

## Module/Course Description

### Forest Disease Science (SVK333)

A. Module Identity		
1.	Name	Forest Disease Science
2.	Code	SVK333
3.	Credit	3 (2-3)
4.	Semester	Even/Odd
5.	Pre-requisite	-
6.	Coordinator	Dr. Ir. Elis Nina Herliyana, M.Si
7.	Lecturers	1. Dr. Ir. Elis Nina Herliyana, M.Si 2. Prof. Dr Ir Achmad, MS 3. Ir. M. Alam Firmansyah, MSi
8.	Language	Indonesian
9.	Program(s) in which the course is offered	Internal department: Forest Management Study Program Other departments: all study programs in IPB University as elective course
10.	Type of teaching	a. Traditional classroom: 100 % b. Blended system: Traditional classroom....%, Online....% c. e-Learning system: .....% d. Others: .....%

B. Workload of course components (total contact hours and credits per semester)								
Credit		Contact Hours**				Self-Study	Other	Total
SKS *)	ECTS	Lecture	Class Exercise	Laboratory	Field Practice			
<b>3</b>		<b>28</b>	<b>42</b>			<b>56</b>		<b>126</b>

\*) Semester credit unit according to the Indonesian higher educational system

1 credit unit lecture = 2 hours/ week for lecture and 2 hours/ week for self-study within 14 weeks/ semester

1 credit unit class exercise or laboratory or field practice = 3 hours/week within 12-14 weeks/semester

\*\*\*) 1 hour for lecture= 50 minutes; 1 hour for class exercise or laboratory or field practice = 60 minutes

C. Module Objective (Learning Outcomes)
After completing this course, students are able to explain the concepts, mechanisms, types, biology, ecology and control of forest plant diseases

D. Detailed Course Learning Outcomes (LO) in Relation to Learning Domains, Teaching Strategies, and Assignment Methods			
No.	LO in Learning Domains	Teaching Strategies	Assessment Methods
<b>a.</b>	<b>Knowledge</b>		
1.	Students are able to explain the meaning and scope of forest diseases	Lecturing, class discussion	Midterm Exam
2.	Students are able to explain the physiology of the disease	Lecturing, class discussion	Midterm Exam
3.	Students are able to explain the mechanism of attack by pathogens	Lecturing, class discussion	Midterm Exam
4.	students are able to explain	Lecturing, class discussion	Midterm

	the host defense mechanism		Exam
5.	students are able to explain the Ecology of Disease	Lecturing, class discussion	Midterm Exam
6.	students are able to explain Seed Disease	Lecturing, class discussion	Midterm Exam
7.	students are able to explain Nursery Seed	Lecturing, class discussion	Midterm Exam
8	students are able to explain root disease	Lecturing, class discussion	Final Exam
9.	students are able to explain the stem disease	Lecturing, class discussion	Final Exam
10.	students are able to explain Leaf Disease	Lecturing, class discussion	Final Exam
11.	students are able to explain Wood Weathering	Lecturing, class discussion	Final Exam
12.	students are able to explain Wood Coloring	Lecturing, class discussion	Final Exam
13.	students are able to explain Forecasting & assessment of disease	Lecturing, class discussion	Final Exam
14.	students are able to explain the control of forest diseases	Lecturing, class discussion	Final Exam
<b>b. Skills</b>			
1.	students are able to carry out activities in the laboratory, create media and sterilize materials and practical tools	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
2.	students are able to recognize the symptoms and signs of disease in the stems, roots, leaves and nurseries	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
3.	students are able to pour media into the Petri dish, doing simple isolation	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
4.	students are able to do isolation purification and microorganism preparation preparation techniques	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
5.	students are able to use a microscope and use it for identification	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
6.	students can prove Koch's Postulate	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
7.	students are able to conduct seed health tests	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> </ul>	Authentic assessment

		<ul style="list-style-type: none"> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	
8.	students can analyze the intensity and extent of disease attacks	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
9.	students can analyze wood weathering and wood coloring	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
10.	students are able to explain the results of practicum in group dynamics	<ul style="list-style-type: none"> <li>• Lecturer's explanation</li> <li>• Practicum</li> <li>• Students are in groups to present and share the exploration result</li> <li>• Discussion</li> </ul>	Authentic assessment
<b>c. Competences:</b>			
1.	Students demonstrate a willingness to participate in the class activities	Lecturer's explanation, practicum, discussion	Authentic assessment
2.	Students are able to complete all tasks and participate in class discussion	Lecturer's explanation, discussion, assignment	Authentic assessment

### E. Module Content

List of Topic	Number of Weeks	Contact Hours
The meaning and scope of forest disease (introduction)	1	2
Disease physiology	1	2
The mechanism of attack by pathogens	1	2
Mechanism of host defense	1	2
Disease ecology	1	2
Seed disease	1	2
Nursery disease	1	2
Root disease	1	2
Stem disease	1	2
Leaf disease	1	2
Wood weathering	1	2
Wood colouring	1	2
Wood disease forecasting and assessment	1	2
Forest disease controlling	1	2

### F. Course Assessments

No.	Assessment Type *)	Schedule (Week Due)	Proportion of the Final Mark
1.	Mid-Term Examination	The 8 <sup>th</sup> Week	35%
2.	Final Examination	The 16 <sup>th</sup> Week	35%
3.	Practical Report/ Homework	Minimal 6 times in a semester	30%

\*) Example: mid-term examination, final examination, quiz, homework, project, etc.

## G. Media Employed

Laptop, LCD, Microphone, White Board, Marker, Pointer

## H. Learning Resources

### h1. Textbooks:

- 1) Agrios, G.N. 1988. *Plant Pathology*. Academic Press, NY. 803 hlm.
- 2) Blanchard, R.O. dan R. A. Tattar. 1981. *Field and Laboratory Guide to Tree Pathology*. Academic Press, London. 285 hlm
- 3) Boyce, J.S. 1961. *Forest Pathology*. Mc Graw-Hill Book Co., Inc., NY. 572 hlm.
- 4) Dharmaputra, O.S. dkk 1989. *Mikologi Dasar*. Institut Pertanian Bogor, Bogor. 274 hlm.
- 5) Hadioetomo, R.S. 1993. *Mikrobiologi Dasar dalam Praktek*. PT Gramedia Pustaka Utama, Jakarta. 163 hlm.
- 6) Manion, P.D. 1981. *Tree Disease Concepts*. Prentice-Hall Inc., Englewood Cliffs, New Jersey. 399 hlm.
- 7) Suharjo, B.H. 2005. *Panduan Teknis Praktek Umum Perlindungan Hutan*. Institut Pertanian Bogor, Bogor. 91 hlm.
- 8) Suherman F. 2004. *Inventarisasi Penyakit yang Terdapat pada Daun dan Batang Tegakan *Acacia mangium* Wild. di Kampus IPB Darmaga Bogor*. Institut Pertanian Bogor, Bogor. 27 hlm
- 9) Suracmat dkk. 1985. *Penuntun Kerja Ilmu Penyakit Benih*. Balai Karantina Pertanian Jakarta, Jakarta. 53 hlm
- 10) Tainter FH, Baker FA. 1996. *Principles of Forest Pathology*. John Wiley and Sons, inc, Canada. 725 hlm.