



UNIVERSITAS NEGERI YOGYAKARTA
GRADUATE SCHOOL
MASTER OF EDUCATION IN MATHEMATICS

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Master of Education in Mathematics

MODULE HANDBOOK

Module name:	Modelling in Mathematics Education
Module level,if applicable:	Graduate
Code:	PMA8232
Sub-heading,ifapplicable:	-
Classes,ifapplicable:	-
Semester:	2 nd
Module coordinator:	Ariyadi Wijaya, Dr.
Lecturer(s):	Marsigit, Prof. Dr., Ariyadi Wijaya, Dr.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format:	Lecture: face-to-face learning, blended learning, presentation, and discussion, quiz Structured activities: individual assignment/project, group assignment/project
Workload:	Lecture: 100 minutes/week Structured activities: 120 minutes/week Self-Study: 120 minutes/week Total: 5440/semester or 90.67 hours/semester
Creditpoints:	2
Prerequisites course(s):	-
Course Outcomes	After taking this course the students: CO1. possess profound knowledge of mathematical modelling and its teaching and assessment approaches; CO2.demonstrate the ability to design modelling tasks and instructional activities to teach mathematical modelling; CO3.demonstrate problem solving skills in dealing with mathematical modelling

Content:	This course discusses mathematical modelling and application of mathematics for school mathematics. In particular, the topics covered in this course are: (1) modeling and application in mathematics education; (2) modeling competences; (3) modeling pedagogy; (4) modeling tasks; (5) modelling in secondary school; (6) modelling in primary school; (7) possibilities and obstacles for teaching modelling; (8) PISA; (9) mathematical modelling and ICT.			
Study/examachievements:	The final mark will be weight as follow:			
	No	CO	Assessment Object	Assessment Technique
	1	CO1, CO2,CO3	a. Individual Assignment b. Group Assignment c. Presentation d. Mid Exam e. Final Exam	Presentation / written test 15% 15% 25% 30%
	Total			100%
Formsof media:	Board, LCD Projector, Laptop/Computer			
Literature:	A. Blum, W.; Galbraith, P.L.; Henn, H-W.; &Niss, M. (2007). <i>Modelling and applications in mathematics education</i> . New York: Springer. B. Kaiser, G.; Blum, W.; Ferri, R. B.; & Stillman, G. A. (2011). <i>Trends in teaching and learning of mathematical modelling</i> . New York: Springer. C. Stillman, G. A.; Blum, W.; &Biembengut, M. S. (2015). <i>Mathematical Modelling in Education Research and Practice</i> . New York: Springer. D. Maass, K. (2010). Classification scheme for modelling tasks. <i>Journal FürMathematik-Didaktik</i> , 31(2), 285–311. E. OECD. (2003). <i>The PISA 2003 Assessment Framework: Mathematics, Reading, Science and Problem Solving Knowledge and Skills</i> . Paris: OECD. F. OECD. (2009). Take the Test. Sample Questions from OECD's PISA Assessments. Paris: OECD G. OECD. (2013). PISA 2012 Assessment and Analytical Framework. Paris: OECD.			

PLO and CO mapping

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