COURSE SYLABU

MICROBIAL TECHNOLOGY IN AGRICULTURAL PRODUCTION

Credits: 02 (Theory 1,5 – Practise 0,5 - Self-study 06)

Code: MT03060

EXPECTED LEARNING OUTCOMES

Indicator	Upon completion of the course, Student able to	Training program output standards
Knowledge		
CELO1	Analyze the role of micro-biology in agricultural production and prospects of it in the fields of life and society	ELO2: Analyze environmental quality including designing and conducting experiments, collecting data, and interpreting results. ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality. ELO4:Develop sustainable solutions for the management and protection of the environment and natural resources based on different perspectives of natural science, social science, and humanities. ELO5: Design waste treatment facilities (solid wastes, wastewater, and air pollutants) according to national and international standards and regulations.
CELO2	Analyze the relationship between microbe growth and product formation	
CELO3	Summary of the basic principles of microbe culture by industrial methods	
CELO4	Assessing the quality of microbe inoculants used as fertilizer; land reclamation and plant protection	
CELO5	Application of micobe preparations in the field of agriculture and forestry to improve soil, increase the density of useful microorganisms in the soil; provide nutrition for plants; exterminating pests and insects.	
Skills		
CELO6	Designing experiments and models of applying microbe inoculants in agricultural production and environmental protection	ELO6: Apply systematic, critical, and creative thinking in solving problems in the environmental and related fields.
CELO7	Effective teamwork	ELO7:Work in groups and lead multi-functional teams effectively.
CELO8	Write reports, discuss in groups	ELO8: Communicate effectively via oral, written, and multimedia means with stakeholders in a dynamic environment; Satisfy the English requirement of the Ministry of Education and Training.Professional skills
Attitude		
CELO9	Proactively study research, update knowledge related to the field of work.	ELO11: Define a clear career orientation; possess a passion for one's career and a sense of lifelong learning

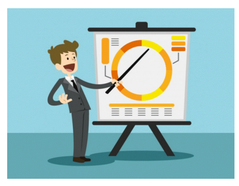
COURSE CONTENTS

I. Study theory in class

- Chapter 1. Historical origin and prospect of VSV technology in agriculture
- Chapter 2. Biochemical and genetic basis of CNVSV
- Chapter 3. Basic principles of VSV culture by industrial methods
- Chapter 4. Microbiological products
- Chapter 5. Preparations for VSV as fertilizer and soil improvement
- Chapter 6. Preparations for VSV used in plant protection
- Chapter 7. VSV preparations used in aquaculture
- Presentation in groups

II. Practise at the laboratory

- Lesson 1. Isolation of VSV for use as seed to produce products from microbes
- Lesson 2. Process of producing products from microbes as fertilizer for plants
- Lesson 3. Assessing the quality of products from microbes



STUDENT RESPONSIBILITY

- Attendance: students must attend a minimum of 75% of theoretical periods (minimum of 17.5 periods);
- Preparing for the lecture: students read the content of the lesson in advance as required by the teacher in the General Microbiology curriculum before class.
- Practice: Students who do not take part in the practice, do not take part in the practical exercises do not sit for the end of the module and receive zero points for the whole module.
- Presentation: students who qualify for attendance will be able to participate in the presentation; Absent presentations without a valid reason will receive a zero and no compensation test.

ASSESSMENT METHODS

1. **Grading scale: 10**
2. **Evaluation:**

+ Discussion in class : 10%
+ Presentation evaluation : 15%
+ Practice: 15%
+ Final exam : 60%

CONTACT

Course management

- **Department of Microbiology, Faculty of Natural Resources and Environment, Vietnam National University of Agriculture**

Course coordinator

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