UNIVERSITAS GADJAH MADA
Faculty of Mathematics and Natural Sciences
Mathematics Department
Sekip Utara BulaksumurYogyakarta 55281Telp: +62 274 552243 Fax: +62 274 555131 Email: math@ugm.ac.id Website: math.fmipa.ugm.ac.id

Undergraduate Programme in Mathematics

Telp : +62 274 552243
Email : maths1@ugm.ac.id; kaprodi-s1-matematika.mipa@ugm.ac.id
sekprodi-s1-matematika.mipa@ugm.ac.id
Website : http://s1math.fmipa.ugm.ac.id/

MODULE HANDBOOK

Module name	Set Theory
Module level, if applicable	Bachelor
Code, if applicable	MMM-1204
Subtitle, if applicable	
Courses, if applicable	
Semester(s) in which the module is taught	Second year
Person responsible for the module	Chair of the Lab. of Algebra
Lecturer	Dr. Diah Junia Eksi Palupi, MS
Language	Bahasa Indonesia
Relation to curriculum	Main course
Type of teaching, contact hours	2 hours lectures per week, 2 hours structured activities per week, 2 hours private study per week
Workload	100 minutes lectures, 120 minutes structured activities, 120 hours individual study, 16 weeks per semester (including mid-term and final examinations), 90.67 hours per semester.
Credit points	2 (two)
Requirements according to the examination regulations	Students have taken Set Theory course (MMM-1204) and have an examination card where the course is stated on.
Recommended prerequisites	Students have taken Introduction to Mathematical Logic course (MMM-1208) and have participated in the final examination of the course.
Module objectives/intended learning outcomes	CO.1. Students are able to identify, infinity and denumerability of sets CO.2. Students are able to determine, cardinality of sets and to operate cardinal numbers. CO.3. Students are able to prove Bernstein Theorem and Cantor Theorem CO.4. Studente are able to apply the infinity set & the correspondence concepts for problem solving for mathematical courses.
Content	Equipotence of two sets, Denumerable & non Denumerable set and their properties. Infinity sets; Inductive & non Inductive set, cardinality, Aleph Null, Aleph, Aritmatica of cardinality. Construction of Number System, Bernstein Theorem & Cantor Theorem.
Study and examination requirements and forms of examination	The final mark will be weighted as follows: No — Assessment methods (components, activities) — Weight (percentage) 1 — Final Examination — 40% 2 — Mid-Term Examination — 30% 3 — Class Activities: Quiz, Homework, etc. — 30% 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, whiteboard, laptop.
Reading List	1. Dave Witte Morris and Joy Morris, 2006-2012, *Proofs and Concepts the fundamentals of abstract mathematics*, University of Lethbridge (http://people.uleth.ca/~dave.morris/books/proofs+concepts.pdf) 2. Morash, R.P., 1987, *Bridge to Abstract Mathematics: Mathematical Proof and Structures* The Random House/Birkhaoser Mathematics (http://wanda.uef.fi/matematiikka/Oppimateriaaleja/Morash_Bridge_to_Abstract_Mathematics.pdf) 3. Ash, R.B., 1998, *A primer of abstract mathematics. Mathematical Association of America*, Washington, DC

4. Guram Bezhanishvili and Eachan Landreth https://www.maa.org/sites/default/files/images/upload_library/46/Pengelley_projects/Project-5/set_theory_project.pdf
5. Kenneth KUNEN (1980), SET THEORY: *An Introduction to Independence Proofs*, ELSEVIER SCIENCE PUBLISHERS B.V. https://logic.wikischolars.columbia.edu/file/view/Kunen,+K.+(1980).+Set+Theory.pdf/205671054/Kunen,%20K.%20(1980).%20Set%20Theory.pdf
6. Soehakso, RMJT, 1985, *Pengantar Matematika Modern*, FMIPA UGM Jogjakarta
7. Abraham A. Fraenkel, 1966, *Abstract Set Theory*, Addison Wesley.

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1		√							
CO 2		√	√						
CO 3			√						
CO 4			√				√		