



**UNIVERSITAS NEGERI YOGYAKARTA**  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
DEPARTMENT OF MATHEMATICS EDUCATION

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**Bachelor of Science in Mathematics**

**MODULE HANDBOOK**

Module name:	Algorithms and Programming
Module level,if applicable:	Undergraduate
Code:	MAT6310
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	2 <sup>nd</sup>
Module coordinator:	Nur Hadi W, MEng
Lecturer(s):	1. Nur Hadi W, M.Eng. 2. Sahid, M.Sc 3. Emut, M.Si
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course
Teaching format / class hours perweek during the semester:	150 minutes lectures and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes self-study per week for 16 weeks.
Creditpoints:	3
Prerequisites course(s):	Information and Communication Technology (MAT6204)
Course outcomes:	After taking this course the students have ability to: CO1. Demonstrate collaborative attitude and independence in carrying out individual tasks and group assignments

	<p>CO2.Mastering the concepts and basics of Computer Programming Algorithms</p> <p>CO3. analyze a computer program from the input, output and process aspects</p> <p>CO4. create algorithms and computer programs with the concept of computer programming languages to solve problems.</p> <p>CO5. make a simple program project.</p>
<p>Content:</p>	<p>This course discusses about problem solving (mathematics), preparation and presentation of the steps to solve it, and programming using the Pascal Programming Language. The topics studied include: (1) problem solving and solution, (2) algorithms and how they are presented, (3) the structure of Pascal language and data types, (4) input-output, variable, and arithmetic operations commands, (5) logical operators and IF-THEN-ELSE, and CASE-OF decision making structures, (6) looping iterations and recursions, (7) looping structures FOR-TO-DO, WHILE-DO, and REPEAT-UNTIL, (8) use of functions - mathematical functions, (8) dimensioned / indexed (array) data types, (9) modular programming: procedures and functions, (10) recording data types (records),(complex data structures), and (11) text data types (text )</p>
<p>Study/exam achievements:</p>	<p>CO1: Attitude assessment is carried out at each meeting by observation and / or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.</p> <p>The final mark will be weight as follow:</p>

