Undergraduate Programme in Mathematics

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MODULE HANDBOOK

Module name	Introduction to Game Theory
Module level, if applicable	Bachelor
Code, if applicable	MMM-2308
Subtitle, if applicable	-
Courses, if applicable	Introduction to Game Theory
Semester(s) in which the module is taught	3rd (third)
Person responsible for the module	Chair of the Lab. of Applied Mathematics
Lecturer(s)	Dr. Salmah, M.Si.
Language	Bahasa Indonesia
Relation to curriculum	Elective course in the second year (3rd semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures and 180 minutes structured activities per week.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.
Credit points	3
Requirements according to the examination regulations	Students have taken Introduction to Game Theory course (MMM-2308) and have an examination card where the course is stated on.
Recommended prerequisites	-
Module objectives/intended learning outcomes	After completing these course the students will be able: CO1. to recognize optimization concepts in non-cooperative and cooperative games. CO2. to solve 2 player game problems such as non-cooperative zero-sum game, non-cooperative non-zero-sum-game, cooperative game. CO3. to solve n player game problem with allocation method namely Shapley value theory. CO4. to relate between the theory and application of game problems, and to interpret the solutions.
Content	Topics include motivating examples of game, non-cooperative game, strategic form or normal form of a game, two player zero-sum game, maximin criteria, pure strategies, domination, Nash equilibrium, extensive form of a game, two player non-zero-sum game, mix strategies, N-player game, cooperative game, pareto optimal solution, TU and NTU game, game with coalitional form, imputation, core, Shapley value, nucleolus.

Study and examination requirements and forms of examination	Grades will be assigned based on the percentage of points earned. Final grades will be determined based on two lemmas (mid and final exams), homeworks, and presentation. The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.	
Media employed	Projector, board	
Reading List	Thomas, L.C., 1984, Games, Theory and Applications, Ellis Horwood Limited.	

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1			v			v			
CO 2			v				v		
CO 3			v						
CO 4			v		v	v			v