HASANUDDIN UNIVERSITY

Agricultural Engineering
Bachelor Program

2023
MODULE DESCRIPTION

BACHELOR PROGRAM
AGRICULTURAL ENGINEERING
FACULTY OF AGRICULTURE
HASANUDDIN UNIVERSITY
2023

Operation Research

Semester 6

Module designation	*Operation Research*
Semester(s) in which the module is taught	*IV*
Person responsible for the module	• *Dr. Ir. Supratomo, DEA* • *Prof. Dr. Ir. Salengke, M.Sc* • *Prof. Dr. Ir. Mursalim*
Language	*Indonesia*
Relation to curriculum	*elective*
Teaching methods	*Lecture*
Workload (incl. contact hours, self-study hours)	*(Estimated) Total workload:* *2 SKS = 3.4 ECTS = 91.8 hours* *> Lecture = 23.3 hours* *> Excercise = 28 hours* *> Sel Study = 28 hours* *> Exam = 4 hours (MID term and final)* *>Exam preparation= 8.5 hours*
Credit points	*2 SKS = 3.4 ECTS*
Required and recommended prerequisites for joining the module	• *Biology* • *Thermodynamics* • *Heat Transfer* • *Food Processing Engineering I*
Module objectives/intended learning outcomes	*ILO 3: Apply knowledge of mathematics, sciences, and engineering principles in agricultural fields; (Knowledge 1)* *ILO 4: Use quantitative analysis, information technology and critical thinking in agricultural engineering profession; (Knowledge 2)* *ILO 5: Use techniques, skills, and modern tools necessary for agricultural engineering practices; (Skill 1)* *ILO 7: Manage and utilize agricultural resources effectively, efficiently, and sustainably; (Competence 1)* *ILO 8: Demonstrate capacity in operating agricultural engineering related business either as producer or service provider; (Competence 2)*
Content	*The purpose of this course is to provide students with knowledge and analytical and problem-solving skills necessary to analyze processes applied in food processing operations. Topics that will be covered in this course include the concepts and principles applied in food engineering, mass and energy balances, fluid flows, psychometric chart, heat and mass transfer, drying, evaporation, refrigeration, and food freezing.*
Examination forms	*Writing exam*
Study and examination requirements	*Attendance above 80%*
Reading list	*Singh, R. P. and Dennis R. Heldman. 2009. Introduction to Food Engineering 4th ed. Academic Press. San Diego.*