes 2. Practicum Task 1 SKS x 50 minutes x 14 meetings = 700 minutes
Credit points	3 CU = 4.8 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<p>ILO-6: Able to apply science and technology to increase the productivity of aquaculture</p> <p>ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production</p>
Content	<ol style="list-style-type: none"> 1. Interpretation of Aquatic Environmental Management 2. Aquatic environmental modeling 3. Management of aquatic ecosystems 4. Conservation and Protection of Water Resources 5. Management of fisheries resources 6. Management of freshwater and coastal resources 7. Evaluation of environmental impacts and policy application
Examination forms	Assessment covering written tests (midterm exams, final semester exams, practicum exams), soft skills and group presentations (assignments)

Study and examination requirements	<p>If students attend lectures (including not present due to illness or permission) > = 80% so they can join the exam</p> <p>Assessment of competency achievement using the theoretical value of 70% (including 25% soft skills, 15% assignment, 30% mid-test and 30% final test) and 30% practicum. Students pass competence if they get a minimum point 60.</p>
Reading List	<p>1. Triharyono, Muhammad Iqbal, et al. 2018. Management Ecosystem -based aquatic and coastal environment. IPB Press.</p> <p>2. Suharsono, Anugrah N. P., et al. 2017. Management Aquatic environment. Publisher: Gadjah Mada University Press.</p> <p>Martin, J.F. 2019. Environmental Management of Aquatic Ecosystem. Publisher: CRC Press</p>

Odd Semester (*Final project*)

MODULE HANDBOOK

Module designation	Community Service Program
Semester(s) in which the module is taught	Odd / fourth year
Person responsible for the module	Studfield Supervisory Program Lecturer Team
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Project Base Learning
Workload (incl. Contact hours, self-study hours)	The Duration of the Community Service Program is equivalent to activities of 60 days in the location.
Credit points	4 Credits
Required and recommended prerequisites for joining the module	1. Has completed 110 credit
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism as well Responsible for carrying out their duties independently ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production
Content	The final project aims to provide students with experience and ability in formulating a problem and its solution in the form of a student's independent scientific work that is relevant the scientific field of study and is carried out by the Aquaculture Study Program
Examination forms	Rubric
Study and examination requirements	1. Pass the Field Work Practice Examination 2. Producing the Final Report on the Research
Reading List	1. Community Service Program Handbook, Nusa Cendana University

MODULE HANDBOOK

Module designation	Internship/work practice
Semester(s) in which the module is taught	7 / fourth year
Person responsible for the module	Study Program Lecturer Team
Language	Indonesian
Relation to curriculum	Final Project Course
Teaching methods	Project Base Learning
Workload (incl. Contact hours, self-study hours)	The Duration of the Field Practice is equivalent to activities of Minimum 30 days (4 weeks) in location
Credit points	4 Credits
Required and recommended prerequisites for joining the module	1. Research Methods 2. experimental design 3. Has completed 110 credit
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism as well Responsible for carrying out their duties independently ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production
Content	The final project aims to provide students with experience and ability in formulating a problem and its solution in the form of a student's independent scientific work that is relevant the scientific field of study and is carried out by the Aquaculture Study Program
Examination forms	1. Oral Examination 2. Final project Report
Study and examination requirements	1. Pass the Field Work Practice Examination 2. Producing the Final Report on the Research
Reading List	1. Field Work Practice Handbook, Study Program Aquaculture 2. Reference related to the final project topic

MODULE HANDBOOK

Module designation	Thesis
Semester(s) in which the module is taught	Odd / fourth year
Person responsible for the module	Supervisor
Language	Indonesian
Relation to curriculum	Compulsory Course
Teaching methods	Project Base Learning
Workload (incl. Contact hours, self-study hours)	The duration of the Final Project is equivalent to activities of 6 mounths.
Credit points	6 Credits
Required and recommended prerequisites for joining the module	1. Research Methods 2. experimental design 3. Has completed 110 credit
Module objectives/intended learning outcomes	ILO-1: Having morals, ethics, and nationalism as well Responsible for carrying out their duties independently ILO-4: Able to communicate and work together, and interact with people who have different backgrounds and disciplines ILO-7: Able to evaluate and provide a solution to the sustainability of aquaculture production
Content	The final project aims to provide students with experience and ability in formulating a problem and its solution in the form of a student's independent scientific work that is relevant the scientific field of study and is carried out by the Aquaculture Study Program
Examination forms	1. Oral Presentation 2. Oral Examination 3. Final project Report
Study and examination requirements	1. PASS SEMINAR RESEARCH RESULTS 2. Producing the Final Report on the Research
Reading List	1. Handbook for writing scientific papers, Aquaculture Study Program