Module Description/Course Syllabi

Study Programme : Magister of soil scienceFaculty of Agriculture.
Universitas Andalas

1. *Course number and name*

MIT 8222 Peatland Management

2. *Credits and contact hours/Number of ECTS credits allocated*

3 sks (3-0)

3. *Instructors and course coordinator*

1. Dr. Ir. Teguh Budi Prasetyo, MS 2. Dr. Mimien Hariyanti, SP, MP

4. *Specific course information*

A. Brief description of the content of the course (catalog description)

This course explains the process of peat soil formation, classification, distribution, as well as the physical and chemical fertility properties of the soil. Reclamation and conservation of peat soil. Water and mechanical management of peat soil. Management of peat soils for plantation, rice, and seasonal crops. Management of peat soil for growth medium, energy, and fisheries.

B. Course Content

Week	Course Content
1	Introduction: ● Terminology of Peatland ● Formation of Peatland, ● History of peatland name
2	Physical Characteristics of Peatland: ● Depth of peat ● Color of peat ● Organic fractions developing peatland ● The maturity of Peatland (% fiber content)
3	● Depth of water table ● Bulk Density (BD) ● Ash content ● Peatland Carrying Capacity
4	● Chemical Characteristics of Peatland: ● Characteristics of Peatland ● Inherent Properties of Peatland
5	Peatland Degradation: ● Factors Affecting Peatland Damage ● Impacts of Peatland Damage ● Mitigation of Peatland Damage

	● Strategies for managing degraded peatland agriculture	toward sustainable
6	Principles of Peat Decomposition: ● Physical Decomposition of Peat ● Chemical Decomposition of Peat ● Biological Decomposition of Peat ● Biochemical process accompanying enzymati ● Peat decomposition and climate change	c decomposition of p
7	Climate Change and Greenhouse Gas Emission: ● Greenhouse gas and carbon balance ● Emission level of Greenhouse gas in Indonesia ● Impact of climate change ● CO2 emission from peatland ● N2O emission from peatland ● CO2 emission from Peatland Burning ● GHG Emission from peatland management ● Mitigation and adaptation of climate change	
8	MIDTERM Exam	
9	Greenhouse emission reduction ● Control of peat water table ● Land preparation without burning ● Use of ground cover plants	

10	What is restoration ● Government Regulation regarding Peatland Protection ● Peat restoration measures ● Several restoration methods: borehole, canal blocking. ● BRG: Peat Restoration Agency
11	The main criteria for the suitability of peatlands ● Methods for determining the suitability of peatlands ● Distribution of peatlands according to suitability ● Characteristics of peatlands according to their suitability ● Peatland suitability
12	Beginning of Utilization of peat ● Peatland for Agriculture ● Management of Peat for food crops ● Peat Management for Plantation crops ● Farming model on peatland
13	Peatland fertility ● Chemical properties of peat soil ● Amelioration and fertilization technology on peatlands
14	The issue of climate change due to peat land use for oil palm ● Issue of peat degradation due to expansion of oil palm plantations ● Peat physical, chemical, biological characteristics under oil palm plantation ● Management of peatland for oil palm on a large scale (company) and smallholder plantation scale.
15	Regional Spatial Planning ● Arrangement of Water Management Unit ● Infrastructure Improvements ● Institutional and Institutional Strengthening ● Community Participation and Empowerment ● Market Expansion ● Capital Strengthening ● Utilization of Science and Technology

C. Semester when the course unit is delivered
Even Semester
D. Mode of delivery (face-to-face, distance learning)

Face to Face
5. Intended Learning Outcomes (CPL)
ILO 2 : An ability to classify soil, to evaluate land capabiity and suitability, as well as to determine the alternative utilization for sustainable agriculture and environment PI 3 : an ability to determine suitable land use management
ILO 3 : An ability to use technology in identifying and solving problems of soil, land resource, environment problems independently, eligibly, and accurately PI 3 : An ability to conserve soil for sustanable agriculture and environment
ILO 5 : An ability to innovate in development of science and industry PI 1 : An ability to innovate for improving land management PI 2 : An ability to create the team work
6. Course Learning Outcomes (CPMK) ex. The student will be able to explain the significance of current research about a particular topic.
1. Students will be able to determine suitable land management to reach sustainable agriculture and environment
2. Students will be able to find out the best method to conserve soil problem for sustanable agriculture and environment
3. Students will be able to innovate in soil science and management of land resources
4. Students will be able to design and evaluate the work of the team
7. Learning and teaching methods
Cooperative Learning and Problem base method
8. Language of instruction
Bahasa and English (English Class)
9. Assessment methods and criteria
Summative Assessment : 1. Independent tasks/small tasks : 5 % 2. Large tasks/group tasks : 5% 3. Quiz : 5 % 4. Practicum : 25% 5. Mid Semester : 25% 6. Final Semester : 25% 7. Integrity, discipline, hard work, courtesy/ethics/have values, and confidence (character), presence : 5% Formative Assessment: 1. Thumb up and thumb down 2. Minutes paper