



MINISTRY OF EDUCATION, CULTURE, RESEARCH, AND TECHNOLOGY

UNIVERSITAS SRIWIJAYA

FACULTY OF TEACHER TRAINING AND EDUCATION

MATHEMATICS EDUCATION STUDY PROGRAM

Jl. Raya Palembang – Prabumulih Km.32, Indralaya Ogan Ilir 30662 Website: Fkip.unsri.ac.id

Doctoral Program in Mathematics Education

MODULE HANDBOOK

Module name/ Code	:	Advanced Mathematical Modelling/ GMA7211
Module level, if applicable	:	Doctor
Code	:	GMA7211
Subheading, if applicable	:	-
Class, if applicable	:	-
Semester	:	2 nd (second) / even
Module coordinator	:	Dr. Darmawijoyo, M.Si.
Lecturer(s)	:	Dr. Darmawijoyo, M.Si.
Language	:	Bahasa Indonesia and English
Classification within the curriculum	:	Study Program Elective Course
Teaching format/ class hours per week during the semester	:	Teaching format: lectures, tutorial assignment, and individual study. 2 x 300 minutes = 600 minutes = 10 hours lectures
Workload	:	14 weeks per semester consisting of: <ul style="list-style-type: none"> ➤ 1 hour lecture (1 x 50 minutes) per week, ➤ 2 hours assignments (2 x 50 minutes) per week, ➤ 2 hours individual study (2 x 75 minutes) per week, Total workload: 14x2x300 minutes=8,400 minutes= 5.6 ECTS*
Credit points	:	2 (5.6 ECTS)
Prerequisite's course(s)	:	-
Course outcomes	:	After taking this course, students should be able to: CO-1: able to apply the term and definition in using and developing mathematical modeling concepts. CO-2: able to understand simple mathematical modeling based on systems of differential equations, probability and optimization. CO-3: able to solve problems using mathematical modeling. CO-4: able to use and develop mathematical models to make decisions in the field of mathematics education.
Content	:	This course discusses terms and definitions used in mathematical modeling, aims and perspectives of mathematical modeling, building models, and modeling tasks, difficulties in



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		the modeling process, interventions in the modeling process, studying models, solve problems using mathematical modeling, and developing mathematical models to make decisions in the field of mathematics education.																		
Study/exam achievements	:	<ul style="list-style-type: none"> ➤ Students are considered competent and pass if the final score calculated from the score of midterm exam, assignments, participation, and final exam is at least 56 or C. ➤ It is expected that students attend 80% of the total meetings in the modules. ➤ 35% midterm exam + 15% assignments + 10% participation + 40% final exam. ➤ Final index is defined as follow: <p>The total score is converted into a qualitative score,</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Total Score</th> <th>Grade</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>86 – 100</td> <td>A</td> <td>Excellent</td> </tr> <tr> <td>71 – 85.99</td> <td>B</td> <td>Good</td> </tr> <tr> <td>56 – 70.99</td> <td>C</td> <td>Fair</td> </tr> <tr> <td>41 – 55.99</td> <td>D</td> <td>Bad</td> </tr> <tr> <td>0 – 40.99</td> <td>E</td> <td>Worse</td> </tr> </tbody> </table>	Total Score	Grade	Description	86 – 100	A	Excellent	71 – 85.99	B	Good	56 – 70.99	C	Fair	41 – 55.99	D	Bad	0 – 40.99	E	Worse
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0 – 40.99	E	Worse																		
Forms of media	:	Laptop and LCD projectors																		
Literature	:	<ol style="list-style-type: none"> 1. Bora, A., Ahmed, S., & Professor, A. (2019). Mathematical Modeling: An Important Tool for Mathematics Teaching. <i>International Journal of Research and Analytical Reviews (IJRAR)</i>, 252. www.ijrar.org 2. Hartono, Y. (2020). Mathematical Modelling in Problem Solving. <i>Journal of Physics: Conference Series</i>, 1480(1). https://doi.org/10.1088/1742-6596/1480/1/012001 3. Marion, G., & Scotland, S. (n.d.). <i>An Introduction to Mathematical Modelling</i>. 4. Wess, R., Klock, H., Siller, H. S., & Greefrath, G. (2021). Mathematical Modelling. In <i>International Perspectives on the Teaching and Learning of Mathematical Modelling</i> (pp. 3–20). Springer Science and Business Media B.V. https://doi.org/10.1007/978-3-030-78071-5_1 																		



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		<p>5. Barnes, B. dan Fulford, G.R., 2002, Mathematical Modeling with Case Studies: A differential equation approach using mapple, Taylor & Francis, Inc, London</p> <p>6. Edwards, D., & Hamson, M. (2016). Guide to mathematical modeling. Macmillan International Higher Education.</p>
Note	:	<p>*Total hours per 1 credit in 1 semester = $\{(1 \text{ credit} \times 300 \text{ minutes} \times 14 \text{ weeks})/60 \text{ minutes}\} = 70 \text{ hours}$.</p> <p>Each ECTS equals 25 hours therefore 1 credit in 1 semester equals 2.8 ECTS.</p>

PLO and CO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
CO1					✓				
CO2					✓				
CO3					✓				
CO4					✓				