Module Description of Number Theory

Module Name	:	Number Theory
Module Level	:	Bachelor
Code, if applicable	:	23H01122003
Subtitle, if applicable	:	-
Courses, if applicable	:	Number Theory
Semester(s) in which the module is taught	:	4 (Fourth Semester)
Module coordinator(s)	:	Dr. Muhammad Zakir, M.Si.
Lecturer(s)	:	Dra. Nur Erawati, M.Si., Dr. Muhammad Zakir, M.Si.
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Elective course in second year for Bachelor degree in Mathematics
Type of teaching/teaching method	:	Lecturing, Small Group Discussion, Cooperative Learning, Self-Directed Learning
Contact hours	:	150 minutes lectures per week, 180 minutes structured activities per week, and 180 minutes independent study per week
Workload	:	Total workload is 135 hours per semester which consists of 40 hours per semester for Learning and Teaching, 47.5 hours per semester for Self-Study, and 47.5 hours per semester for Structured Works
Credit points	:	3 (4.8 ECTS)
Requirements according to the examination regulations	:	Students are required to attend at least 80% of the total meetings which is recorded via the attendance menu at https://sikola-v2.unhas.ac.id/, complete all mandatory assignments, and obtain permission from the lecturer to participate in the written examination.
Recommended prerequisites	:	Students have completed and taken the exams for Mathematical Logic and Set Theory
Module objectives/intended learning outcomes	:	After the completion of this module, the student will be able to: CLO 1. Obeying the agreed-upon rules, being disciplined in completing tasks, and respecting the opinions of others; CLO 2. Demonstrating an awareness of their role as a learner in the classroom by engaging actively in the learning process; CLO 3. Internalizing the spirit of independence in completing assignments and examinations; CLO 4. Able to organize the stages of task completion and select appropriate methods for accomplishing the task; CLO 5. Able to collaborate and communicate within a team while taking responsibility for the work.

		The following is the mapping of the ILO and the CLO of this course:

	ILO 1	ILO 2	ILO 3
CLO 1	X		
CLO 2		X	
CLO 3			X
CLO 4			X
CLO 5			X

Content	:	In number theory, important topics include division and the Euclidean Algorithm for finding the greatest common divisor, as well as the ideas of common divisors, common multiples, and prime numbers. The concept of congruence leads to the study of complete and reduced residue systems, along with linear congruences and Diophantine equations. Further topics are Euler's generalization and its applications, the Chinese Remainder Theorem, Euler's totient function, and properties of numbers under prime power modulo.
Study and examination requirements	:	Study and examination requirements: ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade.
Exams and assessment formats	:	Participants are marked based on their performance in theory: Assignments (25%), Report (55%), Written test (20%). Assignments assess student's ability to apply concepts independently, while Reports measure analytical and writing skills. The Written Exam assess comprehension and synthesis of all materials discussed during the semester. Altogether, these components account for 100% of the final grade. Students are marked based on their percentage of points obtained and based on the following grade scale:

Percentage of Achievement	Grade	Conversion Value
85 – 100	A	4.00
80 - <85	A-	3.75
75 - < 80	B+	3.5
70 - < 75	B	3.0
65 - < 70	B-	2.75
60 - < 65	C+	2.5
50 - < 60	C	2.00
40 - < 50	D	1.00
< 40	E	0.00

Reading list	:	1. I. Niven, H.S. Zuckerman, H.L. Montgomery, An Intruduction to the Theory of Number, John Wiley & Sons, 5-th Edition, 2006. 2. Nur Erawaty, Loecky Haryanto, Syamsuddin Toaha, Modul Pembelajaran Mata Kuliah Teori Bilangan, Unhas, 2009.
Last revision date	:	February 5th, 2025