Subject Module
Department of Agrotechnology
Faculty of Agriculture
University of Islam Malang

Module Handbook

Module Title	Techniques of Landless Cultivation
Module Level, if available	Undergraduate Study Program of Agrotechnology
Subject Code	MKP 60604
Headings, if available	-
Subject (MK)	Techniques of Landless Cultivation
Semester	6
Course Coordinator	Ir. Indiyah Murwani, MP
Teaching Team	-
Language of instruction	Indonesian language/English
Linkages with the Curriculum	Study Program : Agrotechnology Specialization: Agrotechnology Type: ~~Compulsory~~/elective
Learning Methods and Duration	1. Lecture: 100 minutes/meeting (8 meetings) 2. Practical Work 170minutes/meeting (6 meetings) 3. Structured Assignments/individual and group Assigments presentation
Student Study Load	1. Lecture: 100 minutes/meeting (8 meetings) 2. Practical Work: 100 minutes/meeting (6 meetings) 3. Assignments/quiz/group presentation 4. Attendance: 75% of total attendance
Credit Weight	2 credits
Requirements for Passing the Course	• Attendance >75% • The final score of all the components of the learning evaluation >44 The final score component: • 25% Midterm Exam • 25% Final Exam • 20% Practical Work • 20% Assignments (individual and group) • 10% Presence
Prerequisite Subjects	TBT Horticulture
Learning Outcomes	The expected learning outcomes are: 1. Have an attitude of creative and innovative thinking in their work in accordance with professional ethics in the field of agriculture (ILO 1) 2. Have good and deep knowledge in the field of basic agricultural science that supports Agrotechnology (ILO 3) 3. Able to work independently or in a team, and use various

	methods of communication. (ILO 4) 4. Able to solve problems that arise in the field of agrotechnology and related fields of science (ILO 5).
Learning Content	After completing this course students are able to: 1. Understand theoretical concepts that support the Landless Cultivation course. 2. Make a nursery for hydroponics. 3. Calculate fertilizer dosage and apply fertilization 4. Assemble hydroponic floating raft systems, wick systems and aggregate systems (sand) 5. Perform hydroponic cultivation of ornamental plants, vegetable plants and fruit crops **The topics include:** **1. Introduction** • Definition of hydroponics • The history of hydroponic development **2. Thypes of Media** **3. Environmental factors and plant maintenance** • Environmental factor • Plant maintenance • Recognizing the symptoms of the disease **4. Green house** • Understanding the green house. • Types of green houses • Greenhouse function **5. Method of making a nursery** • Generative nursery • Vegetative nurseries **6 & 7. Fertilization** • Types of fertilizers • Method of mixing fertilizer **8, 9 &10 Method of assembling a hydroponic system** • Gericke System • Floating raft System • NFT • DFT • Ebb and flow • Wicks System • Benggala System • Meitleider City grounds **11. Melon Hydroponics** • Location • Greenhouse • Media • Container • Nutrition • Irrigation • Maintenance **12. Strawberry Hydroponics** • Requirements for growth • Method of propagation • Planting location • Cold water treatment • Media and fertilizers • Fruit selection

	13. Tomato Hydroponics • Requirements for growth • Nursery • Preparing a greenhouse • Nursery and Transplanting • Fertilization • Maintenance **14. Decorative Plants Hydroponics** • Decorative plant leaves and flowers • Procurement of seeds • Use of containers / pots • Assembly • Laying of ornamental plants • Preparation • Garden pattern setting • Construction • Planting • Cleaning
Test Terms and Forms	Examination requirements: A minimum of 75 % attendance to attend the final exam Forms of examination: Essay
Learning Media	Projector and screen, Zoom application, Google Classroom, WA Group
References	**References :** **Main references** 1. Soeseno S, 1993. Becocok Tanam Secara Hidroponik. PT Gramedia Pustaka Utama Jakarta 117 Hal **Supporting references** 2. Pinus, 1996, Hidroponik. Bercocok Tanam Tanpa Tnah. Penebar Swadaya Jakarta. 99 hal 3. Sumiarsih E dan Hety I, 1992, Hidroponik Tanaman Hias. Penebar Swadaya Jakarta 76 Hal 4. Amonymous, 1986. Hidroponik. Bertanam Tanpa Tanah versi Margaflor Malang. Cipta Muda Jakarta 30 Hal 5. Rahardi F 1991, Bercocok Tanam Dalam Pot. Penebar Swadaya. Jakarta. 89 hal 6. Jurnal hidroponik 7. Yanuharso T dan Istiyastuti 1996. Kultur Hidroponik (Bertanam Tanpa Tanah) Trigenda Karya Bandung 49 hal 8. Yuri FD 1994. Bercocok Tanam Hidroponik dan Bonsai. CV Bahagia Bandung 157 Hal