PORTFOLIO OF THE COURSE OF MONITORING PESTS AND DISEASES (PPT 2211; 37315)

EVEN SEMESTER OF 2022

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STUDY PROGRAM OF PLANT PROTECTION
DEPARTMENT OF PLANT PEST AND DISEASES
FACULTY OF AGRICULTURE
UNIVERSITAS SRIWIJAYA
2022

I. INTRODUCTION

The course Monitoring Pests and Diseases is a compulsory subject in the 2015 Curriculum and the Plant Protection Study Program. This course is offered to second year or sixth semester students, from January to July. The course does not have special requirements and every sixth semester student can take the course. Some lecture topics are given in the form of practicals and case studies. Assignments are given in the form of quizzes, assignments, project reports, and midterm and final exams. Both the midterm and final exams consist of answering questions in short essays. For the last semester (even semester 2022), the number of students who attended lectures was 81 students divided into 2 classes (A and B). All participants are students of the Plant Protection Study Program, Faculty of Agriculture, Sriwijaya University

This portfolio is one of the evaluation documents for planning, implementing and evaluating the teaching and learning process for observing plant pests and diseases, as well as following up on the results of the evaluation with the necessary improvements. For the stated purposes, this portfolio consists of the following:

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1. Course description
2. Course implementation
3. Course evaluation
4. Reflection
5. Course improvement
6. Appendix

II. COURSE DESCRIOTION

Teaching This course is focused on understanding the presence of pests and plant diseases that may be caused by viruses, fungi, bacteria as plant pathogens. The material given in this course is more devoted to understanding how to observe pests and diseases in the field, from sampling to reporting results. The discussion covers the sampling technique of sample plots and sample plants; pest capture techniques, population calculations and damage calculations; method of measuring the level of plant damage due to pest attacks; calculate the species diversity index, dominance index and evenness index. method of measuring disease intensity in the field; techniques for handling diseased plant samples; analysis of the distribution of plant pests and diseases; reporting the results of monitoring plant pests and diseases.

III. COURSE IMPLEMENTATION

Teaching Methods

The course learning process includes face-to-face lectures, both in class and online via the internet using the Sriwijaya University LMS, practical work in laboratories, greenhouses and in the field, group discussions and project assignments. Assessment is carried out in several ways including quizzes, practicum reports, midterm exams, presentations and final exams.

The learning outcomes imposed on the courses (Course Learning/CLO) and weekly competencies (Sub-CLO) that will be achieved by students are systematically arranged in the semester learning plans (RPS) of the courses (Appendix 1). The intended learning outcomes assigned to the course are as follows:

CLO-1: Internalize the spirit of independence, struggle, and entrepreneurship.

Sub-CLO1: Students are able to understand the mechanism of the learning process and be able to explain the scope of monitoring pests and diseases.

Sub-CLO2. Students are able to understand the observation mechanism, especially the sampling technique for observing pests and plant diseases in general

CLO 2. Able to recognize and measure plant damage due to pests and plant diseases

Sub CLO 3. Students are able to understand the mechanism of observation, especially the philosophy of determining the percentage and intensity of pest attacks.
Sub CLO 4. Students are able to understand the mechanism of determining the value of the diversity index, dominance and evenness of species
Sub CLO 5. Students are able to understand the mechanism: Monitoring of Coffee Plant Pest Organisms
Sub CLO 6. Students are able to understand the mechanism of observation, especially: Distribution / distribution of disease Plants: Types of distribution of plant diseases based on distribution.
Sub CLO 7. Students are able to understand the mechanism of observation, especially: Observation of systemic diseases : Observation method of observation data analysis and attack intensity.

CLO 3. Able to recognize and identify plant-disturbing organisms

Sub CLO 11. Students are able to understand the mechanism of observation, especially: Method of Sampling Plant Diseases and Their Analysis

Sub CLO 12. Students are able to understand the mechanism of observation, especially: Method of Sampling Plant Diseases and Their Analysis

Sub CLO 13. Students are able to understand the mechanism of the results of field observations, especially: Calculating Spore Density and Selective Medium Recognition

CLO 4. Able to identify pests and plant pathogens quickly and accurately using molecular, microscopic and macroscopic biotechnology

Sub CLO 11. Students are able to understand the mechanism of observation, especially: Method of Sampling Plant Diseases and Their Analysis
Sub CLO 12. Students are able to understand the mechanism of observation, especially: Method of Sampling Plant Diseases and Their
Sub CLO 13. Students are able to understand the mechanism of the results of field observations, especially: Calculating Spore Density and Selective Medium Recognition
Sub CLO 14 Students are able to understand the mechanism of the results of field observations, especially: Symptoms, Possible Causes, and Plant Pest Sampling Considerations

Course Delivery

The teaching and learning process for monitoring Pests and Diseases courses is carried out based on the Indonesian National University Standards where each credit of lectures must be delivered in the delivery of face-to-face lectures for 50 minutes, structured assignments for 60 minutes, and personal learning. assignment for 60 minutes. Lectures are given in two ways, namely face-to-face lectures in class and online lectures (Online) via the internet. Most of the practicum is done on farmer's land and the laboratory is only used to observe the structure of disease symptoms both morphologically and microscopically. The delivery of material in the classroom is made as effective as possible and students are encouraged to be active during the learning process. Group discussions were also conducted to provide more opportunities for students in the learning process. Structured assignments are often given in the form of paper assignments. Students are given certain topics related to the learning material and given time to complete assignments. Personal learning is generally given in the form of recommended readings to increase knowledge related to the symptoms of pests and plant diseases.

Three lecturers assigned as the teaching team of the course (Harman Hamidson, Chandra Irsan and Rahmat Pratama) took part in the lecturing process according to the topics determined in the Semester Lecturing Plan using the most suitable method to the materials delivered.

Assessment Method

In the teaching and learning process, evaluation is carried out as a parameter of the achievement achieved by students in relation to the desired learning outcomes (CLO) and sub-CLO. Various assessment methods are carried out to accurately measure the knowledge and skills acquired by students after participating in weekly learning resources or processes. Assessments carried out include: paper assignments, quizzes. practicum reports, midterms and final exams.

The relationship between assessment method and the measurement of achievement of each CLO of the course of Monitoring Pests and Diseases are presented in the following matrix:

	Course Learning Outcomes (CLO)			
	CLO-1 (S-10)	**CLO-2 (KK-2)**	**CLO-3 (KK-2)**	**CLO-4 (KK-15)**
CLO-1: Internalize the spirit of independence, struggle, and entrepreneurship.	Paperwork 1, short write about The development of plant diseases and the bio ecological role of plant diseases and the significance of plants and the history of plant growth caused by fungi; bacteria; Viruses and Nematology (1 and 2 Weight: 5%)			

	Task: 2 Explain how to determine attack severity and diversity, development of pests and plant diseases Lectures 3 and 4. Weight: 10%			
	Task 3: the explanation determines the severity of the attack and the diversity of development of plant diseases of systemic (Lecture 6-7, weight 5%)			
CLO-2. Able to recognize and measure plant damage caused by pests and plant diseases.		Sub-CLO 10. Students are able to understand the mechanism of observation, especially: Observation of Symptoms, Possible Causes, and Sampling Considerations of Plant Diseases		
		Task 4: the explanation determines the severity of the attack and the diversity of development of plant diseases of non-systemic (Lecture 10, weight 5%)		

	Mid-semester exam on the importance of observing plant pests and diseases, development of plant diseases, procedures for sampling disease names, development of symptoms of infection, disease, and transmission and measuring the level of plant damage due to attacks (Lectures 1, 2, 3, 4, 5, 6, 7 and 8; weight 20%)			
CLO3: Able to recognize and identify plant-disturbing organisms.			Practical work report Determination of sample plots and sample plants; Pest and spore capture techniques; distribution of plant pests and diseases; measurement of the percentage of damage and the intensity of the damage; preparation of reports (4, 8, 11(weight 15%).	
CLO 4. Able to identify pests and plant pathogens rapidly and accurate using molecular, microscopic and macroscopic biotechnology.		Final Exam Understanding and Importance in managing plant pests and diseases, sampling technique for dispersion index analysis and observation techniques: absolute population and relative pest population index and assessment and disease intensity (index and scoring) (Lectures, 9, 11, 12,13 and 14; 40%)		

Figure 1. Matrix showing the relationship between assessment method and the measurementof each CLO Achievement

The teaching team leader coordinated the evaluation process and determined the scoring system (Apendix 2). Grading of evaluation scores had been determined by the Rector of Universitas Sriwijaya for years and was used to converse numerical grade to letter grade as shown in Table 1.

Table 1. Universitas Sriwijaya grading system

No	Numerical grade	Letter grade	Grade point
1	86-100	A	4
2	71-85	B	3
3	56-70	C	2
4	40-55	D	1
5	<40	E	0

As presented in the above matrix, assessments were conducted 7 times to assess the CLO achievement. Each assessment was designed to assess the achievement of certain CLO or combination of two or more CLO. The details of each assessment are as follow:

1. Assignment 1.
   Student were assigned to write essay on the mechanism of observing plant pests and diseases. The essay should explain the close relation between development of monitoring and observation mechanism, especially the sampling technique for observing pests and plant diseases in general, and students were given one-week time to complete the essay. This assignment was aimed at evaluating the achievement of CLO1, sub-CLO 1 and 2.

2. Assignment 2
   Students are assigned to write an essay about the mechanism or determine the level of damage based on the percentage of attacks and the severity of a disease. And determine the index of diversity and dominance for each type of pathogen and insect pests. Students are given one week to complete the essay. This assignment aims to evaluate the achievement of CLO1, sub-CLO 3 and 4.

3. Assignment 3

   Students are assigned to write Describe the distribution / distribution of a plant disease based on the type of pathogen and the pattern of development of plant diseases based on epidemiology and give examples in horticulture and food crops. Furthermore, students must also be able to explain how the relationship between each pathogen with plants and how the level of damage and severity of disease sera by insect pests. This assignment is to evaluate the achievement of CLO2 Sub-CLO 6 and 7.

4. Assignment 4

   At the end of the third lecture, students were asked to answer the question of determining the severity of the attack and the diversity of the development of systemic and non-systemic plant diseases and give examples. This assignment aims to evaluate the achievement of CLO 2, sub-CLO 10.

5. Report of practical works.

   After doing some practical work, students must make a practicum report at the end of the semester. Practical work consists of field observations or farmer's land. Students make observations to distinguish the morphology of symptoms and signs of a disease. Students do sample determination and sampling. Catching insect pests and fungal spores; pattern and distribution of disease and insect pests and to determine the level of attack and severity of pests and diseases (Pathogens). Students work in groups and a practicum report must be made by each group. Each practicum takes several weeks to observe the development of diseases and insect pests. Most of this assignment was to evaluate the achievement of CLO3 Sub-CLO 11, Sub-CLO 12 and Sub-CLO 13.

6. Midterm examination

   The midterm exam is held in the eighth week covering lectures 2,4,5,6,7,8. Because Sub-CLOs 3 and 4 have been assessed using Assignment 2, the weight of these 2 courses in the midterm exam is only 5%, the same as the weights of lectures 6 and 7 that have been used to assess Sub-CLO 7 ad 8 through practical work reports. Only the achievement of Sub-CLO 5 is fully assessed through the midterm exam.

7. Final examination

   The final exam is held at the end of the semester covering lectures 9, 10, 11, 12, 13 and 14. Because Sub-CLO 10 has been assessed using Task 4, the weight of this course in the final exam is only 4%. Other lecture weights are only as written in the RPS. In the final exam students are instructed to write an essay to answer several questions proportionally related to the learning materials given in lectures 9 to 14. The total weight of the final exam is 38%. This assignment is to evaluate the achievement of CLO 2, CLO 3, and CLO 4; Sub-CLO 9 to 14.

Lecturing Evaluation

1. **Attendance evaluation**
   Lecturers and students' attendance were evaluated and the result are presented inthe following table 2.

Table 2. Lecturer and students' attendance in the course of Monitoring Pest and Diseases EvenSemester 2022.

Class	Lecturer attendance		Student attendance
A	Harman Hamidson	: 6 times	Number of students: 81
a	Chandra Irsan	: 5 times	Student with ≥85% attendance: 81
	Rahmat Pratama	: 5 times	Student with <85% attendance: 81

2. Teaching evaluation

Evaluation of the learning process is done by giving a questionnaire to students at the end of the semester. The questionnaire aims to evaluate the learning process attached to Appendix 3. In general, students' opinions about the learning process can be summarized as follows:

a. Most, but not all, of the learning materials delivered in the lectures are in accordance with the details in the RPS.
b. Students can easily find learning resources in libraries and the internet
c. The way the lecturers teach in the class is quite good and can lead the class comfortably.
d. Lecturers do not always arrive in the classroom on time and sometimes leave the class before the time runs out. Several times the lecturer came to class about 10 minutes late.
e. The way lecturers communicate with students is quite good and very satisfying.
f. Questions given in quizzes and exams are expected as outlined in the RPS
g. The difficulty of midterms and final exams is acceptable because most of the questions correspond to the material presented in the course.
h. The scores for each exam are predictable and students are given the opportunity to take remedial exams if needed. However, students are not satisfied with the transparency of the scores they get, because not all exam worksheets or answer sheets are returned to students after being given a grade.
i. Most, but not all, learning materials are uploaded in the E-learning system
j. All tasks are structured according to those declared in the RPS
k. All inspections are carried out according to schedule at RPS
l. Lectures were delivered 15 times including exams, not exactly the same as those written in the RPS, as many as 16 meetings.

Based on the summary of the evaluation of the lecture process, Pest and Disease Observation lecturers need to adjust their arrival time to class so they are not late, or at least notify students if the lecturer has to come late for some reason. Other corrections are also needed regarding the upload of learning materials in the e-learning system. Not all lecturers know this, so there must be a more serious effort to clean up the mess.

3. Result Evaluation

a. Student grade achievement

The final grades and grades achieved by students at the end of the semester are obtained from the proportional accumulation of various assessment methods carried out to evaluate the achievement of lecture learning outcomes and also each subject. The assessment method and the weight of the contribution of each method are presented in Table 1 and the scoring follows the provisions of Sriwijaya University as presented in Table 3.

Table 3. Method of assessment and contribution weight to the final score

No	Assessment method	Weight (%)
1	Paper assignment 1	5
2	Paper assignment 2	10
3	Paper assignment 3	5
4	Paper assignment 4	5
5	Practical works reports	15
6	Midterm examination	20
7	Final exam	40

The distribution of scores achieved by students in the 2022 Monitoring Pest and Diseases class is shown in Table 4 below, where it can be seen that most students (92.59%) can achieve the highest score (A) and 6 students (7.41%) achieve B grades.

Table 4. Distribution of grades achievement of the students attending Monitoring Pests and Diseases 2022

No	Letter grade	Numerical students
1	A	75 (92,59%)
2	B	6 (7,41%)
3	C	0
4	D	0
5	E	0

b. CLO achievement

In the evaluation of CLO achievement, each student is assessed for achievement based on the expected learning outcomes (CLO) consisting of CLO1, CLO2, CLO3, and CLO4 (Appendix 3). CLO achievement is calculated and evaluated individually for each student and class achievement (Appendix 4). Similarly, most students (90.24%) get an A, the CLO achievement also shows the same results, i.e. the majority of students 90.24%), the CLO (1 to 4) achieved varies in percentage. The percentage of students who got a B value (7.41%), but the names of the students were different. CLO's overall achievement is very good. However there are also students who fail in certain CLOs but succeed in achieving other CLOs. Seven students failed to achieve CLO1, 35 students failed to achieve CLO2, 4

students failed to achieve CLO3 and 30 students failed to achieve CLO4. Calculation of class achievement, surprisingly the average value of class A and B is 87.11. CLO achievement is not as expected, because the class can only reach CLO1, CLO3.

IV. REFELTION

Based on the evaluation results, the scores achieved by students who took the Monitoring Pest and Diseases course in the even semester of 2022 were quite satisfactory, although there were some. Achievement of CLO is also satisfactory and the failure of some students to achieve several CLOs is understandable as passing scores for achieving CLO are set as high, 85 or higher. However, based on the learning process, grades, and evaluation of CLO, it is clear that something is not going as expected and needs correction that all lecturers must know.

V. FOLLOW UP ACTION

Based on the results of the evaluation, several improvements are needed regarding the preparation, delivery and evaluation of the Monitoring Pest and Diseases course. This correction is necessary to avoid the recurrence of similar situations in the future, and to reduce the failure to achieve CLO. Lecturers must improve their course materials and follow the RPS carefully. Lecturers should also pay more attention to punctuality. Learning materials should be uploaded in the e-learning system as early as possible to give students more time to read before attending lectures. Furthermore, students want the lecturer to return the test answer sheet even though the lecturer has announced the test scores. Above all, everyone involved in the learning process of Monitoring Pest and Diseases must update and improve the materials and teaching methods to ensure good grades and high CLO achievement relevant to the current state of knowledge and technology.

Based on the results of the evaluation, several improvements are needed regarding the preparation, delivery and evaluation of the Monitoring Pest and Diseases course. This correction is necessary to avoid the recurrence of similar situations in the future, and to reduce the failure to achieve CLO. Lecturers should improve their course materials and follow the RPS closely. The lecturers should also pay more attention to punctuality, because some students protested the lecturer's delay in coming to class. Learning materials should be uploaded in the e-learning system as early as possible to give students more time to read before attending lectures. Furthermore, students want the lecturer to return the test answer sheet even though the lecturer has announced the test scores. Above all, everyone involved in the learning process of Monitoring Pest and Diseases must update and improve the materials and teaching methods to ensure good grades and high CLO achievement relevant to the current state of knowledge and technology.

Appendix 1. RPS/Semester Learning Plan of Monitoring Pests and Diseases

SRIWIJAYA UNIVERSITY
FACULTY OF AGRICULTURE
DEPARTMENT OF PEST AND PLANT DISEASE
PLANT PROTECTION STUDY PROGRAM

SEMESTER LEARNING PLAN

A. COURSE IDENTITY

Subject	: Monitoring Pest and Diseases	**Code: PPT 2211 (37315)**	Semester : 5	Credits: 2 (1-1)
Study material	: Management of Plant Destruction Organisms.			
Course description	: This course is more focused on understanding how to observe pests and diseases in the field, from sampling to reporting results. The discussion covers the sampling technique of sample plots and sample plants; pest capture techniques, population calculations and damage calculations; method of measuring the level of plant damage due to pest attacks; calculate the species diversity index, dominance index and evenness index. method of measuring disease intensity in the field; techniques for handling diseased plant samples; analysis of the distribution of plant pests and diseases; reporting the results of observations of plant pests and diseases.			
CLO	CLO-1 : Internalize the spirit of independence, struggle, and entrepreneurship. (CPL S-10) CLO-2 : Able to recognize and measure plant damage due to pests and plant diseases. (CPL KK-1) CLO-3 : Able to recognize and identify plant-disturbing organisms.(CPL KK 2) CLO-4 : Able to identify pests and plant pathogens quickly and accurately using molecular biotechnology, microscopic and macroscopic (CPL KK 15)			
Lecturer support	: Dr. Ir. Harman Hamidson, MP (HH) Dr. Ir. Chandra Irsan, M.Si (CI) Dr. Rahmat Pratama, S.Si (RP)	Responsible Lecturer	: Dr. Ir. Harman Hamidson, MP (HH)	

A. PROGRAM PEMBELAJARAN

CLO	Final Skills expected at each stage of learning (Sub-CLO-)	Subject	Reference	Learning method and time	Description of independent tasks and time	Indicator	Weight (%)	Lecturer
(1)	(2)	(3)	(4)	(5)	**(6)**	**(7)**	(8)	(9)
CLO 1.	**Sub-CLO 1.** Students are able to understand the mechanism of the learning process and be able to explain the scope of observing plant pests and diseases.	1. Lecture contract and Silabus 2. Introduction Definition and Objectives: Observation of Plant Pests and Diseases.	Agrios, G. N. 1997 Mc.Maugh, T. 2007 Semangun, H. 2000. Sinaga, M.S. 2003.	Kuliah TM (1 x 50 “)	Membaca kontrak kuliah dan RPS (3 x 60”)	Mampu menjelaskan secara tepat tentang batasan dan ruang lingkup pengamatan hama dan penyakit	7,5	HH
CLO 2.	**Sub-CLO 2.** Students are able to understand the observation mechanism, especially the sampling technique for observing pests and plant diseases in general	Sampling technique for observing plant pests and diseases in general Sampling, Component Sampling and Squential sampling	Direkrorat Perlindungan Tanaman Pangan. 2018. Dinas Perkebunan Provinsi Jawa Timur. 2013 **R**asjidi, R. 2019	Kuliah TM (1 x 50 “) Diskusi mengenai pengenalan gejala dan tanda serangan oleh Patogen cara pengambilan sampel di lapangan (2x60”)	Membaca referensi dari beberapa jurnal dan membuat rangkuman (3 x 60”)	Mampu menjelaskan secara tepat tentang batasan : Teknik sampling pengamatan hama dan penyakit tanaman secara umum	7,5	HH
CLO 3.	**Sub-CLO 3.** Students are able to understand the mechanism of observation, especially the philosophy of determining the percentage and	Philosophy determines the percentage and intensity of pest attacks	Rivai, F. 2006 Rivai, F. 2014	Kuliah TM (1 x 50 “) Diskusi penentuan ambang kerusakan yang disebabkan oleh patogen	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang batasan: Filosofi menentukan pesentase dan intensitas serangan OPT	7,5	CI

	intensity of pest attacks			(2x60")				
4	**Sub-CLO 4.** Students are able to understand the mechanism of determining the value of the diversity index, dominance and evenness of species	Determine the value of the index of diversity, dominance and evenness of species Negative spatial and binomial distribution	Rivai, F. 2006 Rivai, F. 2014 Tarumingkeng, R. C. 1994	Kuliah TM (1 x 50 ") Praktikum lapangan mengenal ambang kerusakan dan cara pengambilan sampel (2x60")	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60")	Mampu menjelaskan secara tepat tentang: Menentukan nilai indeks keaneragaman, dominansi dan kemerataan spesies	7,5	CI
CLO 4.	**Sub-CLO 5.** Students are able to understand the mechanism: Coffee Fruit Borer Observation Technique	Coffee Fruit Borer Observation Techniques		Kuliah TM (1 x 50 ") Praktikum mengenal cara pengambilan sampel (2x60")	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60")	Mampu menjelaskan secara tepat tentang: Teknik Pengamatan Penggerek Buah Kopi	5	CI
	Sub-CLO 6. Students are able to understand the mechanism of observation, especially: Distribution / distribution of plant diseases: Types of distribution of plant diseases based on distribution	Distribution / distribution of plant diseases: Types of distribution of plant diseases based on distribution	Agrios, G. N. 1997 Rivai, F. 2006 Rivai, F. 2014	Kuliah TM (1 x 50 ") Diskusi mengenai Distribusi dan agihan penyakit tanaman dan cara pengambilan sampel (2x60")	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60")	Mampu menjelaskan secara tepat tentang: Distribusi penyakit tanaman: Macam-macam agihan penyakit tanaman berdasarkan penyebaran	7,5	HH

CLO 5.	**Sub-CLO 7.** Students are able to understand the mechanism of observation, especially: Philosophy of determining the percentage and intensity of pest attacks and Random and Purposive Sampling in observing plant diseases	The philosophy of determining the percentage and intensity of pest attacks and random and purposive sampling	Rivai, F. 2006 Rivai, F. 2014 Horsfall, J. G and Cowling, E.B. 1980	Kuliah TM (2 x 50 “) Diskusi mengenai ambang kerusakan pada tanaman yang terserang penyakit Praktikum mengenal cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: Filosofi menentukan pesentase dan intensitas serangan OPT dan Sampling Acak dan Purposif	7,5	HH
CLO 6.	**Sub-CLO 8.** Students are able to understand the mechanism of observation, especially: Systemic disease surveillance: Observation method analysis of observational data and attack intensity	Systemic disease surveillance: Observation method analysis of observational data and attack intensity	Rivai, F. 2006 Rivai, F. 2014 Sinaga, M.S. 2003	Kuliah TM (1 x 50 “) Praktikum dan Diskusi : Mengenal gejala penyakit sitemik cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: cara Pengamatan penyakit sistemik: Metode pengamatanan analisis data pengamatan dan intensitas serangan	7,5	HH
MIDTERM EXAM (60 menit)								
.	**Sub-CLO 9.** Students are able to understand the mechanism of observation, especially: Observation of non-systemic diseases: Observation method analysis of	Observation of non-systemic disease: Observation method analysis of observational data and attack intensity	Santoso, I. 1980	Kuliah TM (1 x 50 “) Praktikum dan Diskusi : Mengenal gejala penyakit nonsitemik cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: Pengamatan penyakit non sistemik : Metode pengamatanan analisis data pengamatan dan intensitas serangan	7,5	HH

	observational data and attack intensity							
CLO 7.	**Sub-CLO 10.** Students are able to understand the mechanism of observation, especially: Observation of Symptoms, Possible Causes, and Sampling Considerations of Plant Diseases	Symptoms, Possible Causes, and Sampling Considerations of Plant Diseases	Santoso, I. 1980	Kuliah TM (1 x 50 “) Praktikum mengenal cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: pengamatan Gejala, Kemungkinan Penyebab, dan Pertimbangan Sampling Penyakit Tanaman	5	RS
CLO 8.	**Sub-CLO 11** Students are able to understand the mechanism of observation, especially: How to Sampling Plant Diseases and Their Analysis	How to Sampling Plant Diseases and Their Analysis	Santoso, I. 1980	Kuliah TM (1 x 50 “) Praktikum mengenal cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: Cara Pengambilan Contoh Penyakit Tanaman dan Analisianya	7,5	RS
	Sub-CLO 12 Students are able to understand the mechanism of observation, especially: How to Sampling Plant Diseases and Their Analysis	How to Sampling Plant Diseases and Their Analysis	Santoso, I. 1980	Kuliah TM (1 x 50 “) Praktikum mengenal cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: Cara Pengambilan Contoh Penyakit Tanaman dan Analisianya	7,5	RS

CLO 9	**Sub-CLO 13.** Students are able to understand the mechanism of field observations, especially: How to Calculate Spore Density and Recognition of Selective Medium	How to Calculate Spore Density and Selective Medium Recognition	Santoso, I. 1980	Kuliah TM (1 x 50 “) Praktikum mengenal cara pengambilan sampel untuk mengkur jmlah spora dan isolasi (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: menerapkan penghitung Kerapatan Spora dan Pengenalan Medium Selektif	5	RS
CLO 10	**Sub-CLO 14** Students are able to understand the mechanism of field observations, especially: Symptoms, Possible Causes, and Considerations of Plant Pest Sampling	Symptoms, Possible Causes, and Sampling Considerations of Plant Pests	Semangun, H. 2000a,b dan c	Kuliah TM (1 x 50 “) Praktikum mengenal cara pengambilan sampel (2x60”)	Membaca referensi dan jurnal serta membuat ringkasan (3 x 60”)	Mampu menjelaskan secara tepat tentang: Gejala, Kemungkinan Penyebab, dan Pertimbangan Sampling Hama Tanaman	10	RS
FINAL EXAMS (90 menit)								

Work load: TM lecture 700 minutes, practicum 600 minutes, group discussion 360 minutes, independent assignments 2520 minutes, exam 150 minutes = 4330 minutes = 72.17 hours = 2.89 ECTS

SCORE RANGE

Score A	:	**86**	s/d	**100**
Score B	:	**71**	s/d	**85,99**
Score C	:	**56**	s/d	**70,99**
Score D	:	**41**	s/d	**55,99**
Score E	:	**0**	s/d	**40,99**

PERCENTAGE OF SCORE COMPONENTS (%)

Persentage NTR (Average Assignment Score):	**25**
Persentage NUTS (Mid-Semester Exam Score):	**35**
Persentage NUAS (Final Semester Exam Score):	**40**

Referensi:

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PROGRAM OF STUDY	**:**	**PLANT PROTECTION**
ACADEMIC YEAR	**:**	**2021/2022 (SEMESTER GENAP)**
SUBJECT OF STUDY	**:**	**OBSERVATION OF PESTS AND DISEASES (2 SKS)**
ROOM	**:**	**RK C1103**
LESTURE	**:**	**DR. IR. HARMAN HAMIDSON, M.P. / DR. IR. CHANDRA IRSAN, M.SI. / DR. RAHMAT PRATAMA, S.SI.**
JADWAL	**:**	**MONDAY (11:10 AM- 12:50 PM)**

NO.	SIN	NAME	Assign ment 1	Assign ment 2	Assign ment 3	Assign ment 4	Practical Work	Mid Term	Final Term	Final Score	Grade	CLO achievement			
												CLO 1	CLO 2	CLO 3	CLO 4
			5%	10%	5%	5%	15%	20%	40%	100%					
1	05081181924002	RIAN ADRIAN	90	90	90	82	**89**	**87**	**90**	88	**A**	Yes	No	Yes	Yes
2	05081181924004	HERDINAWATI	95	90	86	80	**87**	**86**	**89**	87	**A**	Yes	No	Yes	Yes
3	05081181924005	LIDYA KARLINA	87	90	85	82	**89**	**88**	**87**	87	**A**	Yes	No	Yes	Yes
4	05081181924006	RIA LESTARI	86	86	86	83	**90**	**86**	**86**	87	**A**	Yes	No	Yes	Yes
5	05081181924009	INDAH WULAN SUCI	86	86	86	81	**89**	**90**	**93**	91	**A**	Yes	Yes	Yes	Yes
6	05081181924012	CINDI AZZAHRA	90	86	88	81	**90**	**90**	**80**	86	**A**	Yes	No	Yes	No
7	05081181924076	NURCAHAYA PURBA	95	86	90	82	**83**	**87**	**89**	87	**A**	No	No	No	Yes
8	05081181924078	SITI MAHANI	86	86	86	80	**90**	**88**	**83**	87	**A**	Yes	No	Yes	No
9	05081181924079	ANGGUN DAMAR ADELIA	90	86	85	82	**88**	**88**	**84**	86	**A**	Yes	No	Yes	No
10	05081181924082	MERI AGUSTIN	86	87	86	83	**87**	**88**	**87**	87	**A**	Yes	No	Yes	Yes
11	05081281722020	THALIA KHAYYIRAH PRISCILLA	85	80	90	85	**87**	**80**	**60**	74	**B**	No	No	No	No
12	05081281924019	MEIRIZQI NURLAILATUS SHOLICHAH	90	86	90	80	**89**	**86**	**89**	88	**A**	Yes	No	Yes	Yes
13	05081281924021	SHAKEILLA ARETHA ZELIKA	86	85	90	82	**88**	**86**	**95**	90	**A**	Yes	No	Yes	Yes
14	05081281924029	HESTI	86	85	90	80	**90**	**90**	**81**	86	**A**	Yes	No	Yes	No
15	05081281924031	ESTER MAHARANI	85	90	85	82	**90**	**89**	**83**	87	**A**	Yes	No	Yes	No
16	05081281924033	FARID ALGIFANI	85	90	85	83	**89**	**86**	**89**	88	**A**	Yes	No	Yes	Yes
17	05081281924034	MUHAMMAD AL FATIH ABDURROSYID	90	86	90	82	**89**	**86**	**91**	89	**A**	Yes	No	Yes	Yes
18	05081281924037	MUTIARA RAIHANAH ALIFIA	86	90	86	80	**90**	**85**	**94**	89	**A**	Yes	No	Yes	Yes

19	05081281924039	ARDHANSYAH PRADANA MAULANA LATIF	86	86	90	82	**85**	**87**	**87**	86	**A**	**Yes**	**No**	**Yes**	**Yes**
20	05081281924040	AMARISYA SHAFA LUZIA	90	90	90	81	**87**	**88**	**97**	91	**A**	**Yes**	**Yes**	**Yes**	**Yes**
21	05081281924041	M BAGAS TIYANTARA	88	86	90	82	**92**	**90**	**94**	92	**A**	**Yes**	**Yes**	**Yes**	**Yes**
22	05081281924043	ANDES TRIANI	90	86	90	83	**87**	**88**	**96**	91	**A**	**Yes**	**Yes**	**Yes**	**Yes**
23	05081281924044	MUHAMMAD ASDHYSHANI	80	85	90	83	**89**	**85**	**90**	88	**A**	**No**	**No**	**Yes**	**Yes**
24	05081281924069	YUSI ANANDA	86	90	85	80	**88**	**90**	**83**	86	**A**	**No**	**No**	**Yes**	**No**
25	05081281924070	NYAYU FARLANIA WULANDARI	95	86	90	80	**91**	**89**	**91**	90	**A**	**Yes**	**No**	**Yes**	**Yes**
26	05081281924075	ZAHRATUL FAUZIAH	85	85	90	82	**88**	**88**	**81**	85	**B**	**Yes**	**No**	**Yes**	**No**
27	05081281924077	EGO ALPIAN	86	86	86	82	**89**	**88**	**83**	86	**A**	**Yes**	**No**	**Yes**	**No**
28	05081281924080	LOVIGA BR BANGUN	86	86	90	82	**89**	**87**	**81**	85	**B**	**Yes**	**No**	**Yes**	**No**
29	05081381823049	ELSA CHENDY OCLARA	86	86	86	85	**75**	**71**	**85**	78	**B**	**No**	**No**	**Yes**	**No**
30	05081381924047	KHAIRUNNISA PUTRI	90	86	90	83	**87**	**88**	**92**	89	**A**	**Yes**	**Yes**	**Yes**	**Yes**
31	05081381924048	AZZAHRA NUR DWI LESTARI	90	86	90	80	**88**	**85**	**87**	86	**A**	**Yes**	**No**	**Yes**	**Yes**
32	05081381924053	ROHIMA RAHMAH	86	90	86	80	**90**	**86**	**93**	90	**A**	**Yes**	**No**	**Yes**	**Yes**
33	05081381924054	RONI SALEH ARDIANSYAH	86	86	90	82	**90**	**90**	**80**	86	**A**	**Yes**	**No**	**Yes**	**No**
34	05081381924055	ERDI MEFIYANTO	87	90	85	80	**88**	**88**	**87**	87	**A**	**Yes**	**No**	**Yes**	**Yes**
35	05081381924056	PUTRI GINA	90	88	90	80	**93**	**90**	**79**	86	**A**	Yes	No	Yes	No
36	05081381924058	RILWA WALLINGGA	86	88	90	84	**88**	**85**	**76**	82	**B**	Yes	**No**	**Yes**	**No**
37	05081381924059	RAUDHATUL FATRICIA	86	90	88	80	**87**	**84**	**89**	87	**A**	Yes	**No**	**Yes**	**Yes**
38	05081381924060	DWI RAHAYU PUTRI SIANIPAR	86	90	85	80	**86**	**89**	**91**	89	**A**	Yes	**No**	**Yes**	**Yes**
39	05081381924063	MUHAMMAD HASANUL ICHSAN	86	90	85	80	**86**	**89**	**90**	88	**A**	Yes	**No**	**Yes**	**Yes**
40	05081181924001	VIRA PUSPITASARI	85	86	86	91	**91**	**94**	**92**	92	**A**	Yes	Yes	Yes	Yes
41	05081181924003	DHANILLO DJULIAN	86	88	86	92	**92**	**96**	**85**	90	**A**	Yes	Yes	Yes	No
42	05081181924007	KARINA AYUNINGTIAS	86	86	86	91	**91**	**92**	**81**	87	**A**	Yes	Yes	Yes	No
43	05081181924010	MIFTAH AJENGTIYAS NURSYAHIDAH RAHMAN	95	87	90	95	**95**	**92**	**94**	93	**A**	Yes	Yes	Yes	Yes
44	05081181924011	NURUL TRIAGTIN	86	90	86	91	**92**	**95**	**79**	88	**A**	Yes	Yes	Yes	Yes
45	05081181924013	SEPTYA AYU DWINTHA	86	90	86	93	**95**	**94**	**95**	94	**A**	Yes	Yes	Yes	Yes

46	05081181924071	ELLA APRIYANA	90	86	90	94	**94**	**94**	**86**	91	**A**	Yes	Yes	Yes	Yes
47	05081281924014	DELLA APRILIA	86	88	87	92	**92**	**95**	**89**	91	**A**	Yes	Yes	Yes	Yes
48	05081281924015	IRFAN MOHANDIS HARAKI	88	87	90	93	**92**	**94**	**92**	93	**A**	Yes	Yes	Yes	Yes
49	05081281924017	MESSA SYAHPUTRI	86	86	90	92	**92**	**93**	**82**	88	**A**	Yes	Yes	Yes	Yes
50	05081281924018	RIZKI PUTRI AMELIA	86	86	90	92	**91**	**92**	**90**	91	**A**	Yes	Yes	Yes	Yes
51	05081281924020	SHINTA AMALIA RAHMADANI	85	86	90	91	**91**	**94**	**77**	86	**A**	Yes	Yes	Yes	Yes
52	05081281924022	KHAIRI SARDILLA	86	85	90	92	**91**	**93**	**82**	88	**A**	Yes	Yes	Yes	Yes
53	05081281924023	MUHARI	90	85	88	92	**91**	**92**	**84**	88	**A**	Yes	Yes	Yes	Yes
54	05081281924024	DEO DATUS CRISTY PUTRA SIRAIT	85	88	90	92	**90**	**93**	**85**	89	**A**	Yes	Yes	Yes	Yes
55	05081281924027	RANTI NUR FADILLAH	85	90	85	92	**91**	**92**	**80**	87	**A**	Yes	Yes	Yes	Yes
56	05081281924028	HUSAINI PURNAMA AJI	88	90	85	92	**93**	**93**	**90**	92	**A**	Yes	Yes	Yes	Yes
57	05081281924032	WINDA PRATIWI	86	86	86	91	**90**	**94**	**85**	89	**A**	Yes	Yes	Yes	Yes
58	05081281924035	AGUSTIAN KANDILA	85	85	86	90	**89**	**92**	**76**	85	**A**	Yes	Yes	Yes	Yes
59	05081281924036	HANA ELJA AZZAHRA	86	85	90	92	**91**	**93**	**88**	90	**A**	Yes	Yes	Yes	Yes
60	05081281924038	HELMI SYAPUTRA	86	87	87	91	**92**	**93**	**93**	92	**A**	Yes	Yes	Yes	Yes
61	05081281924045	SHERA MARGARETHA	86	86	90	92	**91**	**95**	**88**	91	**A**	Yes	Yes	Yes	Yes
62	05081281924072	TIKA RAHMAWATI	86	86	86	91	**91**	**90**	**89**	89	**A**	Yes	Yes	Yes	Yes
63	05081281924073	RAJA BONAR LUBIS	85	90	85	92	**90**	**93**	**85**	89	**A**	Yes	Yes	Yes	No
64	05081281924074	TEZZIA NOFETRA	90	86	90	93	**93**	**93**	**90**	92	**A**	Yes	Yes	Yes	Yes
65	05081281924081	MEINI FITRIANA	90	85	88	92	**91**	**93**	**80**	87	**A**	Yes	Yes	Yes	No
66	05081281924083	NUR AMALIA NASUTION	86	90	85	92	**91**	**94**	**94**	93	**A**	Yes	Yes	Yes	Yes
67	05081381621049	ENDI DARMAWAN	86	86	86	91	**86**	**93**	**72**	82	**A**	Yes	Yes	No	No
68	05081381823045	JIMNY AZWAR	85	80	85	88	**83**	**93**	**80**	85	**A**	No	Yes	No	No
69	05081381924046	NANDA WAHYU SURYANA	95	86	90	94	**93**	**94**	**89**	92	**A**	Yes	Yes	Yes	Yes
70	05081381924049	SARAH CAHYANI AHMAD	90	86	86	92	**91**	**92**	**86**	89	**A**	Yes	Yes	Yes	Yes
71	05081381924050	MUHAMMAD MUIS	86	86	86	90	**92**	**91**	**84**	88	**A**	Yes	Yes	Yes	No
72	05081381924051	EDHO ARYA PRATAMA	85	86	86	91	**91**	**93**	**81**	87	**A**	Yes	Yes	Yes	No
73	05081381924052	FAHMI NUR ILHAM FAJAR	90	80	86	91	**90**	**93**	**84**	89	**A**	Yes	Yes	Yes	No
74	05081381924057	LUTFIAH PUTRI AZZAHRA	96	88	87	94	**91**	**92**	**83**	88	**A**	Yes	Yes	Yes	No
75	05081381924061	MUHAMMAD WILDAN AL GHIFARY	86	88	86	91	**91**	**96**	**77**	87	**A**	Yes	Yes	Yes	No

76	05081381924062	NOVI ARISKA	85	85	90	91	**91**	**92**	**82**	87	**A**	Yes	Yes	Yes	No
77	05081381924064	HARLIN NASUTION	86	86	88	91	**89**	**87**	**70**	81	**A**	Yes	Yes	No	No
78	05081381924065	REYDO NUGRAHA	86	88	87	91	**91**	**92**	**82**	88	**A**	Yes	Yes	Yes	No
79	05081381924066	VERA FADHLIA AMY	80	85	90	90	**89**	**94**	**83**	88	**A**	Yes	Yes	Yes	No
80	05081381924067	AJENG TRI MUGHNIY	90	88	90	93	**95**	**51**	**79**	73	**B**	No	No	Yes	No
81	05081381924068	PENDI LUKITO	86	86	88	91	**92**	**88**	**69**	81	**A**	Yes	Yes	Yes	No
			87,31	86,85	87,77	86,78	89,63	89,28	85,09	87,69		91,36%	56,79%	95,06%	61,73%
												8,64%	43,21%	4,94%	38,27%
												CLO 1	CLO 2	CLO 3	CLO 4

CLO Calculation for the class of Observation of Plant Pests and Diseases

No	Assessment method	Course material	Weight (%)	Score	W.S	Score of each CLO			
						CLO1	CLO2	CLO3	CLO4
1	Paper assigment 1	Lecture 1-2	0,05	87	4,37	87,31			
2	Paper assigment 2	Lecture 3 & 4	0,1	87	8,69	86,85			
3	Paper assigment 3	Lecture 6 & 7	0,05	88	4,39	87,77			
4	Paper assigment 4	Lecture 10	0,05	87	4		87		
5	Practical works reports	Lecture 11-13	0,15	90	**13**			90	
6	Midterm examination	Lecture 1-8	0,2	89	**18**	**45**	45		
7	Final exam	Lecture 11-14	0,4	85	**34**		21,27	29,78	34,04
	Final score				87	307	152,69	119,41	34,04
	Maximum score				**100**	350	175	135	40
	CLO achievement				**87,11**	**87,25**	**87,25**	**88,45**	**85,09**
	Grade, Yes for CLO achievement >85 and for CLO achievement < 85				**A**	Yes	Yes	Yes	Yes

CLO Calculation for individual student in the class Observation of Plant Pests and Diseases (VIRA PUSPITASARI : 05081181924001)

No	Assessment method	Course material	Weight (%)	Score	W.S	Score of each CLO			
						CLO1	CLO2	CLO3	CLO4
1	Paper assigment 1	Lecture 1-2	0,05	85	4,25	85			
2	Paper assigment 2	Lecture 3 & 4	0,1	86	8,6	86			
3	Paper assigment 3	Lecture 6 & 7	0,05	86	4,3	86			
4	Paper assigment 4	Lecture 10	0,05	91	5		91		
5	Practical works reports	Lecture 11-13	0,15	**91**	**14**			91	
6	Midterm examination	Lecture 1-8	0,2	**94**	**19**	**47**	47		
7	Final exam	Lecture 11-14	0,4	**92**	**37**		23	32,2	36,8
	Final score				91	304	160,71	123,23	36,8
	Maximum score				**100**	350	175	135	40
	CLO achievement				**90,940125**	**91,84**	**91,84**	**91,28**	**92**
	Grade, Yes for CLO achievement >85 and for CLO achievement < 85				**A**	Yes	Yes	Yes	Yes