



MODULE HANDBOOK ALGEBRA I

**BACHELOR DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER**

MODULE HANDBOOK

ALGEBRA I

Module name	Algebra I	
Module level	Undergraduate	
Code	KM184402	
Course (if applicable)	Algebra I	
Semester	Spring (Genap)	
Person responsible for the module	Prof. Dr. Drs. Subiono, MS	
Lecturer	Prof. Dr. Drs. Subiono, MS Drs. Komar Baihaqi, M.Si Dian Winda Setyawati, S.Si, M.Si Soleha, S.Si, M.Si	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, mandatory , 4 th semester.	
Type of teaching, contact hours	Lectures, <60 students Tuesdays, 11.00-12.50 (GMT+7)	
Workload	<ol style="list-style-type: none"> 1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 60 = 180 minutes (3 hours) per week. 3. Private learning : 3 x 60 = 180 minutes (3 hours) per week. 	
Credit points	3 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.	
Mandatory prerequisites	-	
Learning outcomes and their corresponding PLOs	<p>Course Learning Outcome (CLO) after completing this module,</p> <p>CLO 1: Students are able to develop and apply math and be able to communicate actively in both oral and written communication</p> <p>CLO 2: Students are able to explain basic and advanced principles of the theories learned, particularly the structure of a finite group and are capable of performing symbolic computations</p>	

	<p>CLO 3: Students are able to creatively explain about the application of Algebra I in the related fields</p> <p>CLO 4: Students are able to present their knowledge in Algebra I independently or in a team.</p>	
Content	<p>The course of Algebra I covers the study of Relations, Functions and Groups, Subgroups and Generators, Smallest Subgroups, Permutation Groups, Normal Groups and Factor Groups, Group Homomorphisms, Direct Internal and External Products and the Cayley Theorem. During the lectures, SAGEMATH software is used to equip students with the ability to perform symbolic computations related to group problems. In the in-class learning process, students will learn to identify problems, formulate symbolic mathematical ideas and express them in written form. Other than conducting independent learning through assignments, students are directed to work together in a group.</p>	
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> ● In-class exercises ● Assignment 1, 2, 3 ● Mid-term examination ● Final examination 	
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.	
Reading list	<p>Main :</p> <ol style="list-style-type: none"> 1. Subiono, "Catatan Kuliah : ALJABAR I", Jurusan Matematika FMIPA-ITS, 2014. 2. Randall B. Maddox," A Transition to Abstract Mathematics, Learning Mathematical Thinking and Writing, 2nd Edition", Academic Press, (2009) 3. Joseph A. Gallian, "Contemporary Abstract Algebra", 7th Edition, D.C. Heath and Company, (2010) <p>Supporting :</p> <ol style="list-style-type: none"> 1. Derek J. S. Robinson, "An Introduction to Abstract Algebra", Walter de Gruyter, (2003). 2. William Paulsen," Abstract Algebra, An Interactive Approach", CRC Press, (2010) 3. Robert A. Beezer," Sage for Abstract Algebra, A Supplement to Abstract Algebra, Theory and Applications ", Department of Mathematics and Computer Science University of Puget Sound, (2012) 	