MODULE DESCRIPTION OF DISEASE AND FISH HEALTH MANAGEMENT

<table>
<tr><td>Nutritional physiology biochemistry</td><td colspan="4">Disease and Fish Health Management</td></tr>
<tr><td>Module level</td><td colspan="4">7</td></tr>
<tr><td>Code</td><td colspan="4">19l06211803</td></tr>
<tr><td>Subtitle</td><td colspan="4">-</td></tr>
<tr><td>Course</td><td colspan="4">Fish Disease and Health Management</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td colspan="4">1st Semester</td></tr>
<tr><td>Person responsible for the module</td><td colspan="4">Prof. Dr. Ir. Hilal Anshary, M.Sc.</td></tr>
<tr><td>Lecturer(s)</td><td colspan="4">1. Prof. Dr. Ir. Hilal Anshary, M.Sc.
2. Dr. Ir. Sriwulan, MP.,
3. Dr.Ir.Gunarto Latama, M.Sc</td></tr>
<tr><td>Language</td><td colspan="4">Indonesian</td></tr>
<tr><td rowspan="2">Relation to curriculum</td><td>Programme</td><td colspan="2">Mode</td><td>Semester</td></tr>
<tr><td>MSc. Fisheries science</td><td colspan="2">Elective</td><td>1st</td></tr>
<tr><td rowspan="4">Type of teaching, contact hours</td><td colspan="4">Contact hours and class size separately for each teaching method: lecture, lesson, practical, project, seminar, etc.</td></tr>
<tr><td>Taeching Method</td><td colspan="2">Contact Hours per week</td><td>Class Size</td></tr>
<tr><td>Lecture</td><td colspan="2">1.7</td><td>40</td></tr>
<tr><td>Exercises</td><td colspan="2">2.0</td><td>40</td></tr>
<tr><td rowspan="3">Workload</td><td colspan="4">(Estimated) workload, divided into contact hours (lecture, exercise, laboratory session, etc) and private study, icluding examination preparation, specified in hours</td></tr>
<tr><td>Contact Hours per week</td><td>Private Study per week</td><td>Semester Workload</td><td>ECTS Credits</td></tr>
<tr><td>3.7</td><td>2.0</td><td>91.2 h</td><td>3.4</td></tr>
<tr><td>Requirements according to the examination regulations</td><td colspan="4">In order to pass the module, student must obtain a minimal final grade of D (≥ 45). This value is the average value of 5 lecturers (Exam. Reg.)</td></tr>
<tr><td>Recommended prerequisites</td><td colspan="4">Formal : none
Content : none</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td colspan="4">After having finished the module, students are able to:
Knowledge:
- Having knowledge of the principles of fish health management in various aquaculture systems and technologies.
Skills:
- Apply science and technology in carrying out fish control measures appropriately and efficiently, apply principles of fish health management to control bacterial, fungal, and viral diseases in fish and shrimp.
Competenciess:
- Be able to explain, apply, and plan fish health management principles in disease control in farmed animals. Involves pathogen identification, diagnosis, prophylaxis measures, understanding of environmental influences on fish health, as well as planning fish health management and live fish trade at regional, national, and international levels</td></tr>
<tr><td>Content</td><td colspan="4">This course will discuss general fish health management, prophylaxis and disease prevention measures in various aquaculture systems, disease control by vaccination, the use of probiotics and various types of immunostimulants, the relationship between water quality and the presence of disease, and the principles of fish health management to prevent parasitic, bacterial, fungal and viral diseases in aquaculture systems.</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td colspan="4">Lecture:
● Partial quizzes
● Lectures/lectures
● Studying</td></tr>
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	● Collaborative group discussions
Media employed	LCD, website, print out, computer, library
Literature	● Jeney, G. (editor). 2017. Fish Diseases-Prevention and Control Strategies. Academic Press. Oxford OX5 1GB, United Kingdom. P 264. ● Roberts, R.J (editor). 2012. Fish Pathology. Wiley-Blackwell; John Wiley & Sons, Ltd., Publication. West Sussex, PO19 8SQ, UK ● Edmir Daniel Carvalho, Gianmarco Silva David Reinaldo J. Silva. 2012. Health and Environment in Aquaculture. Published by InTech, Janeza Trdine 9, 51000 Rijeka, Croatia ● John A. Plumb and Larry A. Hanson. 2011. Health maintenance and principal: microbial diseases of cultured fishes. Wiley-Blackwell; John Wiley & Sons, Ltd., Publication, Iowa 50014-8300, USA ● Frederick S.B. Kibenge & Marcos G. Godoy. 2016. Aquaculture Virology. Academic Press, Oxford OX5 1GB, United Kingdom. P 549. ● Brian Austin & Dawn A. Austin. 2016. Bacterial Fish Pathogens: Disease of Farmed and Wild Fish. Springer International Publishing Switzerland. P 732. ● Cheng-Sheng Lee, Chhorn Lim, Delbert M. Gatlin III, Carl D. Webster. 2015. Dietary Nutrients, Additives, and Fish Health. Wiley-Blackwell. P 355.