



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

Module Handbook

Title Module	Operation Research
Module Level, if available	Undergraduate, Study Program of Agribusiness
CourseCode	MKW60718
Title, if available	-
Course (MK)	Operation Research
Semester	5
Course Coordinator	Dr. Ir. Bambang Siswadi, MP
Teaching Team	Titis Surya Maha Rianti, SP., MP.
Instruction language	Indonesian Language/English
Linkage to Curriculum	Study Program: Agribusiness Specialization: Agribusiness Type: Compulsory/ Elective
Method and Duration of Learning	<ol style="list-style-type: none"> 1. Lecture: 100 minutes / meeting (14 meetings) 2. Practicum 170 minutes / meeting (8 meetings) 3. Structured assignments / individual and group assignments
Study Load Student	<ol style="list-style-type: none"> 1. Lecture: 100 minutes / meeting (14 meetings) 2. Practicum 170 minutes / meeting (8 meetings) 3. Structured assignments / quizzes / group presentations 4. Attendance: 75% of total attendance
Weight Credit	3 Credits or 5.1 ECTS
Requirements to Pass the Course	<ul style="list-style-type: none"> • Attendance $\geq 75\%$ • Final score of all components of learning evaluation ≥ 50 Final Score Components: <ul style="list-style-type: none"> • 20% Mid-Semester Exam • 20% Final Examination • 30% Prakticum • 20% Structured Tasks (individual and group) • 10% Attendance
Course Prerequisites	Introduction to Agribusiness
Learning outcomes	<p>The expected learning outcomes are:</p> <ol style="list-style-type: none"> 1. Able to analyze project management methods of business practices, risks and changes in an increasingly competitive environment (ILO 4) 2. Able to apply a variety of fundamentally oriented methods to solve specific practical problem related to agribusiness (ILO 5) 3. Able to solve problems, topics and processes related to the achievement of agribusiness according to concepts and strategies in problems solving. (ILO 8) 4. Behave in accordance with the code of ethics and

	<p>responsibilities of the agribusiness entrepreneur profession including marketing management, acquisition project management, human resource management and control.(ILO 10)</p>
<p>Content Learning</p>	<p>After completing this course students can:</p> <ol style="list-style-type: none"> 1. Able to master the concept of operations research and be able to apply it in optimal decision making 2. Able to solve the company's operating cases with linear programming both graphical and simplex methods and can perform post-optimal testing 3. Able to control the inventory of materials in the company and determine the right transportation method that can minimize costs or maximize contribution 4. Able to evaluate project planning through forecasting sales and or market demand and can arrange scheduling and manage projects efficiently 5. Able to manage business with minimum costs/assignments and can manage supply chain appropriately. <p>The topics include:</p> <ol style="list-style-type: none"> 1. INTRODUCTION OPERATING RESEARCH <ul style="list-style-type: none"> • Understanding operations research • Decision-making process • Operations research analysis model • Nature of the resource and decision environment 2. LINEAR PROGRAM <ul style="list-style-type: none"> • Definition and use of linear programming • Solving the maximization and minimization program with the graphical method • Solving the maximization and minimization program with the simplex method • Post-Optimal Test 3. INVENTORY CONTROL <ul style="list-style-type: none"> • Terms in inventory control • Inventory model characteristics model 4. TRANSPORTATION AND PROJECT MANAGEMENT PROGRAM <ul style="list-style-type: none"> • Understanding of transportation and transshipment programs • Solving transportation cases in minimization and maximization programs • Transshipment analysis 5. FORECASTING (Foreccasting) <ul style="list-style-type: none"> • Definition of forecasting • Types of forecasting • Forecasting method • Calculation of trend method 6. SCHEDULING AND PROJECT MANAGEMENT <ul style="list-style-type: none"> • Definition of the project • Project scheduling (CPM and PERT methods) • Acceleration and project financing • Scheduling type • Production Scheduling • Scheduling work

	<p>7. ASSIGNMENT METHOD</p> <ul style="list-style-type: none"> • Definition of Assignment • Assignment/charge application to minimize costs • Assignment application to maximize contribution <p>8. SUPPLY CHAIN MANAGEMENT (SCM)</p> <ul style="list-style-type: none"> • Understanding supply chain management theory • Inventory management in supply chain • Transportation management in the supply chain • Location management in the supply chain
Test Terms and Forms	<p>Exam Requirements: Minimum 75% attendance to attend the final exam</p> <p>Test Form: Essay</p>
Learning Media	<p>Projector and screen, Zoom application, Google Classroom, e-book, WA Group, Learning Management System (LMS UNISMA)</p>
Reference	<p>Referensi Utama:</p> <ol style="list-style-type: none"> 1. Haming M, dkk. 2019. <i>Operation Research: Teknik Pengambilan Keputusan Optimal</i>. Jakarta: PT. BumiAksara. 2. Hamdy A. Taha. 2017. <i>Operation Research an Introduction, 10th Edition</i>. Pearson Education Limited. 3. Lyeme H & Seleman M. 2012. <i>Introduction to Operations Research: Theory and Applications</i>. Lambert Academic Publishing. 4. Ravindran A. Ravi. 2008. <i>Operation Research and Management Science Handbook</i>. CRC Press and Taylor & Francis Group. 5. Hillier F & Lieberman Gerald J. 2010. <i>Introduction to Operation Research</i>. New York: McGraw-Hill. <p>Supporting Reference:</p> <ol style="list-style-type: none"> 1. OperationsResearchJournal