



## Module Description/Course Syllabi

Study Programme : Magister of Soil Science  
Faculty of Agriculture  
Universitas Andalas

### **1. Course number and name**

MIT 82221 Land Suitability Evaluation

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

3sks (3-0)

### **3. Instructors and course coordinator**

1. Prof. Dr. Ir. Dian Fiantis, MSc; 2. Prof. Dr. Ir. Azwar Rasyidin, M Agr Sc; 3. Dr. Juniarti, SP, MP

### **4. Text book, title, outhor, and year**

1. Sys, C., E. Van Ranst, J. Dibaveye. 1991. Land Evaluation Part I, II and III. Agricultural Publications No. 7. General Administration for Development Cooperation. Brussels  
– Belgium. 733 p.
2. Van Ranst, E., A. Verdoot. 2005. Land Evaluation, Part I, II and III. International Centre for Physical Land Resources Universiteit Gent, Gent – Belgium. 550 p.
3. Deckers, J., O. Spaargaren, S. Dondeyne. Soil Survey as a Basis for Land Evaluation. Encyclopedia of Life Support System (EOLSS). UNESCO. 22 p.
4. Olson, W. 1981. Soils and the Environment: A Guide to Soil Surveys and their Applications. Springer. London. Great Britain. 188 p.
5. Constantini, E. A. C. 2009. Manual of Methods for Soil and Land Evaluation. Science Publishers. 570 p.

### **5. Specific course information**

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

This course discusses the importance of land survey and mapping in relation to land use planning; explanation of soil characteristics and the differences due to the influence of soil formation factors; methods of land survey; interpretation of survey data for land

suitability, capability, and for irrigation, as well as for non- agricultural use; use of computer in creating land survey and suitability as well as agricultural production potential modelling.

## **B. Course Content**

### **Week Course Content**

- 1 Definition and role of Evaluation of Land Suitability Influencing factors, Evaluation of Land Suitability, History of Evaluation of Land Suitability
- 2 Land use planning: project identification, phases and stages of land use planning,
- 3 Land resources, climate, vegetation, hydrology and water, landform, soil
- 4 Evaluation of climate suitability according to Papadakis, USDA, parametric system
- 5 Evaluation of land characteristics and land quality: limited approach and parametric approach
- 6 Plant production, minimum climate data, photosynthesis and plant adaptation, plant growth models (FAO and Wageningen)
- 7 Rainfall (predicted rain, effective rain), evapotranspiration, maximum plant evapotranspiration, actual evapotranspiration, water use efficiency
- 8 Determination of planting start and period, crop coefficient, harvest response factor, crop water requirement for maximum yield
- 9 The potential for crop production based on solar radiation, water-stress conditions, land productivity potential
- 10 Land evaluation method based on specific plant needs, FAO land suitability classification
- 11 Land evaluation method for irrigated land.
- 12 Classification of land capability for the tropics, approaches, land properties and characteristics, land capability index, parametric approach
- 13 Plant growth agroecological zone
- 14 Land evaluation application based on visual basic, web and android

## **C. Semester when the course unit is delivered**

Even Semester

<b>D. Mode of delivery (face-to-face, distance learning)</b>
Face to face
<b>6.Intended Learning Outcomes (CPL)</b>
ILO 2 : An ability to classify soil, to evaluate land capability and suitability, as well as to determine the alternative utilization for sustainable agriculture and environment PI 2 : An ability to evaluate soil capability 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 2 : An ability to work independently in determining soil properties
<b>7. Course Learning Outcomes (CPMK) ex. The student will be able to explain the significance of current research about a particular topic.</b>
A. Students will be able to use soil data to evaluate soil capability and land suitability
B. Students will be able to determine suitable land management to reach sustainable agriculture and environment
C. Students will be able to analyze soil independently either at laboratory or at field site
<b>8.Learning and teaching methods</b>
Cooperative and Case Base Method
<b><u>9.</u> Language of instruction</b>
Indonesia and English (English Class)
<b><u>10.</u> Assessment methods and criteria</b>
Summative Assessment : 1. Tasks : 5% 2. Quiz : 5 % 3. Mid Semester : 25% 4. Final Semester : 25% 5. Praktikum :30% 6. Attendance : 5% Formative Assessment: 1.Thumb up and thumb down 2.Minutes paper

