



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

Module Handbook

ModuleTitle	Experimental Design
ModuleLevel,ifavailable	Undergraduate Study Program of Agrotechnology
Course Code	MKW60613
Headings,ifavailable	-
Course(MK)	Experimental Design
Semester	IV
CourseCoordinator	Ir. Maria Ulfah. MP.
TeachingTeam	-
Languageofinstruction	Indonesian language/English
Linkages withtheCurriculum	Study Program : Agrotechnology Specialization: Agrotechnology Type:Compulsory/elective
Learning Methods andDuration	1. Lecture:100 minutes/meeting(14meetings) 2. Practicum170 minutes/meeting (7 meetings) 3. Structured Assignments/individual and group Assignments presentation
StudentStudy Load	1. Lecture:100 minutes/meeting (14meetings) 2. Practicum: 170minutes/meeting (14meetings) 3. Structured Assignments/quiz/group presentation 4. Attendance:75% of total attendance
CreditWeight	3 credits or5.1 ECTS
Requirements for Passing theCourse	<ul style="list-style-type: none"> • Attendance>75% • The final score of all the components of the learning evaluation >44 The final score component: <ul style="list-style-type: none"> • 20% Midterm Exam • 20% Final Exam • 30% Practicum • 20% Structured Assignments (individual and group) • 10% Presence
PrerequisiteCourses	Statistic
LearningOutcomes	The expected learning out comes are: <ol style="list-style-type: none"> 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 solve problems that arise in the field of agrotechnology and related fields of science (ILO 5) 4. Able to apply various research methods in the field of Agrotechnology (ILO 7)
LearningContent	After completing this course students are able to: <ol style="list-style-type: none"> 1. mastering the science of experiment design includes elements, models, data analysis and interpretation. 2. solve research problems related to the experimental design well.

	<p>3. evaluate a research appropriately.</p> <p>The topics include:</p> <ol style="list-style-type: none"> 1. Introduction <ul style="list-style-type: none"> • Definition and Understanding of Terms • Elements in Experimental Design 2. Completely Randomizes Design <ul style="list-style-type: none"> • Introduction • Placement of treatment into the experimental unit • Analysis model of Complete Randomized Design 3. Pairwise Comparison Test <ul style="list-style-type: none"> • Fisher's Least Significant Difference (LSD) • Tukey's Honestly Significant Difference (HSD) • Duncan's Multiple Range Test (DMRT) • Dunnette Test 4. Randomized Block Design <ul style="list-style-type: none"> • Introduction • Placement of treatment into the experimental unit • Analysis model of Randomized Block Design 5. Latin Square Design <ul style="list-style-type: none"> • Introduction • Placement of treatment into the experimental unit • Analysis model of Latin Square Design 6. Factorial Experimental Design <ul style="list-style-type: none"> • Introduction • Placement of treatment into the experimental unit • Analysis model of Factorial Experimental Design 7. Factorial Experimental Design with Control <ul style="list-style-type: none"> • Introduction • Placement of treatment into the experimental unit • Analysis model of Factorial Experimental Design with control 8. Split Plot Design <ul style="list-style-type: none"> • Introduction • Placement of treatment into the experimental unit • Analysis model of Split plot
Test Terms and Forms	<p>Examination requirements: A minimum of 75 % attendance to attend the final exam</p> <p>Forms of examination:</p> <p>Essay</p>
Learning Media	<p>Projector and screen, Zoom application, LMS of UNISMA (Daring UNISMA), e-book, WA Group</p>
References	<p>Main References :</p> <ol style="list-style-type: none"> 1. Gasperz, V. 1989. Metode Perancangan Percobaan. Amrico. Bandung. 2. Steel, R.G.D. dan J.H. torrie. 2006. Prinsip dan Prosedur Statistika. Suatu Pendekatan Biometrik. Gramedia Pustaka Utama. Jakarta. 3. Sudjana, 1982. Disain dan Analisis Eksperimen. Tarsito. Bandung. 4. Sudjana, 1996. Metode Statistika. Tarsito. Bandung. 5. Yitnosumarto, S. 1993. Percobaan. Perancangan, Analisis dan Interpretasinya. Gramedia Pustaka Utama. Jakarta. <p>Supporting References :</p> <ol style="list-style-type: none"> 1. Agronomy Journal