COURSE SYLABUS (Code: CN03201)
APPLIED MICROBIOLOGY IN LIVESTOCK PRODUCTION

1. General information

Course: Applied microbiology in livestock production (CN03201)

Credits: 2 (Lecture: 1.5 – Practice: 0.5 – Self-study: 6.0)

Training program: Animal Science (Option 1: Animal production & Health, Option 2: Animal nutrition & Feed technology)

2. Expected learning outcomes (ELOs)

Notation	Expected learning outcomes Upon complete of this course, the student should be able to:	Output standards of the program
Knowledge		
K1	Evaluate the existence of microorganisms in the livestock products (meat, egg and milk) and the roles of gastrointentestinal tract microbiota and probiotics in animal production to improve food hygiene and food safety as well as to control digestive diseases, improve livestock productivity	ELO 2: **Analyze** factors affecting the animal breed production, nutrition, and animal health
K2	Develop procedures for production microbial products used in livestock production; livestock waste treatment (such as probiotics, starters, enzymes) based on the fermentation technology	ELO 4: **Design** livestock production programs to ensure sustainable development
Skills		
K3	Work in group to perform properly feed processing from agricultural byproducts by using beneficial microorganisms	ELO 6: **Coordinate** teamwork in professional activities to achieve objectives as a member or a manager
K4	Develop a project presentation on preservation and processing of animal feed based on the fermentation technology	ELO 7: **Communicate** effectively using multimedia, adapt well in multi-cultural environment; meet the required standards of English proficiency issued by Ministry of Education and Training
Ethics and attitude		

K5	Show respect of safety regulations in microbiological research	ELO 12: **Comply** with state law and specific regulations and professional ethics
K6	Maintain the goal applying beneficial microorganisms in livestock production in future works	ELO 14: **Perform the habits** of life-long learning

3. Brief descriptions

Chapter 1: Utilize of beneficial microbes on animal feed preservation and processing

Chapter 2: Application of beneficial microorganisms on production of microbial products using in livestock production

Chapter 3: The role of gastrointestinal tract microbiota and probiotics in livestock production

Chapter 4: The role of contaminated microorganisms in livestock products

Chapter 5: Utilize of microbes in livestock waste treatment

4. Learning methods

- Self-learning: Students will receive the course outline and list of textbook and references books before the class.

-Learners should look for the information concerning with the lecture

- Project implemention: doing a project concering with a part of the course

- E-learning: Find and look up references; do homework

5. Assessment methods

- Grading scale: 10

- Average point: is the sum of the rubric scores multiplied by the weight of each rubric

+ Class attendance and attitude (rubric 1): 10%

+ Project assessment (rubric 2): 30%

+ Final exam (rubric 3): 60%

6. Student tasks

***Class attendance*:** Students have to attend classes on time and be active in discussion. Attendance for lectures must be followed according to the current regulations set by the MOET and VNUA. If the student miss class, in acceptable cases, it is his or her responsibility to obtain missed lecture notes and supplemental handouts.

Project: All students must submit their project proposal and participate in the project including doing the research in the lab. Project report will be submissed and presented in group.

Final exam: Failure to participate in the final exam will be graded zero and not re-tested (except for force majeure reasons).

Ethics policy: Students may work on the homework collaboratively with their friends, but the work that handed in must be written in each one's own handwriting (or typed), in their own words, showing that each understands everything they wrote).

7. Key academic staffs

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Communicate with key academic staffs: via email, phone and e-learning system.