# Finite Group Theory

**Module name:** Finite Group Theory  
**Module level:** Bachelor  
**Code:** MMM-3203  
**Subtitle:** -  
**Courses:** Finite Group Theory  
**Semester(s) in which the module is taught:** 3rd (third)  
**Person responsible for the module:** Chair of the Lab. of Algebra  
**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 examination regulations | Students have taken Finite Group Theory course (MMM-3203) and have an examination card where the course is stated on. |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------

**Recommended prerequisites:** Students have taken Introduction to Algebraic Structures I course (MMM-1203) and have participated in the final examination of the course.  

**Module objectives/intended learning outcomes:** After completing this course the students should have:  
CO.1. ability to identify the structure of finite groups in many areas of algebra  
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 requirements and forms of examination:** The final mark will be weighted as follows:  
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<thead>
<tr>
<th>Assessment methods (components, activities)</th>
<th>Weight (percentage)</th>
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<tr>
<td>Final Examination</td>
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<td>Mid-Term Examination</td>
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<td>Quiz/Presentation</td>
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<td>Homework</td>
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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, laptop, e-learning via [http://elisa.ugm.ac.id](http://elisa.ugm.ac.id)
Reading List

4. I. Martin Isaacs, 2008, Finite Group Theory, American Mathematical Society
8. Ledermann, W; 1984; *Introduction to the Theory of Finite Groups*, Interscience Publisher, Inc.

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