MODULE HANDBOOK

Course : Food Hygiene

Academic Year : 2017/2018

A. Course Identity

Module name	Food Hygiene
Module level	Bachelor
Abbreviation, if applicable	KHU-4074
Sub-Heading, if applicable	1. Physiology of lactation 2. Character of milk 3. Quality tests for milk 4. Microorganism in milk 5. Security and founding the quality of milk 6. Meat hygiene 7. Animal slaughter house 8. Animal slaughter administration, related laws (slaughtering requirements for stock animal) and resting period prior slaughtering purposes 9. Ante mortem examination, slaughtering procedures, emergency slaughter and post mortem examination 10. Comparative anatomy of cow, sheep/goat, pig, horse, and determination of age and sex of stock animal 11. Muscle structures and composition, muscle contraction mechanism, muscle to meat conversion and chilling process, stress management and conditions prior slughtering (Predisposing factors in portmortem alteration and quality of meat) 12. Meat microbiology 13. Meat processing 14. Introduction to egg hygiene 15. Egg formation 16. Egg abnormalities 17. Chemical compounds of egg 18. Egg microbiology 19. Egg technology 20. Introduction to fish hygiene 21. Fish structure 22. Chemical compounds of fish 23. Post mortem changes in fish 24. Microbiology and quality of fish

Courses included in the module, if applicable	1. Physiology of lactation 1.1. Anatomy of mammary gland 1.2. Blood and lymphatic circulation of mammary gland 1.3. Milk formation 1.4. Milk release 2. Character of milk 2.1. Definition of milk 2.2. Physical and chemical character 2.3. Milk composition of animals 2.4. Predisposing factors of milk compounds 3. Quality test for milk 3.1. Sampling 3.2. Quality test for milk (milk formation and compound) 3.3. Inspection of milk counterfeiting and preservatives replenishment 4. Milk microorganism 4.1. Microorganism 4.2. Abnormalities 5. Security and founding of milk quality 5. 1. Cow health rules 5.2. Farm rules 5.3. Milk chamber rules 5.4. Tools hygiene rules 5.5. Milk industry rules on field and irigation system 5.6. Workers hygiene rules 5.7. Milk test supervision 5.8. Supervision on milk handling and storage 5.9. Milk transportation supervision 5.10. Mlik selling supervision 6.1. Introduction in meat hygiene 6.1.1. Veterinarian roles in meat hygiene 6.1.2. Meat in food chain 6.2. Meat hygiene definition, purpose and related laws 6.2.1. Meat hygiene definition 6.2.2. Meat hygiene purposes 6.2.3. Related laws : - Staatsblad No. 432 Tahun 1912 - Staatsblad No. 435 Tahun 1912 - Staatsblad No. 614 Tahun 1936 - Staatsblad No. 671 Tahun 1936 - UU No. 6 Tahun 1967 7.1. Slaughter house 7.1.1. SK Mentan No. 555/Kpts/TN.240/9/1986 7.1.2. SNI 01-6159-1999 7.2. Poultry slaughter house 7.2.1. SK Mentan No. 557/Kpts/TN.520/9/1987

	7.2.2. SNI 01-6160-1999 7.3. Slaughter house sanitation 7.3.1. UPL and UKL 8.1. Administration in slaughter house and related laws 8.1.1. Retribution 8.1.2. Ownership certificate 8.1.3. Health certificate 8.1.4. Related laws: - Staatsblad 614/1936 - SKB Mendagri dan Mentan No. 18/1979 dan No. 05/Ins/UM/1979 - SK Mentan No. 413/Kpts/TN 310/7/1992 8.2 Resting period prior slaughter 8.2.1. Resting period purpose in conjuction to meat quality 9.1. Ante mortem examination 9.1.1. SK Mentan No. 413/Kpts/TN 310/7/1992 9.1.2. Antemortem procedures 9.1.3. Possible diseases found 9.1.4. Antemortem decision 9.2 Slaughter process 9.2.1. Ruminants halal slaughter 9.2.2. Pig slaughter 9.2.3. Poultry halal slaughter 9.3 Emergency slaughter 9.3.1. Emergency slaughter requisition 9.4. Postmortem examination 9.4.1. Straight and profound examination 9.4.2. Pathological changes found 9.4.3. Postmortem decision 10.1. Comparative anatomy of cow, sheep/goat, pig, horse 10.1.2. Skeleton structure 10.1.3. Digestive system 10.1.4. Respiratory system 10.1.5. Blood circulation system 10.1.6. Lymphatic system 10.1.7. Reproduction system 10.1.8. Excretion system 10.1.9. Character of meat and fat 10.1.10 Carcass distinction between horse and cow 10.2. Determination of age and sex of stock animal 10.2.1. Age determination by teeth structure 10.2.2. Sex determination by carcass 11.1. Muscle structures and composition 11.1.1. Muscle structure 11.1.2. Muscle/meat composition 11.2. Muscle contraction mechanism

	11.2.1. Nerve and stimulation 11.2.2. Skeletal muscle contraction 11.2.3. Skeletal muscle relaxation 11.2.4. Source of energy in muscle contraction 11.3. Muscle to meat conversion and chilling 11.3.1. Homeostasis 11.3.2. Exanguinasi 11.3.3. Blood circulation failed 11.3.4. pH postmortem decreased 11.3.5. Postmortem heat production and release 11.3.6. Rigormortis 11.3.7. Correlation of pH inclination to development of rigormortis 11.3.8. Enzyme degrades 11.3.9. Muscle physical change 11.4. Stress management and conditions prior slughtering (Predisposing factors in portmortem alteration and quality of meat) 11.4.1. DFD meat 11.4.2. PSE meat 11.4.3. Porcine Stress Syndrome (PSS) 12. Meat microbiology 12.1. Microorganism growth factors 12.2. Meat defect causing microorganism 13. Meat processing 13.1. Meat handling prior refrigeration 13.2. Storing procedure using refrigeration 13.3. Meat chilling and changes 13.4. Meat freezing 13.5. Cured meat 13.6. Can meat 13.7. Drying meat 13.8. Smoking meat 14. Introduction to egg 14.1.Types of egg 14.2 Egg composition 15. Egg formation 15.1. Yolk formation 15.2. Egg components formation 16. Egg defect 16.1 Egg shell defect 16.2 Albumen and yolk defect 16.3 Egg abnormalities 17. Chemical compound of egg 17.1 Whole egg and composition 17.2 An-organic main components in egg 17.3 Cholesterol in egg

	17.4 pH albumen and yolk 17.5 Proteins in albumen 18. Microbiology 18.1 Type of bacteria in egg shell 18.2 Type of bacteria in rotten egg 18.3 Viral diseases of egg 19. Egg technology 19.1.1 Egg processing 19.1.2 Egg preservation 20.1. Introduction in fish hygiene 20.1.1. Fish as food source 20.1.2 Fisheries classification 21.1 Fish structure 21.1.1 Fish anatomy 21.1.2 Fish meat structure 22.1 Fish chemical compounds 22.1.1 Fish chemical compounds 23.1 Fish Post Mortem changes 23.1.1 Prerigormortis 23.1.2 Rigormortis 23.1.3 Autolysis 24.1 Fish microbiology 24.1.1 Fish microbiology 24.2 Fish quality 24.2.1 Fish freshness
Semester/ Term	7 / Fourth Year
Coordinator	Dr.drh. Widagdo Sri Nugroho, M.P.
Lecturer(s)	1. Prof. Dr. drh. Bambang Sumiarto, SU, MSc 2. Dr. drh. Widagdo Sri Nugroho, M.P. 3. drh. Heru Susetya, M.P., PhD 4. Dr. drh. Doddi Yudhabuntara 5. Dr. drh. Yatri Drastini, MSc 6. drh. Dyah Ayu Widiasih, PhD 7. drh. M.Th. Khrisdiana Putri, M.P., PhD
Language	Bahasa Indonesia
Classifications within the curriculum	Compulsory course
Teaching Format/ class hours per weeks during the semester	2 hours of lectures per week / semester and 8 hours of focus group discussion (FGD) for 4 weeks/ semester
Workload	2 hours of lecture, 1 hour of structural activities/week for 14 weeks and 1 credit /week of practical : 2 hours of laboratory work, 1 hour of laboratory report, 8 hours of FGD; a total of 92 hours : 25 = 3,68 ECTS
Credit points	3 (2/1)
Requirements	Veterinary Public Health Science (KHU 3072)

<table>
<tr><td>Learning goals/ competencies</td><td colspan="4">CO1: Able to understand, to explain and to select how to produce food animal origin following Good Manufacturing Practices /GMPs or ASUH (Aman, Sehat, Utuh, Halal in Indonesian), control of safety and quality of food animal origins and their processed products and methods of examination.
CO2: Able to select and apply production methods following Good Manufacturing Practices /GMPs or ASUH (Aman, Sehat, Utuh, Halal in Indonesian), control of safety and quality of food animal origins and their processed products and methods of examination.
CO3: Able to interpret examination result the safety and quality from food animal origin and their processed products.
CO4: Able to carry out examination methods for food animal origins and their processed products in the laboratory of food hygiene or in other laboratories independently.
CO5: Able to collaborate interdisiplinary and multi disiplinary</td></tr>
<tr><td>Content</td><td colspan="4">Course components: Good Manufacturing Practices (GMPs), security and quality control of food and product of animal origin, application of quality test, and result interpretation</td></tr>
<tr><td rowspan="4">Study/ exam achievement</td><td>Assessment aspect</td><td>Assessment element</td><td>Point</td><td>Course outcome (CO)</td></tr>
<tr><td>Cognitive</td><td>Mid Exam
Final Exam</td><td>60%</td><td>CO1,CO2,CO3</td></tr>
<tr><td>Psychomotor</td><td>Laboratory Practice</td><td>25%</td><td>CO4</td></tr>
<tr><td>Affective</td><td>Focus Group Discussion (FGD), lecture dan laboratory practice Activity; Presence; Dicipline; Politeness</td><td>15%</td><td>CO5</td></tr>
<tr><td></td><td colspan="2">Total point</td><td colspan="2">100%</td></tr>
<tr><td>Forms of Media</td><td colspan="4">Powerpoint presentation, LCD Projector, Whiteboard, Laboratory</td></tr>
<tr><td>Literature</td><td colspan="4">1. Forrest, H.C., E.D. Aberte, M.D. Judge dan R.A. Merkel, 1975. Principles of Meat Science. W.H. Freeman, San Fransisco
2. Gracey, J.F. , 1986. Meat Hygiene. Bailliere Tindall, Eastbourne, East Sussex
3. Harper, W.J. dan C.W. Hall, 1976. Dairy Technology and Engineering. The Avi Publishing, Westport, Connecticut
4. Schalm, O.W., E.J. Carrol dan N.C. Jain, 1971. Bovine Mastitis. Lea & Febiger, Philadelphia</td></tr>
</table>

	5. Shahidi, F. dan J.R. Botta, 1994. Seafoods, Chemistry, Processing Technology and Quality. Blackie Academic & Profesional 6. Stadelman, W.J. dan O.J. Coterill, 1997. Egg Science and Technology. The Avi Publishing, Westport, Connecticut

B. PLO Mapping to CO

PLO	CO1	CO2	CO3	CO4	CO5
PLO 2 : Having insight in the field of national animal health system and veterinary legislation;	√	√	√		
PLO 3 : Having skills in practicing lege-artis medical treatment;				√	
PLO 9 : Having basic knowledge of risk analysis, veterinary economic analysis and entrepreneurships.	√	√	√		
PLO 14 : Well-communicate, able to cooperate in team;					√
PLO 17 : Having insight in actualizing food self-sufficiency;	√	√	√		