Management of Plant Disease Vectors

Obligatory module or Selective module	**Management of Plant Disease Vectors**	**PNH 4132**
Semester	Odd Semester	
Module level	Undergraduate	
Module Coordinator		
Lecturer(s)	Dr. Ir. Sedyo Hartono, M.P. Alan Soffan, S.P., M.Sc., Ph.D.	
Type of Module	1 hour 40 minutes lecture	
Status	E (elective courses)	
Exam	Written	
Number of participants		
Credit Points:	2/0 (3.02 ECTS)	
Description	Management of Plant Disease transmitted by Vectors course is designed to complement and enrich the student understanding in plant disease management concept particularly those plant disease which is transmitted by vectors. This course summarizes the history, representative example of plant disease facilitated by vector, Physiological and molecular background of disease transmission by vector and finally the epidemiology and all the possible management tactics to reduce or eliminate the plant disease incidence. Although this course is not intended to have supporting practical work activities, but all the detail case study, along with their management will be delivered at the end of the course, which will involve student participation through open discussion. Over the course of the semester, students will be expected to utilize knowledge of basic plant disease management, zoology, basic entomology and integrated pest management.	
Academic goal (competency)	1. Student are informed with the history and representative example of plant disease transmitted by vector. 2. Students able to understand the basic concept of plant disease management specific for those transmitted by vectors 3. Essential concept of disease transmission by vector along with the epidemiology concept should be well understood 4. General and specific management tactic for diverse example plant diseases transmitted by vector should be mastered by students	
Learning outcomes: 1. CO1= Students understand the history, and able to mentions the important and representative example of plant disease which is transmitted by vectors.		

2. CO2= Student understand the scientific background of epidemiology and plant disease transmission by vectors.
3. CO3 = Students able to design the basic management tactic to reduce plant disease transmitted by vector

Contents:

1. History of management plant disease by vector worldwide
2. Major vector-borne plant diseases (virus, procaryote, fungi) in the world
3. Major insect vectors in the world and their behavior-bio-physiology
4. Transmission mechanism of Plant disease by vector
5. Molecular basis of plant disease transmission by vector (from the point of view vectors, plant and plant disease)
6. Epidemiologiy of plant disease transmitted by vector
7. General management strategy for plant disease transmitted by vector
8. Case studies of Rice virus transmitted by plant hopper (History and management tactics)
9. Case studies of Plant virus transmitted by Whitefly (History and management tactics)
10. Case studies of Plant bacterial and phytoplasma disease transmitted by insects vector (History and management tactics)
11. Case studies of Plant virus transmitted by Aphids (History and management tactics)

Which previous course required?

Basic plant disease management, zoology, basic entomology and integrated pest management

Literature:

Harris, K. F., & Maramorosch, K. (Eds.). (2013). *Pathogens, vectors, and plant diseases: approaches to control*. Elsevier.

Brown, J. K. (Ed.). (2016). *Vector-mediated transmission of plant pathogens*. APS Press.

Maramorosch, K. (Ed.). (2012). *Plant diseases and vectors: ecology and epidemiology*. Elsevier.

Materials provided: Video, PPT files, Book, articles

Requirements for exam:75% Attendance

Teaching method(s)	Lectures, Discussion, Assignments

Workload (hrs).

Theoretical of course: 14 times

Lab work: -

Home studies: