### Module Handbook

**Module name**: Linear Algebra  
**Module level**, if applicable: Bachelor  
**Code**, if applicable: MMM-2202  
**Subtitle**, if applicable:  
**Courses**, if applicable: Linear Algebra  
**Semester(s) in which the module is taught**: 4th (fourth)  
**Person responsible for the module**: Chair of the Lab. of Algebra  
**Lecture**: Dr. Ari suparwanto, M.Si.  
**Language**: Bahasa Indonesia  
**Relation to curriculum**: Compulsory course in the second year (4th semester) Bachelor Degree  
**Type of teaching, contact hours**: 100 minutes lecturers and 120 minutes structured activities (homework and task) 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, and 170 minutes laboratory work 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 Linear Algebra course (MMM-2202) and have an examination card where the course is stated on.  
**Recommended prerequisites**: Students have taken the module of Elementary Linear Algebra (MMM-1202), Introduction to Algebraic Structure II (MMM-2201), and have participated in the final exam of the module.  
**Module objectives/intended learning outcomes**: After completing this course the students have:  
1. ability to do mathematical proof in connection with some concept in linear algebra  
2. problem solving skills by using procedures in linear algebra.  
**Content**:  
- b. Linear Transformation, Kernel and Image, the Matrix of Linear Transformation, Similarity.  
- c. Inner Product Spaces, Norm and Distance, Orthogonality, Orthogonal dan Orthonormal Basis, Gram-Schmidt orthogonalization Process.  
- d. Invariant Subspaces, Direct Sums, the Cayley-Hamilton Theorem.  
**Study and examination requirements and forms of examination**: The final mark will be weighted as follows:  

<table>
<thead>
<tr>
<th>Assessment methods (components, activities)</th>
<th>Weight (percentage)</th>
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<tbody>
<tr>
<td>Final Examination</td>
<td>40%</td>
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<tr>
<td>Mid-Term Examination</td>
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<td>Class Activities: Quiz, Homework, etc.</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**: Board, LCD Projector, Laptop/Computer
## Reading List


### PLO and CO Mapping

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<thead>
<tr>
<th>PLO 1</th>
<th>PLO 2</th>
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