



## Course Module

# Silviculture of Tropical Forests

Faculty of Forestry

Mulawarman University

Module name	Silviculture of Tropical Forests
Modul level, if applicable	Graduates Programme
Code, if applicable	190401802W008
Subtitle, if applicable	
Courses, if applicable	Regular
Semester(s) in wich the module is taught	II (two)
Person responsible for the module	Prof. Dr. Ir. Marjenah, M.P.
Lecturer	Prof. Dr. Ir. Marjenah, M.P. Dr. Ir. Syahrinuddin. M.Sc. Dr. rer.nat. Harmonis, M.Sc. Dr. Ir. Wahjuni Hartati, M.P. Kiswanto, S.Hut., M.P., Ph.D.
Language	Indonesia
Relation to curriculum	Programme, mandatory
Type of teaching, contact hours	Lecture, 3 lecture contact hours
Workload	Number of meetings per semester: 16 meetings (14 meetings for learning activity, 1 meeting for mid semester, 1 meeting for final examination) 3 x 50 minutes lectures, 3 x 60 minutes structure activity, 3 x 60 minutes individual activity, with a total of 7,140 minutes or equivalent to a total of 119 hours in 14 weeks per semester
Credit points	3 SKS (4.77 ECTS) Details: 1 Credit = 170 min/week 1 Credit = 170 min x 14 week = 2,380 min/semester 1 ECTS = 25 h / semester 1 Credit = 2,380 / 60 / 25 = 1.59 ECTS 3 Credit = 1.59 x 3 = 4.77 ECTS
Requirements according to the examination regulations	Have attended not less than 80% class meetings
Recommended prerequisites	
Module objectives/intended learning outcomes	After attending this course, students have the ability to: <ol style="list-style-type: none"> <li>1. Explain the scope of tropical forest silviculture and its role.</li> <li>2. Explain the development of silviculture in the tropics.</li> <li>3. Explain about forest enrichment with meranti species.</li> <li>4. Analyze the implementation techniques, advantages, and development of agroforestry.</li> </ol>

	<ol style="list-style-type: none"> <li>5. Conduct a study of the nutrient cycle in the tropics.</li> <li>6. Conduct an analysis of nutrient balance in tropical forest ecosystems.</li> <li>7. Conduct a study of the role of soil as a growing medium.</li> <li>8. Mid Semester</li> <li>9. Explain the process of soil formation and soil characteristics of tropical regions.</li> <li>10. Identify the characteristics and potential of forests in Indonesia.</li> <li>11. Analyze the concept of maintenance in natural forests.</li> <li>12. Analyze land requirements and nutrient consumption in plantation forest development.</li> <li>13. Identify and formulate about community plantation forests.</li> <li>14. Apply forest protection in tropical forest areas.</li> <li>15. Analyze infected plants and apply control techniques.</li> <li>16. Final examination</li> </ol>																								
Content	<p>This course discusses in detail about silviculture in the tropics, the development of silviculture and forest cultivation techniques in various functions and land tenure status. This course provides students with the knowledge and skills to be able to perform and determine forest cultivation techniques to increase land productivity in forest development activities.</p>																								
Study and examination requirements and forms of examination	<p>Evaluation and assessment of the learning process are following scheme 5 in the Academic Regulations of Mulawarman University:</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Objects of Assessment</th> <th>Forms of Assessment</th> <th>Quantity (%)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Affective and class attendance</td> <td>Participation</td> <td>10</td> </tr> <tr> <td>2</td> <td>Assignment</td> <td>Q&amp;A</td> <td>20</td> </tr> <tr> <td>3</td> <td>Mid-semester test</td> <td>Written test</td> <td>30</td> </tr> <tr> <td>4</td> <td>Final semester test</td> <td>Written test</td> <td>40</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>TOTAL</b></td> <td>100</td> </tr> </tbody> </table>	No.	Objects of Assessment	Forms of Assessment	Quantity (%)	1	Affective and class attendance	Participation	10	2	Assignment	Q&A	20	3	Mid-semester test	Written test	30	4	Final semester test	Written test	40	<b>TOTAL</b>			100
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<b>TOTAL</b>			100																						
Media employed	Laptop, LCD																								
Reading list	<ol style="list-style-type: none"> <li>1. Lampercht, H, 1996. Pertimbangan Silvikultur Di Wilayah Tropik. Silvikultur Hutan Alam di Indonesia. Fakultas Kehutanan Universitas Mulawarman. Samarinda.</li> <li>2. Oldeman, R. A. A. 1990. Forests: Elements of Silvology. Springer-Verlag_Berlin Heidelberg. New York</li> <li>3. Soekotjo. 2009. Teknik Silvikultur Intensif (SILIN). Gadjah Mada University Press. (Cetakan pertama). Yogyakarta.</li> <li>4. Weidelt, H.J, 1995 Silvikultur Hutan Alam Tropika. Fakultas Kehutanan Universitas Mulawarman. Samarinda.</li> <li>5. Whitmore, T.C. 1984. Tropical Rain Forest of The Far East (2nd ed.). Clarendon Press, Oxford. 352 hal.</li> <li>6. Tata, H.L. dan A. Sasmianto. 2016. Prospek Paludikultur Ekosistem Gambut Indonesia. Forda Press. Bogor.</li> <li>7. Evans, J. 1982. Plantation forestry in the tropics. Oxford: Clarendon Press. 472 pp.</li> </ol>																								

	<ol style="list-style-type: none"> <li>8. Jülich, W. 1988. Dipterocarpaceae and mycorrhizae. Special Issue, GFG Report of Mulawarman University 9: 103 h.</li> <li>9. Kobayashi, T. 1986. Manual for forest tree diseases and their control measures in the Philippines. RP-Japan Forestry Development Project of the Pantambangan Area. 64 pp.</li> <li>10. Lamarque, F., Anderson, J., Fergusson, R., Lagrange, M., Osei-Owusu, Y., Bakker, L., 2009. Human–Wildlife Conflict in Africa: Causes, Consequences and Management Strategies. Food and Agriculture Organization of the United Nations, Rome, p. 112.</li> <li>11. Nair, K.S.S. 2000. Insect pests and diseases in Indonesian forests. SMT Grafika Desa Putera. Bogor, Indonesia.</li> <li>12. Palmer, C. E. 2001. The extent and causes illegal logging: an analysis of a major cause of deforestation in Indonesia. CSERGE (Centre for Social and Economic Research on the Global Environment), London.</li> <li>13. Satoo, T dan Madgwick, H. A.I., 1982. Forest Biomassa. Martinus Nijhoff-Netherland. 152 p</li> <li>14. Ruhiyat, D. 1993. Dinamika Unsur Hara dalam Pengusahaan Hutan Alam dan Hutan Tanaman : Siklus Biogeokimia Hutan. Rimba Indonesia Vol 3 – 4 Desember 1993</li> <li>15. Ruhiyat, D. 1999. Potensi Tanah di Kalimantan Timur Karakteristik dan Strategi Pendayagunaannya. Pidato Pengukuhan Jabatan Guru Besar Madya dalam Ilmu Tanah Hutan pada Fakultas Kehutanan Unmul. Rapat Terbuka Senat Unmul, 26 Oktober 1999. Samarinda</li> <li>16. Sanchez, P. A. 1992. Sifat dan Pengelolaan Tanah Tropika. Jilid I. ITB, Bandung</li> <li>17. Mackensen, J., Ruhiyat, D., dan H. Folster. 2001 . Kandungan Gizi Berbasis Volume Acacia mangium , Eucalyptus deglupta dan Paraserianthes falcataria di Hutan Tanaman Industri di Kalimantan Timur, Indonesia. J. Trop. Hutan Sci 13: 512</li> <li>18. Sardjono, M. A., T. Djogo, H. S. Arifin., dan N. Wijayanto. 2003. Bahan Ajaran Agroforestri (Buku 1 s/d 6). World Agroforestri Centre. Bogor</li> </ol>
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## MAP OF COMPATIBILITY OF COURSE LEARNING OUTCOMES (CLO) AND PROGRAM LEARNING OUTCOMES (PLO)

### B. Capaian Pembelajaran Lulusan yang dibebankan pada mata kuliah:

1. CPL 1: Memiliki tanggung jawab untuk **bekerja secara profesional baik secara mandiri** maupun dalam tim pada bidang kehutanan dan lingkungan tropis termasuk kewirausahaan sosial;
2. CPL 2: Mampu menguasai **konsep teoritis dan prinsip dasar ilmu pengetahuan** dan teknologi bidang kehutanan dan lingkungan tropis, serta ilmu-ilmu terkait lainnya;
3. CPL 3: Mampu **mengidentifikasi elemen-elemen penting** dan mengintegrasikan dalam bidang kehutanan dan lingkungan tropis berdasarkan kaidah-kaidah ilmiah.

CPMK ( <i>Course Outcome/CO</i> )	CPL 1	CPL 2	CPL 3
1. Mampu mengidentifikasi berbagai teknik dalam pengelolaan hutan tropis			V
2. Mampu mengkaitkan Silvikultur Hutan Tropis dengan ilmu-ilmu pendukungnya		V	
3. Mampu bekerja secara mandiri maupun dalam tim	V		

CPMK (CO)	Sub-CPMK (Pertemuan)	Rencana Asesmen dan Evaluasi
CPMK 1: Mampu mengidentifikasi	Mahasiswa mampu menjelaskan ruang lingkup hutan tropis, karakteristik dan lingkungannya serta pengembangannya (1 – 2 )	
	Mahasiswa mampu menguraikan dan menjelaskan pengayaan hutan dengan jenis meranti (3)	
	Mahasiswa mampu menganalisis teknik pelaksanaan tumpangsari di hutan tropis (4)	
CPMK 2: Mampu mengaitkan Silvikultur Hutan Tropis dengan Ilmu yang lain	Mahasiswa mampu menjelaskan keterkaitan silvikultur tropis dengan ilmu-ilmu pendukungnya (5 - 7)	
	Mahasiswa mampu menjelaskan dan mengidentifikasi tentang proses pembentukan tanah dan karakteristik tanah (9 – 10)	
	Mahasiswa mampu menjelaskan tentang konsep pemeliharaan hutan alam (11)	
CPMK 3: Mampu bekerja secara mandiri maupun dalam tim	Mahasiswa mampu mengidentifikasi dan merumuskan tentang pembangunan hutan tanaman (12- 13)	
	Mahasiswa mampu menganalisis dan mengaplikasikan teknik pengendalian organisme pengganggu tanaman (14 – 15)	