

## UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department
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## **Undergraduate Programme in Mathematics** Telp : +62 274 552243

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MODULE HANDBOOK

M 11							
Module name	Finite Group Theory						
Module level, if applicable	Bachelor						
Code, if applicable	MMM-3203						
Subtitle, if applicable	-						
Courses, if applicable	Finite Group Theory						
Semester(s) in which the module	3 <sup>rd</sup> (third)						
is taught							
Person responsible for the	Chair of the Lab. of Algebra						
module							
Lecturer(s)	Dr. Budi Surodjo, M.Si. and Dr. Diah Junia Eksi Palupi, MS						
Language	Bahasa Indonesia						
Relation to curriculum	Elective course in the second year (third semester)						
Type of teaching, contact hours	100 minutes hours lectures per week, 120 minutes structured activities per week						
Workload	Total workload is 90.67 hours per semester, which consist of 100 minutes						
	lectures per week for 14 weeks, 120 minutes structured activities per week, and						
	120 minutes individual study per week, in total 16 weeks per semester, including						
	mid exam and final exam.						
Credit points	2						
Requirements according to the	Students have taken Finite Group Theory course (MMM-3203) and have an						
examination regulations	examination card where the course is stated on.						
Recommended prerequisites	Students have taken Intoduction to Algebraic Structures I course (MMM-1203)						
	and have participated in the final examination of the course.						
Module objectives/intended	After completing this course the students should have:						
learning outcomes CO.1. ability to identify the structure of finite groups in many area							
	CO.2. ability to determine the Jordan Holder Decomposition of a semigroup						
	CO.3. ability to prove the properties of group actions						
	CO.4. ability to prove the Sylow Theorems						
	CO.5. ability to solve problems in group theory and other fields using the						
	properties of finite groups						
Content	Group of permutation, group of simetri, cycle, class of permutation, alternating						
	group, Normalisator, sentralisator, center, commutator group, Lagrange's						
	Theorem, Theorem of Jordan Holder decomposition, group action on set, Sylow						
	theorems						
Study and examination	The final mark will be weighted as follows:						
requirements and forms of examination	No Assessment methods (components, activities) Weight (percentage) 1. Final Examination 40						
Caminauon	<ol> <li>Final Examination</li> <li>Mid-Term Examination</li> <li>30</li> </ol>						
	3. Quiz/Presentation 20						
	4. Homework 10						
	1. Homework						
The initial cut-off points for grades A, B, C, and D should not be less than							
70%, 50%, and 40%, respectively.							
Media employed Projector, board, laptop, e-learning via http://elisa.ugm.ac.id							
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Reading List	1. Jean Pierre Serre, 2016, Finite Groups, International Press USA and Higher			
	Education Press China			
	2. M. Aschbacher, 2012, Finite Group Theory, 2nd Ed., Cambridge University Press, UK			
	3. Cameron, P.J., 2013, Notes on Finite Group Theory, Queen Mary University of			
	London, London: <a href="http://www.maths.qmul.ac.uk/~pjc/notes/gt.pdf">http://www.maths.qmul.ac.uk/~pjc/notes/gt.pdf</a>			
	4. I. Martin Isaacs, 2008, Finite Group Theory, American Mathematical Society			
	5. Hans Kurzweil, and Bernd Stellmacher, 2004, The Theory of Finite Groups: An			
	Introduction, Springer, <a href="http://www.math.ku.dk/~olsson/manus/GruFus/Kurzweil-">http://www.math.ku.dk/~olsson/manus/GruFus/Kurzweil-</a>			
	Stellmacher Theory%20of%20finite%20groups.pdf			
	6. David S. Dummit, and Richard M. Foote, 1999, Abstract Algebra, 3rd Ed., John			
	Wiley and Sons, Inc., New York			
	7. John B. Fraleigh, 1989, A First Course in Abstract Algebra; Fourth Edition; Addison-			
	Wesley Publishing Company, Inc.			
	8. Ledermann, W; 1984; Introduction to the Theory of Finite Groups; Interscience Publisher,			
	Inc.			

## 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			
CO 2			V						
CO 3						V			
CO 4			V						
CO 5						V			