Module designation	*Algorithms and Programming*
Semester(s) in which the module is taught	*2*
Person responsible for the module	*Nur Hadi W, MEng*
Language	*Bahasa Indonesia*
Relation to curriculum	*Compulsory*
Teaching methods	*150 minutes lectures and 180 minutes structured activities per week.*
Workload (incl. contact hours, self-study hours)	*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.*
Credit points	*3*
Required and recommended prerequisites for joining the module	*MAT6301, Logic and Sets* *MKU6212 - Digital Transformations*
Module objectives/intended learning outcomes	*After taking this course the students have ability to:* *CO1. Demonstrate collaborative attitude and independence in carrying out individual tasks and group assignments* *CO2.Mastering the concepts and basics of Computer Programming Algorithms* *CO3. analyze a computer program from the input, output and process aspects* *CO4. create algorithms and computer programs with the concept of computer programming languages to solve problems.* *CO5. make a simple program project.*

<table>
<tr><td>Content</td><td>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)</td></tr>
<tr><td>Examination forms</td><td>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.</td></tr>
<tr><td>Study and examination requirements</td><td>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.

The final mark will be weight as follow:

<table>
<tr><th>No</th><th>CO</th><th>Assesment Object</th><th>Assessment Techniques</th><th>Weight</th></tr>
<tr><td>1</td><td>CO 2</td><td>Presentation</td><td>Observation</td><td>10%</td></tr>
<tr><td>2</td><td>CO 3 and CO 4</td><td>a. Individual assignments
b. group assignments
c. MID
d. Final Exam</td><td>Written test</td><td>10%
10%
25%
30%</td></tr>
<tr><td>3</td><td>CO 5</td><td>Presentation and Project</td><td>Observation</td><td>15%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table>
</td></tr>
</table>

Reading list	1. *Nur Hadi W (2017), Handout Algoritma dan Pemrograman* 2. *Niklaus Wirth (1997), Algoritma + Struktur Data = Program (Terjemah), Yogyakarta: Andi.* 3. *Grover, P.S. (2001), Pascal Programming Fundamentals 8th edition (ebook), New Delhi: Allied Publisher* **4.** *Parsons, Thomas W. (1995), Introduction to Algorithms in Pascal, Johns Wiley and Sons, Inc.*