University Gadjah Mada

Faculty of Forestry
Study Program of Doctor in Forestry Science

Module Handbook

Name (Code)	Intensive Silviculture-based Agroforestry (KTDS22811)
ECTS | Type | Status	7.5 | Class lecture | Elective
Semester | OfL:OnL Ratio | LMS	1 | 60:40 | elok.ugm.ac.id
Pre-Requisite	-
Description of content	Intensive Silviculture-Based Agroforestry Course is a science that implements science, technology and art in developing and maintaining mixed forest stands between forestry plants and agricultural crops in depth. This course will cover material on agroforestry patterns that can increase the value of forests for forest sustainability and food security. Lecture materials include the development of a silvicultural system for agroforestry, a resource sharing system to increase agroforestry land productivity and the development of site-based agroforestry patterns including agroforestry, silvopastura, silvofishery and others.
Course Outcomes and PLO mandated	Finishing this course, student will be able to Able to analyze and study in depth agroforestry patterns and site-based agroforestry systems (CLO1/PLO3), to identify and analyze environmental factors where to grow increased productivity of agroforestry land (CLO2/PLO3), to evaluate and develop agroforestry patterns through the principles and stages of intensification of forestry and agricultural crop commodities to optimize yields (CLO3/PLO4), to compare and assess the advantages of various forestry crop commodities developed in Indonesia, both for wood and non-wood products based on intensive silviculture (CLO4/PLO7), and to create agroforestry designs to increase productivity of various agricultural crop commodities for both food and non-food products based on agricultural intensification (CLO5/PLO4)
Lecturer(s)	1. Prof. Dr. Ir. Priyono Suryanto 2. Prof. Dr. Ir. Suryo Hardiwinoto, M.Agr.Sc 3. Prof. Dr. Budiadi, M.Agr.Sc. 4. Prof. Dr. Widiyatno, M.Sc
Workload	: Total workload per semester is for 14 weeks, with weekly activities: 2*(50' lectures, 60' structured activities, 60' independent study), and 2 mid exam and final exam weeks.
Learning Method	: Class Lecture and Discussion
Student Learning Experience	: Actively discuss the class material and research cases, structured assignment, group work, quiz, material reflection, review of literature and problem in forestry sectors

Mapping CO-syllabus

CLO	Syllabus	Learning form	Meetings
1	1. Introduction: meaning and objectives of agroforestry 2. Silviculture system for agroforestry	Class lecture and discussion	2
2	3. Sharing sunlight resources 4. Sharing water and nutrient resources	Class lecture, discussion, assignment	2
3	5. Biomass production process (goods) and environmental services 6. Design of agroforestry stands 7. Principles and stages of agroforestry intensification	Class lecture, discussion, assignment	3
4	8. Development of wood-based forestry commodities 9. Development of forestry commodities based on non-forest products wood (1 and 2)	Class lecture, discussion, presentation	3
5	10. Development of agricultural commodities on forest land (agroforestry) 11. Development of agricultural and livestock commodities on forest land (silvopastura) 12. Development of livestock commodities on forest land (silvopastura) 13. Development of fisheries commodities on forests (silvo-fishery)	Class lecture, discussion, presentation	4

Assessment method

Base of Evaluation	Component of Evaluation	CLO1	CLO2	CLO3	CLO4	CLO5	Total (%)
Participative activity	Assignment, quiz, presentation	√	√			√	20
Cognitive & Psychomotoric	Mid exam	√	√	√			30
Case Study result	Final exam/ presentation			√	√	√	50

References

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2. Jones D. T., Susilo F. X., Bignell, D. E, Hardiwinoto S., Gillison A. N., Eggleton P., 2003. Termite assemblage collapse along a land use intensification gradient in low land central Sumatera, Indonesia. *Journal of Applied Ecology* 40: 380-391.
3. Kusmana C. 1997. Metode of Vegetation Survey. Bogor: PT. Penerbit Institut Pertanian Bogor.
4. Lamb D, Gilmour D. 2003. Rehabilitation and restoration of degraded forests. IUCN, Gland, Switzerland and Cambridge, UK and WWF, Gland, Switzerland.
5. Nai'em, M. 2004. Genetic Diversity, Tree Improvement and the Increase of Forest Productivity in Indonesia. The Speech of Professor Inauguration, Universitas Gadjah Mada, Yogyakarta.
6. Nair PKR. 1993. An Introduction to Agroforestry. Kluwer Academic Publisher. Dordrecht, the Netherlands.
7. Nyland R.D., 1996. Silviculture, Concepts and Applications. The McGraw-Hill Companies, Inc., New York.
8. Sabarnurdin, M.S., Budiadi and Suryanto, P. 2011. Agroforestry for Indonesia: Strategies for forest sustainability and prosperity. Cakrawala Media Press.
9. Smith, D.M., Bruce C.L., Matthew, J.K. and P.M.S. Ashton, 1997. The Practice of Silviculture Applied Forest Ecology. Ninth Edition. John Wiley and Sons, Inc., New York
10. Soekotjo.2004. Silviculture Regimes: The attempt to rehabilitate and increase the potency of Indonesian Forest. National Seminar on "Vision of Indonesian Silviculturists in facing Indonesian Forestry 2045". Faculty of Forestry, University of Gadjah Mada.