

Module/Course Description

TECHNIQUES OF FOREST RESOURCES INVENTORY (MNH 313)

A. Module Identity		
1.	Name	Techniques of Forest Resources Inventory
2.	Code	MNH 313
3.	Credit	3 (2-3)
4.	Semester	5
5.	Pre-requisite	Forest Resources Inventory (MNH212)
6.	Coordinator	Prof. Dr. Ir. I Nengah Surati Jaya, M.Agr.
7.	Lecturers	Prof. Dr. Ir. I Nengah Surati Jaya, M.Agr. Dr. Nining Puspaningsih, M.Si. Priyanto, S.Hut., M.Si.
8.	Language	Indonesian
9.	Program(s) in which the course is offered	Internal department: Forest Management Study Program Other departments:
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			
3		28	6	33		56		123

*) 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)

Students having the ability to plan the forest resources inventory and implemented them

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
a. Knowledge			
1.	Students are able to recognize the concepts of forest resources inventory	Presentation of teaching materials Debriefing: Question and Answer (Q/A)	Midterm Exam (10%)
2.	Students are able to comprehend the planning preparation for terrestrial data collection in the forestry sector	Presentation of teaching materials Discussion: Question and Answer (Q/A)	Midterm Exam and Independent Task (10%)
b. Skills			
1.	Students are able to apply the interpretation skill of aerial photograph	Presentation of teaching materials Discussion: Question and Answer (Q/A) Practical Training	Midterm Exam and Independent Task (15%)
2.	Students are able to demonstrate the ways of stand dimensional measurements indirectly	Presentation of teaching materials Discussion: Question and Answer (Q/A) Practical Training	Midterm Exam and Independent Task (15%)
3.	Students are able to conduct the forest inventory before logging (ITSP) and to create the ITSP report	Presentation of teaching materials Discussion: Question and Answer (Q/A) Practical Training	Final Exam and Independent Task (10%)
4.	Students are able to conduct the periodic comprehensive forest inventory (IHMB) and to create the IHMB report	Presentation of teaching materials Discussion: Question and Answer (Q/A)	Final Exam and Independent Task (15%)

		Practical Training	
5.	Students are able to demonstrate the multiphase and list sampling, then to analysis the sampling data	Presentation of teaching materials Discussion: Question and Answer (Q/A) Practical Training	Final Exam and Independent Task (12.5%)
6.	Students are able to demonstrate the ways of standing stock measurement based on a multistage sampling	Presentation of teaching materials Discussion: Question and Answer (Q/A) Practical Training	Final Exam and Independent Task (12.5%)

E. Module Content		
List of Topic	Number of Weeks	Contact Hours
Introduction; Concepts of Forest Resources Inventory	1	2
Planning preparation for terrestrial data collection in the forestry sector	2	4
Interpretation of Aerial Photograph	2	4
Stand Dimensional Measurements on Satellite Imagery	2	4
Forest Inventory Before Logging (ITSP)	1	2
Periodic Comprehensive Forest Inventory (IHMB)	2	4
Multiphase and List Sampling for Forest Resources Inventory	2	4
Multistage Sampling for Forest Resources Inventory	2	4

F. Course Assessments			
No.	Assessment Type *)	Schedule (Week Due)	Proportion of the Final Mark
1.	Mid-term examination	8th week	40 %
2.	Final examination	16th week	40 %
3.	Individual Task	End of each practical training	20 %

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

G. Media Employed

- Classroom
- Laptop
- LCD
- Microphone (loudspeaker)
- Practical tools

H. Learning Resources

1. Akca A. 2000. *Forest Inventory*. Institute for Forest Management and Yield Sciences: University of Gottingen.
2. Avery TE. 1975. *Natural Resources Measurement*. New York: McGraw Hill Book Company.
3. Chapman HH, Meyer WH. 1949. *Forest Mensuration*. New York: McGraw Hill Book Company.
4. Departemen Kehutanan. 1992. *Manual Kehutanan*. Jakarta.
5. Departemen Kehutanan, 1993. *Pedoman dan Petunjuk Teknis Tebang Pilih Tanam Indonesia (TPTI) Pada Hutan Alam Daratan*. Jakarta
6. Departemen Kehutanan, 2007. *Peraturan Menteri Kehutanan No. P.34/Permen-II/2007*.
7. Departemen Kehutanan, 2009. *Peraturan Menteri Kehutanan NO. P.33/Permen-II/2009*.
8. deVries PG. 1986. *Sampling Theory for Forest Inventory*. Weihert-Druck GmbH, Darmstadt.
9. Food and Agricultural Organization (FAO). 1973. *Manual of Forestry with Special Reference to Mixed Tropical Forest*. Rome: Food and Agricultural Organization.
10. Food and Agricultural Organization (FAO). 1980. *Forest Volume Estimation and Yield Prediction. Volume 1 and 2*. Rome.: Food and Agricultural Organization.
11. Husch B. 1971. *Planning of Forestry*. Rome: Food and Agricultural Organization.
12. Husch B. 1963. *Forest Mensuration and Statistics*. New York: The Ronald Press Company.
13. Loetsch F, Zohrer F, Haller KE. 1973. *Forest Inventory, Volume II*. Muenchen: BLV Verlagsgessellschaft.
14. Scheaffer RL, Mendenhall III W, Ott RL. 2006. *Elementary Survey Sampling. Sixth Edition*. Thomson, Brooks/Cole.
15. Shiver BD, Bruce EB. 1996. *Sampling Techniques for Forest Resource Inventory*. New York: John Willey & Sons, Inc.
16. Spur SH. 1952. *Forest Inventory*. New York: The Ronald Press Company.
17. Sutanto. 1984. *Penginderaan Jauh, Jilid I*. Yogyakarta: Gajah Mada University Press.

18. Sutarahardja S. 1978. *Metoda Penaksiran Volume Tegakan Hutan Melalui Potret Udara Dengan a Priori List Sampling Untuk Inventarisasi Nasional*. Bogor: Sekolah Pasca Sarjana IPB.
19. Sutarahardja S, Hardjoprayitno S. 1997. *Teknis Penggunaan Metoda Double Sampling Dalam Inventarisasi Hutan Untuk Pendugaan Volume Tegakan Dengan Bantuan Potret Udara*. Bunga Rampai Materi Pelatihan Tentang Pengetahuan Praktis Potret Udara. Kerjasama antara Perum Perhutani dengan Fakultas Kehutanan IPB.
20. Van Laa, A, Akca A. 1997. *Forest Mensuration*. Göttingen: Cuviller Verlag.