

# HANDBOOK

**BACHELOR OF INFORMATICS PROGRAM**

**DEPARTMENT OF INFORMATICS**

**FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY**

**INSTITUT TEKNOLOGI SEPULUH NOPEMBER**

Module name	<b>Introduction to Programming and Logic</b>
Module level	Undergraduate
Code	IF184982
Courses (if applicable)	<b>Introduction to Programming and Logic</b>
Semester	7
Contact person	
Lecturer	
Language	Bahasa Indonesia and English
Relation to curriculum	<ol style="list-style-type: none"> <li>1. Undergraduate degree program; mandatory; 7<sup>th</sup> semester.</li> <li>2. International undergraduate program; mandatory; 7<sup>th</sup> semester.</li> </ol>
Type of teaching, contact hours	<ol style="list-style-type: none"> <li>1. Undergraduate degree program: lectures, &lt; 60 students,</li> <li>2. International undergraduate program: lectures, &lt; 40 students</li> </ol>
Workload	<ol style="list-style-type: none"> <li>1. Lectures: 3 x 50 = 150 minutes (2 hours 30 minutes) per week.</li> <li>2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week.</li> <li>3. Private study: 3 x 60 = 180 minutes (3 hours) per week.</li> </ol>
Credit points	3 credit points (sks).
Requirements according to the examination	A student must have attended at least 80% of the lectures to sit in the exams.

regulations	
Mandatory prerequisites	-
	After completing this module, a student is expected to:

Learning outcomes and their corresponding PLOs	<b>CO1</b> Students understand software development methodologies (analysis, design, coding, testing, documentation) and are able to apply the methodology to simple problems.	PLO3
	<b>CO2</b> Students are able to design programs in a modular / structured manner with a top-down approach using functions.	PLO3
	<b>CO3</b> Students are able to implement the algorithm correctly.	PLO3
	<b>CO4</b> Students are able to carry out the debugging and testing process.	PLO3
	<b>CO5</b> Students are able to think comprehensively in designing and implementing programs.	PLO4
	<b>CO6</b> Students are able to communicate and work together in a team through the program documentation mechanism.	PLO4
	<b>CO7</b> Students are able to express the results of their thoughts in spoken and written language well.	PLO5
Content	<p>Knowledge:</p> <ul style="list-style-type: none"> <li>- Mastering principles and methods to solve computation problems by using calculus, matrixes, statistics, approximation, linear optimization, modelling and simulation</li> <li>- Mastering principles of algorithm development and various programming language concepts;</li> </ul> <p>Specific Skill:</p> <ul style="list-style-type: none"> <li>- Able to solve computation problems, and mathematical modelling through exact, stochastic, probabilistic, and numeric approaches effectively and efficiently</li> <li>- Capable of designing and analysing of algorithms to solve problems effectively and efficiently based on programming principles, and able to apply programming model in various programming language; and able to choose programming languages in producing appropriate applications</li> </ul>	
Study and examination requirements and forms of examination	Mid-terms examination and Final examination.	
Media employed	LCD, whiteboard, websites, books (as references), etc.	
Assessments and Evaluation	CO1: Problem 1 in mid-term exam (5%) and exercise 1 (5%) - 10% CO2: Problem 2 in mid-term exam (5%) and exercise 2 (5%) -	

	<p>10%</p> <p>CO3: Problem 3 in mid-term exam (5%); problem 4 in mid-term exam (5%); assignment 1: make an algorithm and computer program (5%); and exercise 3 (5%) - 20%</p> <p>CO4: Problem 5 in mid-term exam (5%); problem 1 in final exam (5%) and exercise 4 (5%) - 15%</p> <p>CO5: Problem 2 in final exam (5%); assignment 2: make a function and recursive (5%); and exercise 5 (5%) - 15%</p> <p>CO6: Problem 3 in final exam (5%) and exercise 6 (5%) - 10%</p> <p>CO7: Problem 4 in final exam (5%) and exercise 7 (5%) - 10%</p> <p>CO8: Problem 5 in final exam (5%) and assignment 3: make a program based on a real-life problem (5%) - 10%</p>
Reading List	<p>Jeri R. Hanly, Elliot B. Koffman, Problem Solving and Program Design in C, 7th edition, Addison Wesley, 2012.</p> <p>Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Introduction to Algorithms, McGraw-Hill, 2003.</p>