### Module name
Introduction of Module Theory

### Module level, if applicable
Bachelor

### Code, if applicable
MMM-4207

### Subtitle, if applicable
- 

### Courses, if applicable
Introduction of Module Theory

### Semester(s) in which the module is taught
7th (seventh)

### Person responsible for the module
Chair of Algebra Research Group

### Lecturer(s)
Dr. rer. nat. Indah Emilia Wijayanti

### Language
Bahasa Indonesia

### Relation to curriculum
Elective Course

### Type of teaching, contact hours
150 minutes lectures, 180 minutes supervised activities, and 180 minutes individual learning 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 of Module Theory course (MMM-4207) and have an examination card where the course is stated on.

### Recommended prerequisites
Students have taken Introduction to Linear Algebra course (MMM-2202) and have participated in the final examination of the course.

### Module objectives/intended learning outcomes
Upon successful completion, students able to:
- CO 1: recognize the fundamental properties of modules and submodules
- CO 2: recognize the concept of module homomorphism
- CO 3: develop the concepts of generator and linear independence in modules
- CO 4: recognize the concept of exact sequence and its use for further analysis

### Content
1. Modules and Submodules,
2. Generators,
3. Direct sums,
4. Factor modules,
5. Module homomorphism
6. Module homomorphism theorem,
7. Finitely generated modules,
8. Modules over Principal Ideal Domain,
9. Annihilators, torsion modules and torsion free modules.
10. Free modules and projective modules,
11. Exact sequences.

### Study and examination requirements and forms of examination
The final mark will be computed from a proportional weight of assignments, mid-examination and final examination. The final mark will be weighted as follows:

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<thead>
<tr>
<th>No</th>
<th>Assessment methods (components, activities)</th>
<th>Weight (percentage)</th>
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<tbody>
<tr>
<td>1</td>
<td>Final Examination</td>
<td>40%</td>
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<td>2</td>
<td>Mid-Term Examination</td>
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<td>3</td>
<td>Class Activities: Quiz, Homework, etc.</td>
<td>30%</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
- Boards, projectors

Reading List

### PLO and CO Mapping

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