



**HASANUDDIN
UNIVERSITY**

Agricultural
Engineering
Bachelor Program

2023 MODULE DESCRIPTION

BACHELOR PROGRAM
AGRICULTURAL ENGINEERING
FACULTY OF AGRICULTURE
HASANUDDIN UNIVERSITY
2023



Engineering Mathematics II

Semester 3

Module designation	<i>Engineering Mathematics II</i>
Semester(s) in which the module is taught	<i>III</i>
Person responsible for the module	<ul style="list-style-type: none"> • <i>Dr. Ir. Mahmud Achmad, MP</i> • <i>Dr. Ir. Sitti Nur Faridah, MP</i> • <i>Ir. Helmi A. Koto, M.Si</i> • <i>Dr. Suhardi, STP., MP</i>
Language	<i>Indonesia</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lecture, tutorial, independent assignment</i>
Workload (incl. contact hours, self-study hours)	<p><i>(Estimated) Total workload:</i> $2 \text{ SKS} \times 1.7 = 3.4 \text{ ECTS} = 91.8 \text{ hours}$</p> <ul style="list-style-type: none"> • <i>Lecture = 23.3 hours</i> • <i>Excercise = 28 hours</i> • <i>Sel study = 28 hours</i> • <i>Exam = 4 hours (MID term and final)</i> • <i>Exam preparation = 8.5 hours</i>
Credit points	$2 \text{ SKS} = 3.4 \text{ ECTS}$
Required and recommended prerequisites for joining the module	<i>Basic Mathematics</i> <i>Engineering Mathematics I</i>
Module objectives/intended learning outcomes	<p><i>ILO 3 : Apply knowledge of mathematics, sciences, and engineering principles in agricultural fields</i></p> <p><i>ILO 4 : Use quantitative analysis, information technology and critical thinking in agricultural engineering profession</i></p> <p><i>ILO 6 : Manage and utilize agricultural resources effectively, efficiently, and sustainably</i></p>
Content	<i>Capability to utilize mathematical principles in natural phenomena and process related to Agricultural engineering. Built/formulate and solve mathematical models of natural process in agricultural engineering field using differential linear equation. This course covers: mathematical equations concept, general form of differential equations, solutions of differential equations first and second order, application of linear differential equations, Laplace transformation and its application to solve differential equations, Lagrange-multipliers, series, and vector analysis.</i>
Examination forms	<i>Writing and Lab Works</i>
Study and examination requirements	<i>Completion of all laboratory reports</i>
Reading list	<ul style="list-style-type: none"> • <i>Engineering Mathematics 4th Edition by K.A. Stroud, Dexter & Booth</i>