INOVASI MODEL PEMBELAJARAN

Course Modul of PRINCIPLE PLANT PROTECTION

EVEN SEMESTER 2021/2022

Course Coordinator:
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Jalan Raya Rungkut Madya-Gunung Anyar Surabaya

2021

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1. EDUCATION LEARNING OUTCOME (ELO)

ELO-A1	Be defending country character, namely the love of the motherland, national and state awareness, believes in Pancasila as the ideology of the state, willing to sacrifice for the nation and the state, and has the initial ability to defend the country.
ELO-A2	Responsible for work in the field of expertise independently.
ELO-A3	Able to maintain and develop collaborative networks with supervisors, colleagues, colleagues both inside and outside the institution.
ELO-4	Able to apply knowledge of Plant Sciences and basic concepts of Plant Production, Soil and basic concepts of land resources, the concept of crop protection against pests and diseases in an integrated manner.
ELO-5	Able to master the principles of the application of agricultural technology to solve problems in agriculture.
ELO-6	Able to analyze, plan and implement lowland farming systems refers to the principles of sustainable agriculture, modern , raise local wisdom, effectively and productively.
ELO-7	Able to study the implementation of sustainable agriculture systems Base on scientific rules aplication, procedures and ethics in order to produce solutions, ideas, and designs based on the results of information and data analysis.
ELO-8	The ability to master plant propagation technology, and crop management in accordance with the agro-climate zone
ELO - 9	The ability to identify, formulate, analyze and solve problems in the field of land resources
ELO - 10	Ability to diagnose, analyze and solve plant pest problems
ELO - 11	The ability to handle the current principles and issues of lowland agriculture and its environmental problems
ELO - 12	Mastery of technology and be able to communicate with the community in solving agricultural problems both oral and written

2. COURSE IDENTIFICATION

1. Name of course, Code,
2. Learning Model used
3. ELO performance Indicator
4. ELO charged to the Constitutional Course, this data can be obtained from the ELO course matrix
5. Assessment Form

1. Name of course	:	PRINCIPLES OF PLANT PROTECTION
Code of course	:	FP191108
Semester credit unit	:	3
2. Learning Model	:	Tutorial and discus Disccuse group Learning Individual learning Field and laboratory practise Problem base learning/project base learning evaluations
3. Education Learning Outcome		ELO-A 1 : be defending country character, love of the motherland, national and state awareness, believes in Pancasila as the ideology of the state, willing to sacrifice for the nation and the state, and has the initial ability to defend the country ELO-A3 : able to maintain and develop collaborative networks with supervisors, colleagues, colleagues both inside and outside the institution; ELO-P4 : able to apply knowledge of Plant Sciences and basic concepts of Plant Production, Soil and basic concepts of land resources, as well as the concept of crop protection against pests and diseases in an integrated manner ELO-K5 : able to master the principles of the application of agricultural technology to solve problems in agriculture
4. Performance Indicator		ELO charged to the Constitutional Course
ELO-A 1		1.1. Able to describe the basic concepts of plant control and pest protection environmentally friendly 1.2. Able to select plant protection method to solve pest and disease problems by integrated Pest Contol, environmentally ,friendly and sustainable
ELO-A3		Able to explain and determine the types of abiotic diseases, biotic diseases, pests and weeds, in agriculture based on the symptoms and signs of pest attacks from observations and collaborative discussions with supervisors, colleagues
ELO-P 4		4.1. Able to define and deferentiated the types of abiotic diseases, biotic diseases, pests and weeds, in agriculture based on the symptoms and signs of pest attacks ‘ 4.2. Able to plan and carry out control of pests and diseases by cultivation, biological, physical and chemical

ELO-K5		5.1. Able to determine control strategies against pests and diseases based on the law/regulation 5.2. Able to carry out plant protection and solve pest problems by controlling pests and diseases in an integrated and sustainable environmentally friendly manner
3. Assesment Form		1.

1 SEMESTER LEARNING PLAN

1.1 Determination of ELO in course

No	Sem	Code MK	Course Name	credits	CP-1	CP-2	CP-3	CP-4	CP-5	CP-6	CP-7	CP-8	CP-9	CP-10
22	2-3		Basic Plant Protection	3	X		X	X	X					

1.2 Semester Learning Plan Of Priciples Plant Protection

	EAST JAVA "VETERAN" DEVELOPMENT UNIVERSITY **FACULTY OF AGRICULTURE** **DEPARTMENT OF AGROTECHNOLOGY** **Study Program: S1**					
SUBJECT	**CODE**	**MK family**	**WEIGHT (credits)**		**SEMESTER**	**Compilation Date**
PLANT PROTECTION BASIS		**PLANT DISEASE PEST**	**2**	**1**	**II (TWO)**	**23/01/2020**
AUTHORIZATION	**RP Developer**	**RPMK Coordinator**			**Head of study program**	
		Dr. Ir. Penta Suryaminarsih, MP.			Dr.Ir. Bakti Wisnu Widjajani, MP	
Learning Outcomes (LO)	**Education Learning Outcome (ELO) that Program Study charged to Course** ELO-A 1 : The character of defending the state, with indications of love for the homeland, awareness of the nation and state, believes in Pncasila as the state ideology, is willing to sacrifice for the nation and state, and has the initial ability to defend the state. (S1) ELO- A 3: able to maintain and develop collaborative networks with supervisors, colleagues, peers both inside and outside the institution; ELO-PS 4: Ability to apply knowledge of Plant Science and basic concepts of Plant Production, Soil and basic concepts Land resources and resources, concepts of plant protection against pests and diseases in an integrated manner ELO-KU 5: Ability to master the principles of applying agricultural technology to solve problems in agriculture					

	Course Learning Outcome (CLO) 1. Second semester students can apply the concept of plant protection against pests and diseases in an integrated manner based on indications of love for the homeland 2. Second semester students are able to plan, implement plant protection and control against pests and diseases based on abiotic and biotic causes in an integrated, environmentally friendly and sustainable way (CPL 1, CPL 2, CPL4 and CPL 5) **Lesson Learning Ootcome (LLO)** 1. Able to describe crop loss and damage, concept of occurrence of pests, abiotic biotic diseases, basic concepts of eradication, plant control and protection by regulation andt environmentally friendly pests (CPL-S1) 2. able to determine and distinguish types of abiotic diseases, biotic diseases, pests and weeds, in agriculture based on the symptoms and signs of pest attacks from observations and collaborative discussions with supervisors, colleagues, (CPL-S3, CPL-KK-4) 3. Students are able to plan and implement control of pests and diseases in aquaculture, biology, physics and chemistry based on environmentally friendly and sustainable principles (CPL-S 1, CPL-S2 , CPL-KK4) 4. Students are able to carry out plant protection strategic and solve pest and disease problems by controlling pests and diseases in an integrated and environmentally friendly sustainable way (CPL-S1, CPL-S2, CPL-KK4 and CPL –PU5)	
Couse Brief Description	The Basic Plant Protection Course (…….) was constructed to be given to undergraduate students of Agrotechnology and Agribusiness Study Program, Faculty of Agriculture, National Veterans Development University, East Java, Semester 2 (Academic Year 2021/2022 Odd and Even Semesters). This course is basically an academic study to study, understand, discuss, and analyze various issues of plant protection against biotic and abiotic pests and diseases, determine pests and diseases based on symptoms and signs of attack and control methods that can be used for integrated, environmentally friendly and sustainable control	
References	**Main:** 1. Suryaminarsih, PT Mujoko, I. Radiyanto and WS Harijani. 2017. Organic-Based Pest and Disease Control. 2. Suryaminarsih, P, Y. Wuryandari, W, Windriyati, N. Rahmadini. 2021. Plant Protection Basic Textbook 3. Wahyudin, D., Indarwati, I., Arsi, A., Astuti, T., Budiarti, L., Ramdan, EP, & Malik, AF (2021). Plant Protection Fundamentals. Our Writing Foundation. 4. Suryaminarsih, PY Wuryandari, T. Mujoko, W. Windriyati., A. Purnawati, .E. Triwahyu, N. Rahmadini, Wilujeng, D. Sari, 2020 Practical Guide **Supporters:** 1. Articles/journals/proceedings on: Bioecobiology of Pests and Plant Pathogens, Biological Control, Integrated Pest Disease Control, Chemical Control 2. Suryaminarsih, P., Harijani, W. S., Syafriani, E., Rahmadhini, N., & Hidayat, R. (2019). Aplikasi Streptomyces sp. sebagai agen hayati pengendali lalat buah (Bactrocera sp.) dan plant growth promoting bacteria (PGPB) pada tanaman tomat dan cabai. *AGRIUM: Jurnal Ilmu Pertanian*, *22*(1), 62-69. 3. Internet about: Plant diseases phone, diagnose of plant diseases	
Instructional Media	**Software Pre-Software:**	**Hardware :**
		LCD Projector & PC Practical tools and materials

Team Teaching	Dr. Ir. Penta Suryaminarsih, MP. Dr. Ir. Yenny Wuryandari, MP., Dr. Ir., Dr. Ir. Tri Mujoko, MP, Dr. Ir. Wiwin Windriyati., Dr. Ir. Arika Purnawati, MP, Dra. Endang TP. Msi. Noni Rahmadini, SP., MP, Drh Wilujeng MP. Dita Sari, SP.MP. Prof. Moch. Sodiq.
Requirements course	

At the week of	**Final ability at each stage of learning (Sub-CP-MK)**	**Evaluation**		**Forms of Learning, Learning Methods and Assignments for Students [Estimated time]**		**Learning materials [References]**	**Rating Weight (%)**
		Rating Indicator	**Criteria & Assessment Form**	**Online (online)**	**Online(online)**		
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
1,2)	*Students are able* 1. describe a. Crop loss and damage, b. The basic concept of plant control, protection and eradication of plant pests is environmentally friendly and sustainable .Able to analyze the relationship of plants, environment and pests that cause the occurrence of Pests and Plant Diseases in the ecosystem (CPL-S1, CPL-KK 4)	**ability to describe accurately and correctly** damage and loss of crops due to pests and diseases, crop protection, control anderadication of pests and plant diseases in an environmentally friendly and sustainable manner. **Ability to analyze** the relationship between plants, the environment and pests that cause the occurrence of plant pests and diseases in an ecosystem in a structured sentence **properly in a coherent and correct order**	Non test Assessing students' ability to describe accurately and correctly about plant damage and loss due to pests and diseases, plant protection, control anderadication of pests and plant diseases in an environmentally friendly and sustainable manner **Analysis results Relationship of plants, environment, humans to** occurrence of plant pests and diseases in the ecosystem based on the material described and the literature or	View youtube:	• Lectures explain, RPS, lecture contracts PP exposure on: Explain crop loss and damage as a basis for crop protection 2. Group study discussed - Analyze articles/news pest and deseases outbreaks of nematodes, virus, fungi, bacteri, arthopoda, insect - determinet about… the occurrence of Pests and Plant Diseases outbreak in the ecosystem, **TM = 2 X 2 X 50 minutes** **BT = 2 X2 X 60 minutes** **BM = 2 X 2 X 60 minutes**	**1.Basic Concepts of Plant Protection(1,3,4) 2.**	5%

		materials provided and supporting literature.	supporting articles written **in a coherent and correct order** through **written summary**				
3, (Miss Noni)	able to determine the types of abiotic diseases and the presence of weeds in agriculture based on symptoms and signs on plants 1 and)	Ability to recognize and determine several types of abiotic diseases and the presence of weeds in agriculture based on symptoms and signs Deficiency or excess of nutrients, water, light, pH with	**Non test Assignment collection** Students' ability to convey the results of the discussion of symptoms and signs of nutrient deficiency and environmental stress in a written report	**1. Internet**	1. Presentation of PP / video lecture material, about symptoms of plant damage due to deficiency or excess of nutrients, water, light, pH 2.Create groups and discussions (student community) 3. Examine and define the problem and Explore what they already know about underlying issues related to it (The important of the plant, Diseases or pest, damage and loss of crops due to pests and diseases). 4.Write in article and 2 slide collected	**Symptoms and damage to plants due to abiotic factors**	**5%**
				Practical Lecture **TM = 2x 50 2 X 1 X 100** **BT =2 X 60. 2 X 1 X 70** **BM = 2 X60**			

4, (Mrs. Noni and Mrs. Dita)	able to recognize and distinguishing pest attacks on agriculture based on the presence of pests, types of OPT symptoms (CPL-KK4, CPL-PU4)	The ability of students to recognize and determine the types of pests in agriculture accurately based on the type of mouth and damage to plants (symptoms and signs) and the presence of pests -a vertebrate -vertebrates Insect orders: - Coleoptera - Lepidoptera - Heteroptera/Hemiptera - Orthoptera Which is compiled in a practical report on the results of observations and discussions as well as a pocket book of Pest Types and Symptoms of Damage **arranged properly in a coherent and correct order according to practical guidelines**	**Non test** **Independent practicum report (Practicum Report)** **1.** The ability of students to convey the results of observations, study literature and discuss the symptoms and signs of certain pests in groups 2. Practical report and pest introduction pocket book		1. Presentation of PP / video lecture material, about…….. 2. Determine to learn and where you can acquire the information and tools necessary analyze cause of Pests and Plant Diseases outbreak Write in article, slide and collected		**10 %**
				Practical Lecture **TM = 2 x2x 50 3 X 2 X 1 X 100** **BT =2 X 60. 3 X 2 X 1 X 70** **BM = 2 X60**			
5	able to recognize and distinguish the types of biotic diseases in agriculture based on the symptoms and signs of pathogen attack (K, P)	The ability of students to recognize and determine the type of pathogen in plants accurately based on the symptoms and signs of the presence of the pathogen	**Non test** **PPT Exposure, Practice on laps and independent assignments (Practicum Report)** **3.** The ability of students to convey	**Internet https://youtu.be/Gu_2xdIGzW8** **E learning see PP exposure and read Module**	1.Exposure to PP/video lecture materials, 2. recognize and determine cause of pest and diseases precisely	**Diagnosis of plant infectious diseases**	**10 %**

		- fungus - bacteria - virus - nematode - Which is compiled in a practicum report on the results of observations and discussions as well as a pocket book. Types of pathogens and plant morphological symptoms	the results of the discussion of the symptoms and signs of certain pests in their groups 4. Practical report		based on the symptoms and signs of the presence of plant pest organisms (OPT). Write in article, 3 slide explain in front of the class based on articles and practicum		
				Practical Lecture **TM = 2 x2x 50 3 X 2 X 1 X 100** **BT =2 X 60. 3 X 2 X 1 X 70** **BM = 2 X60**			
6	Students are able Students are able to analyze and synthesize the concepts of pest life cycle relationships, distribution, population development and the basic theory of control and the occurrence of ourbreaks	Students' ability to analyze and synthesize concepts the relationship between pest life cycles, distribution, population development and the basic theory of control and the occurrence of ourbreaksbased on observation, judgment and, appropriate literature reasoning	**Non test** **Doing group assignment** Collect on time scientific summaries of lecture material results and articles about 1. factors that influence the presence of pests 2. Spread of pests 3. Interaction of pest presence and control concept	**Internet** **E learning sees** **PP and . exposure** **reading Module**	analyze and synthesize the relationship between plant disease cycles caused by pathogens, their spread, development and the occurrence of outbreaks	**Pest populati on and distribut ion**	**5%**
				TM = 2 x 50 **BT = 60** **BM =60**			

7	Students are able Students are able to analyze and synthesize the concept of the relationship between plant disease cycles caused by pathogens, their spread, development and the basic theory of their control and the occurrence of outbreaks	Students' ability to analyze the relationship between plant disease cycles caused by pathogens, spread, development and basic theories of control and the occurrence of ourbreaks based on observations, assessments and appropriate literature reasoning	**Non test** **Doing group assignment** **Doing group assignment** Collect on time scientific summaries of lecture material results and articles about 1. Factors influencing the presence of Pathogens 2. Pathogen Spread and Dormancy 3. bioecology of the outbreak	**Internet** **E learning sees PP and . exposure reading Module** Teaching materials	analyze and synthesize the relationship between plant disease cycles caused by pathogens, their spread, development and the occurrence of outbreaks	1. **disease cycle and plant disease infection** **3. Spread and dormancy of pathogens** **4. development of plant diseases**	5%
				TM = 2 X 50 minutes… **BT = 60 minutes** **BM = 60 minutes**			
8	UTS/Problem Evaluation. Base learning students can analyze and write articles on outbreaks of certain pests and or diseases in Indonesia	The ability of students to analyze and write articles on outbreaks of certain pests and diseases based on field observations, discussion results and literature studies conducted **arranged well in a coherent and correct order and the ability to present with smooth communication**	Lesan Group presentation clear communication skills and master the material the occurrence of certain pest and disease outbreaks based on field observations, discussion results and literature studies	**Upload youtube video PPT**	**PBL article writing and presentation** Evaluation of Problem Base learning students can analyze and synthesize certain pests and or diseases outbreak in Indonesia recently in article writing and presentation pest	- Coleoptera - Lepidoptera - Heteroptera/Hemiptera - Orthoptera - Mold - bacteria - virus - nematode	20 %

					and or disease outbreaks Coleoptera Lepidoptera, Heteroptera/Hemiptera, Orthoptera, fungi,bacteria Viruses, nematodes		
9	Students are able to determine control strategies against pests and diseases based on the law	• Ability to create a written resume About the problem of OPTK through an explanation of: 1. Plant quarantine mechanism/PSAT 2. Status and blocking of the plant / PSAT 3. Plant quarantine OPTK control measures	**Non test** **Outlining** explain and conclude the results of the discussion of OPTK and control problems through an explanation of: Pest control mechanism for certain diseases through plant quarantine based on status and blocking and Plant quarantine pest control measures	**Internet** **E learning see science upn view PP exposure and read Module**	Presentation of PP / video tutorials for lecture materials, 1. Quarantine mechanism 2.Status and crop blocking 3. BST pest management	Pest control using regulation	
				TM = 2 X 50 minutes… **BT = 60 minutes** **BM = 60 minutes**		•	
10,11	able to describe and determine control strategies for pests and diseases in an integrated, biological, physical and chemical way (CPMK 3,4)	Ability to describe and determine control strategies for pests and diseases in cultivation, biological, physical and chemical, coherently and clearly integrated in	**Non test** 1. Independent assignments make written summaries and 2. Doing practice - Seed selection - seed treatment	**Internet** **E learning science.upnjatim saw the explanation of PP and teaching materials**	**Tutorial lecture aquaculture control in reducing the number of initial pests and their presence in the field and practice with the material** - Seed selection - seed	pest control culturally, biologically, physically and chemically, integrated	15 %

					treatment		
				Practical Lecture **TM = 2 x2x 50 4 X 1 X 100** **BT =2 X 60. 4 X 1 X 70** **BM = 2 X60**		•	
12.13	Can plan and carry out control applications against plant pests in a cultivation, biological, physical and chemical, integrated, environmentally friendly and sustainable manner	The ability of students to plan and implement plant disease control using methods of cultivation, biological, physical and chemical, environmentally friendly and sustainable integrated appropriately based on literature studies and group discussions	**Non test** **1. Doing and collecting group assignments** 2. **Presenting assignments by case** certain pests in an environmentally friendly integrated manner with control using appropriate control methods based on field observations, field cases and literature studies	**Internet** **E learning sees** **PP and . exposure** **reading Module**	1Group presentation and discussion. ,(Project Based Learning) solves the problem of certain plant diseases by combining several appropriate, environmentally friendly and sustainable controls based on the results of field observations and literature studies and group discussions	Coleoptera Control Lepidoptera Heteroptera/Hemiptera Orthoptera - culturally, biologically, physically and chemically, integrated	10
				Studying **TM = 2 x2x 50** **BT = 2 X 60.** **BM = 2 X 60**		•	

14.15	Students are able to plan and implement control of plant diseases. cultivating, biological, physical and chemical, integrated, environmentally friendly and sustainable	The ability of students to plan and implement plant disease control using aquaculture, biological, physical and chemical, environmentally friendly and sustainable integrated appropriately based on literature studies and group discussions	**Non test** **3. Doing and collecting group assignments** 4. **Presenting assignments by case** certain plant diseases in an environmentally friendly integrated manner with control using appropriate control methods based on field observations, field cases and literature studies	Upload assignments in e-learning, youtube	1Group presentation and discussion. ,(Assigment Project Based Learning) solves the problem of certain plant diseases by combining several appropriate, environmentally friendly and sustainable controls based on the results of field observations and literature studies and group discussions	Fungus Control Bacteria Virus Nematodes culturally, biologically, physically and chemically, integrated	10
				Studying **TM = 2 x2x 50** **BT = 2 X 60.** **BM = 2 X60**		•	
16	**Final Semester Evaluation Written test** **Evaluation of the achievement of CPL imposed on MK**						15 %
Total							

Notes :

1. **Learning Outcomes of Graduates of Study Program (CPL-PRODI)** is the ability possessed by every graduate of the study program which is the internalization of attitudes, mastery of knowledge and skills in accordance with the level of study program obtained through the learning process.
2. **CPL charged to the course** are some of the learning outcomes of study program graduates (CPL-PRODI) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **CP Course (CPMK)** is the ability that is described specifically from the CPL that is charged to the course, and is specific to the study material or learning material of the course.
4. **Sub-CP Course (Sub-CPMK)** is the ability that is described specifically from the CPMK that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.

5. **Rating indicators** ability in the process and student learning outcomes is a specific and measurable statement that identifies the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment criteria**is a benchmark that is used as a measure or benchmark for learning achievement in an assessment based on predetermined indicators. Assessment criteria are guidelines for assessors so that the assessment is consistent and unbiased. Criteria can be either quantitative or qualitative.
7. **Assessment form:** test and non-test.
8. **Learning form:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of the study material that can be presented in the form of several main points and sub-topics.
11. **Rating weight** is the percentage of assessment for each achievement of the sub-CPMK which is proportional to the level of difficulty of achieving the sub-CPMK, and the total is 100%.
12. **TM**= Face to face, **PT**= structured assignments, **BM**= Self-study.

1.3 ELO Weight calculation results

No	Sem	Code MK	Course Name	Credits	CP-1	CP-2	CP-3	CP-4	CP-5	CP-6	CP-7	CP-8	CP-9	CP-10	Total
22	**2 and3**		Plant Protection Basics Automatic	3	X 10%		X 20%	**X 30%**	X 40%						

3. ASSESSMENT AND EVALUATION PLAN

	ASSESSMENT & EVALUATION PLAN FP AGROTECHNOLOGY S1 STUDY PROGRAM, UPN "VETERAN" **BASIC OF PLANT PROTECTION**		**RA&E** Edition:
Code: FP191108	**Credits Weight (T/P): (2/1)**	**Clump MK: Plant Disease Pests**	Smt: 2
AUTHORIZATION	**R A & E . Compiler**	**RMK Coordinator**	**chord. study program**
	Team Teaching	**Dr.Ir. Penta Suryaminarsih, MP.**	Dr.Ir.Bakti Wisnu W. M.P

NO	Tasks/ week to	**Sub CP-MK (2)**	**Form of Assessment (Assessment) (3)**	**Weight (%) (4)**
1	2	*Capable* define and explain the concept of the occurrence of pests, abiotic biotic diseases, and weeds, loss and damage to plants as a basis for plant protection (CPMK 1 and 3)	**Task 1:** **Non test** Compile summaries and create flowcharts. Basic basics of plant protection and plant losses caused by biotic and abiotic plant pests and diseases, independent task	**5%**
2	4	Able to determine and distinguish types of abiotic and weed diseases in agriculture based on symptoms and signs of pest attack (CPMK2 and 3)	**Task 2** **Non test** **Make PPT and deliver (Presentation)** results of group discussion "symptoms and signs of nutrient deficiency and environmental stress"	**5%**
3	6,7	Capable determine and differentiate types of plant diseases and pests based on OPT symptoms and signs (CPMK 2.3)	**Task 3** **1.** Create a binary "Key pests and diseases based on pests" **2.** Make a practicum report "Symptoms and signs of pest and pathogen attack" **Test** **3. Lessons and practice** determine types of plant diseases and pests based on OPT symptoms and signs	**20%**
4	8	students can analyze and write articles on the problem of outbreaks of certain pests and or diseases in Indonesia	**Online exam** PBL: The presentation of the group with clear communication skills and mastering the material on the occurrence of certain pest and disease outbreaks based on field observations, discussion results and literature studies	**20%**
5	12	able to describe and determine control strategies against pests and diseases in physics, mechanics and cultivation, biology and chemistry (CPMK 3,4)	**3. Doing practice Doing group assignment** - Seed selection and treatment - Installation of color and hormone traps - biopesticide application - chemical pesticide application	**20%**
6	4	Students are able to plan and solve the problem of certain plant	**Group presentations and discussions. ,(Assigment Project**	**20%**

		pests and diseases by combining several controls	**Based Learning)** solve certain pest problems by combining several appropriate, environmentally friendly and sustainable controls based on the results of field observations and literature studies and group discussions	
7	8	able to plan, carry out plant protection and control of pests and diseases based on abiotic and biotic causes by law and cultivation (	**Final Semester Evaluation Written test**	**10%**

6. ANSWER RUBRIC LESSON

6.1 PRESENTATION OF TASK 5 and 7

ARGUMENT RUBRIC

GRADE	SCORE	PERFORMANCE INDICATORS
GRADE	*SCORE*	*PERFORMANCE INDICATOR*
Very less	<41	The argument doesn't make sense and there's no logical connection
More Less		*The argument*
		• does not make sense and
		• there is no logical relationship
Not enough	41–55	The argument is quite logical, but it doesn't make sense
Less		*The argument is*
		• *quite logical, but*
		• it doesn't make sense
Enough	56– 70	Logical argument, plausible, but less innovative
Enough		*The arguments:*
		• *logical arguments,*
		• *reasonable, but*
		• *less innovative*
Well	71- 85	Logical argument, reasonable, innovative
good		*The arguments:*
		• *logical arguments,*
		• *reasonable, a*nd
		• *innovative*
Very good	86 - 100	Logical argument, innovative and easy
Very Good		implemented in the real world
(Excellent)		*The arguments:*
		• *logical arguments,*
		• *innovative and*
		• can be easily implemented in the real world

6.2 RUBRIC ABILITY IN TEAM COOPERATION

TEAMWORK ASSESSMENT
ASSESSMENT OF TEAM WORK

Appraised peer *Peer name be assessed*	…….
Assessed Peer NRP *NRP – peer be assessed*	…….

No	Rated aspect ***Aspect be assessed***	1	2	3	4	5	6	Value in number (50 – 100) ***Grade in score (50-100)***
1	Teamwork leads to CP achievement (Achievements Learning) *Team work towards achieving LO (Learning Outcomes)*							
2	Demonstrate good interpersonal skills effective *Demonstrate effective interpersonal skills*							
3	Very active in group discussion participation							
4	Sharing of learning resources owned by group member *Sharing of learning resources owned by group members*							
5	Help the group if you miss information compared to other groups *Help groups if they miss information compared to other groups*							
6	Provide constructive feedback (build) and provide solutions if any difficulty *Provide constructive feedback (to build) and provide solutions if there are difficulties*							
7	Work hard for the benefit of the group *Work hard for group interests*							
8	Willing to receive feedback openly (no emotion) *Want to receive feedback openly (not emotionally)*							
9	React positively to positive feedback critical *React positively to criticize feedback*							
10	Manage emotions well *Manage emotions well*							
11	Always stick to his point of view *Always stick to his / her point of view*							
12	Making efforts to improve behavior while working in a group							
	Make efforts to improve behavior while working							

	in groups							
13	Demonstrate the ability to change view in receiving new information *Demonstrate the ability to change views in receiving new information*							
14	Be present at each group work on time *Present on time at each group job*							
15	Demonstrate responsibility and commitment *Demonstrate responsibility and commitment*							
16	Honest *Honest*							

1 = very bad / very non-constructive - very bad / very non-constructive
6 = very good/ very constructive - very good / very constructive

6.3 ANSWER RUBRIC WRITING AN ARTICLE 7

Current Event Article Summary Grading Rubric

CATEGORY	4 - Above Standards	3 - Meets Standards	2 - Approaching Standards	1 - Below Standards
Introduction	The introduction has a strong hook or attention. This could be a strong concept sentence, a relevant quotation, statistic, or question addressed to the reader.	The introduction has a hook or attention grabber. Includes a good concept sentence and/or interesting quote.	The author has a weak introductory paragraph, the connection to the topic is not clear. Paragraph includes a weak concept sentence or quote.	The introductory paragraph is not interesting AND is not relevant to the topic. No concept sentence or quote.
Quotes and Concept Words	All of the examples are specific, relevant and full explanations are given.	Most of the evidence and examples are specific, relevant and explanations are given.	Some of the pieces of evidence and examples are relevant and include an explanation.	Evidence and examples are NOT relevant AND/OR most are not explained.
5 W's	All supportive facts and statistics are reported accurately. Article is fully explained and summarized in own words.	Almost all supportive facts and statistics are reported accurately. Article is mostly explained and summarized in own words.	Some supportive facts and statistics are reported accurately. Weak explanation and summary that is partially plagiarized.	Most supportive facts and statistics were inaccurately reported. Article is poorly explained and summary is mostly plagiarized.
Grammar & Spelling	Author makes no errors in grammar, sentence structure, or spelling that distract the reader from the content.	Author makes 1-3 errors in grammar, sentence structure, or spelling that distract the reader from the content.	Author makes 4-6 errors in grammar, sentence structure, or spelling that distract the reader from the content.	Author makes more than 6 errors in grammar, sentence structure, or spelling that distract the reader from the content.

Conclusion	The conclusion is strong and leaves the reader solidly understanding the writer's response and personal reaction to the article.	The conclusion is good. Includes the author's response and personal reaction to the article.	Conclusion is weak or incomplete. Limited response and personal reaction to the article.	There is no conclusion - the paper just ends.
Proper Format and Organization	Article summary is typed, has a heading, title, and is submitted on time. Summary is organized into 4 or more paragraphs. A challenging newspaper article of sufficient length is attached.	Article summary is typed, has a heading, title, and is submitted on time. Summary is organized into 4 paragraphs. Acceptable newspaper article of sufficient length is attached.	Article summary is typed but submitted late. Incomplete heading and title. Summary has 3 or less paragraphs. Attached item is not a current event newspaper article and/or it is not a sufficient length.	Article summary is not typed. No heading. No article is attached. No title.

7. PROBLEM BASE LEARNING

PEST AND DISEASES OUTBREAKS IN INDONESIA RECENTLY

1) Introduction of Problem Base Evaluation

The occurrence of pests, abiotic diseases, biotic diseases, and weeds that can cause loss and damage to crops. It is the interaction of pests / pathogens, the environment and host plants that support the occurrence of pests and diseases. Several plant diseases caused by fungi, bacteria, nematodes and viruses. Animals can also be called pests if they cause damage to natural ecosystems such as the ordo of insect Coleoptera, Lepidoptera, Heteroptera/Hemiptera, Orthoptera. You have recognize and determine the type of pathogen and pest plants appropriately based on the symptoms and signs of the presence of the plant pest organism. It is once of basic plant protection. Beside of this, it is importants to analyze and synthesize the concepts of the relationship between pest or diseases life cycles, distribution, population development and the basic theory of control and the occurrence of ourbreaks. Diseases outbreaks, pest outbreak is the conditions related to density population per unit or crop relationship that causes crop damage and crop losses. Several incidents of pest and disease outbreaks in several areas in Indonesia have occurred which can cause considerable losses.

You should analyze and write articles on outbreaks of certain pests and diseases based on field observations, discussion results in a group ,course and literature studies that are well organized in a coherent and correct order and the ability to present with fluently communication

2) PBL assignments take a half semester.

3) PBL <u>work in groups</u> and to allow them to engage in 8 group in every class based on the cause of diseases or Pest : Fungi, Bacteria, Virus, Nematode, Coleoptera, Lepidoptera, Heteroptera /Hemiptera, Orthoptera.

4) Students can plan and carry out the stages of PBL :

a) Week 2 : Examine and define the problem and Explore what they already know about underlying issues related to it (The important of the plant, Diseases or pest, damage and loss of crops due to pests and diseases). Write in article and 2 slide collected

b) Week 3 : Determine what you need to learn and where you can acquire the information and tools necessary analyze cause of Pests and Plant Diseases outbreak Write in article, slide and collected

c) Week 4, 5 : recognize and determine cause of pest and diseases precisely based on the symptoms and signs of the presence of plant pest organisms (OPT). Write in article, 3 slide explain in front of the class

d) Week 6,7 : analyze and synthesize the relationship between plant disease cycles caused by pathogens, their spread, development and the occurrence of outbreaks

e) Week 8 : Evaluation of Problem Base learning students can analyze and synthesize certain pests and or diseases outbreak in Indonesia recently in article writing and presentation

8. ASSIGMENT BASE LEARNING

PLANT PROTECTION FROM DISEASES OUTBREAKS IN AN INTEGRATED, ENVIRONMENTALLY FRIENDLY SUSTAINABLE WAY

1) Introduction of Problem Base Project Evaluation

It is important to analyze and synthesize the concepts of the basic theory of control and the occurrence of diseases and pest outbreaks. Outbreaks of certain pests and diseases (pests or diseases outbreak in Indonesia recently) based on field observations, discussion results in a group. Control of pest and disease outbreaks needs combining several environmentally friendly and sustainable control methods. As a basis for integrated control, it is necessary to understand knowledge and basic concepts of pest and disease control strategies based on the law, control strategies against pests and diseases in culture, biological, physical and chemical ways. Knowledge of The continuous application of synthetic chemical pesticides has been known to overcome a negative impact on many aspects. One of them is the emergence of resistance, resurgence and the explosion of secondary pests. To overcome and solve the problem of pest and diseases plant outbreaks can be done by planning and determining several integrated controls that are appropriate, environmentally friendly and sustainable. Integrated plant protection can be done based on the results of field observations and literature studies and group discussions.

Write an article on plant protection from diseases outbreaks in an integrated, environmentally friendly sustainable way, present it and upload a PPT video on Youtube.

2) PBLP assignments take a half semester.

3) PBL <u>work in groups</u> and to allow them to engage in 8 group in every class based on the cause of diseases or Pest outbreak in Indonesia recently: Fungi, Bacteria, Virus, Nematode, Coleoptera, Lepidoptera, Heteroptera /Hemiptera, Orthoptera,

4) Students can plan and carry out the stages of Assigment Base Learning:

- Week 10, : Examine and define solve the problem and Explore what they already know about underlying issues related to it
- Week 11 : Determine what you need to learn and where you can acquire the information and tools necessary analyze to solve the problem Pests and Plant Diseases outbreak Write in article, slide and collected
- Week 12,13 : Doing and collecting group assignments , Presenting tasks based on control of Pest outbreaks in an environmentally friendly integrated manner with using appropriate control methods based on field observations, field cases and literature studies
- Week 14,15 : 3. Doing and collecting group assignments , Presenting tasks based on control of plant disease outbreaks in an environmentally friendly integrated manner with using appropriate control methods based on field observations, field cases and literature studies