



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:	Function Spaces															
Module level, if applicable:	Doctoral Program															
Code, if applicable:	MMM6108															
Semester(s) in which the module is taught:	1/2															
Person responsible for the module:	Chair of Analysis Research Group															
Lecturer(s):	1. Prof. Dr. Supama, M.Si															
Language:	Indonesian															
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:	Theory of Measure and Integration															
Module objectives/intended learning outcomes:	<p>On successful completion of this course, students should be able to:</p> <p>CO 1: analyze spaces of bounded variation and absolutely continuous functions</p> <p>CO 2: analyze Lebesgue spaces</p> <p>CO 3: analyze function spaces induced by an Orlicz function.</p>															
Content:	<p>Syllabi:</p> <ul style="list-style-type: none"> • Spaces of bounded variation and absolutely continuous functions. • the Lebesgue spaces. • An Orlicz function and its properties. • Function spaces defined by an Orlicz function. 															
Study and examination requirements and forms of examination:	<p>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>Task 1</td> <td>25%</td> </tr> <tr> <td>2</td> <td>Task 2</td> <td>25%</td> </tr> <tr> <td>3</td> <td>Task 3</td> <td>25%</td> </tr> <tr> <td>4</td> <td>Task 4</td> <td>25%</td> </tr> </tbody> </table> <p>Final grade will be determined as follows: Grade Criteria The initial cut-off points for grades A, B, C, and D should not be less than 80%, 65%, 50%, and 40%, respectively.</p>	No	Assessment methods (components, activities)	Weight (percentage)	1	Task 1	25%	2	Task 2	25%	3	Task 3	25%	4	Task 4	25%
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1	Task 1	25%														
2	Task 2	25%														
3	Task 3	25%														
4	Task 4	25%														

Media employed:	White board
Reading List:	1. Musielak, J., 1983, Orlicz Spaces and Modular Space, Springer Verlag, 2. Halsey L. Royden, and Patrick M. Fitzpatrick, 2010, Real Analysis, 4th Edition, Prentice Hall

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		V	V	V	V	
CO 2		V	V	V	V	
CO 3		V	V	V	V	

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	:	<i>Life Long Learning:</i> Having lifelong learning skills and adaptive to the development of science and technology, especially in fields related to Mathematics and its applications.