



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

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Doctoral Program in Mathematics

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MODULE HANDBOOK
Doctoral in Mathematics

Module name:	Advanced Ring Theory												
Module level, if applicable:	Doctoral Program												
Code, if applicable:	MMM 5206												
Semester(s) in which the module is taught:	Even Semester												
Person responsible for the module:	Chair of Algebra Research Group												
Lecturer(s):	1. Dr. Indah Emilia Wijayanti 2. Prof. Dr. Sri Wahyuni 3. Dr. Al. Sutjijana, M.Sc												
Language:	Bahasa Indonesia												
Relation to curriculum:	Doctoral Degree in Mathematics, Compulsory / Elective Course												
Credit points:	3 Semester Credit Unit												
Type of teaching, contact hours:	3x50 minutes lectures, 3x60 minutes structured activities.												
Workload:	<ul style="list-style-type: none"> • 3x50 minutes lectures, • 3x60 minutes structured activities, • 3x60 minutes individual study, • In 16 weeks per semester (including assignments and examinations) 												
Recommended prerequisites:	Module Theory												
Module objectives/intended learning outcomes:	On successful completion of this course, students should be able to: CO 1 : recognize the further topics of ring theory CO 2 : recognize the generalization concept from ring to module												
Content:	<ol style="list-style-type: none"> 1. Regular rings 2. Idempotent and nilpotent ideals 3. Prime and semiprime ideals 4. Semisimple and simple modules 5. Left and right semisimple rings 6. Miscellaneous topics related to module theory for enriching student knowledge 												
Study and examination requirements and forms of examination:	<p>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:</p> <table border="1"> <thead> <tr> <th>No</th> <th>Assessment methods (components, activities)</th> <th>Weight (percentage)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Final Examination</td> <td>40%</td> </tr> <tr> <td>2</td> <td>Mid-Term Examination</td> <td>30%</td> </tr> <tr> <td>3</td> <td>Class Activities: Quiz, Homework, etc</td> <td>30%</td> </tr> </tbody> </table>	No	Assessment methods (components, activities)	Weight (percentage)	1	Final Examination	40%	2	Mid-Term Examination	30%	3	Class Activities: Quiz, Homework, etc	30%
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1	Final Examination	40%											
2	Mid-Term Examination	30%											
3	Class Activities: Quiz, Homework, etc	30%											
Media employed:	Boards, projectors.												
Reading List:	<ol style="list-style-type: none"> 1. William Adkins and Steven H. Weintraub, 1992, <i>Algebra An Approach via Module Theory</i>, Springer-Verlag, 2. T.Y. Lam, 1991, <i>A First Course in Noncommutative Rings</i>, Springer Verlag, New York. 												

	3. T.Y. Lam, 1999, Lectures on Modules and Rings, Springer Verlag, New York. 4. Wisbauer, R., 1991, Foundation of Module and Ring Theory, Gordon and Breach, Philadelphia.
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Mapping of The COs and PLOs

	PLO - 1 S3 Mat	PLO - 2 S3 Mat	PLO - 3 S3 Mat	PLO - 4 S3 Mat	PLO - 5 S3 Mat	PLO -6 S3 Mat
CO 1		✓	✓	✓	✓	✓
CO 2		✓	✓	✓	✓	✓

Programme Learning Outcomes (PLO) Doctoral Programme in Mathematics

PLO-1	:	Attitude: Devote to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working in the area of expertise independently.
PLO-2	:	Knowledge: Mastering philosophy of mathematics and one of the fields in mathematics (algebra, analysis, applied mathematics, statistics, computational mathematics, computational statistics).
PLO-3	:	Knowledge: Able to think logically, analytically, inductively, deductively, and structured; having the ability to manage, lead, and develop research programs independently, and able to communicate the thoughts as well as his work to the scientific community and the general public.
PLO-4	:	Skill: Creating new concepts and / or new methods (original) in the field of mathematics that are recognized nationally and internationally.
PLO-5	:	Skill: Able to apply mathematics according to their field of expertise to solve problems including those that require a multidisciplinary, cross-disciplinary, or trans-disciplinary approach.
PLO-6	:	Life Long Learning: Having lifelong learning skills and adaptive to the development of science and technology, especially in fields related to Mathematics and its applications.