

**UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE
DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNIVERSITAS GADJAH MADA**

Module name	Programming I
Module level	Undergraduate
Code	MII-1201
Courses (if applicable)	Programming I
Semester	Fall
Contact person	Janoe Hendarto, Drs., M. Kom.
Lecturer	Afiahayati, M. Cs, Ph.D Aniffudin Aziz, S.Si. M Kom. Aufaclav Zatu Kusuma Frisky, S.Si. ,M.Sc. Faizah, S.Kom., M.Kom. I Gede Mujiyatna, S.Kom., M.Kom. Isna Alfi Bustoni, S.T, M.Eng. Janoe Hendarto, Drs., M. Kom. Nur Rokhman, S.Si., M.Kom., Dr. Suprpto, Drs., M.I.Kom. Dr Triyogatama Wahyu Widodo, M.Kom Yohanes Suyanto, M.Ikom., Dr. Wahyono, S.Kom, Ph.D
Language	Bahasa Indonesia and English
Relation to curriculum	1. Undergraduate degree program; mandatory; 1 st , 3 rd , 5 th , or 7 th semester. 2. International undergraduate program; mandatory; 1 st , 3 rd , 5 th , or 7 th semester.
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students
Workload	1. Lectures: 3 x 50 = 150 minutes (2 hours 30 minutes) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (cr).
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.

Recommended prerequisites	-	
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	CO1 Have knowledge about the importance of algorithms and data structures in solving problems	PLO3
	CO2 Have knowledge about components in algorithms and can construct algorithms to solve simple problems.	PLO3
	CO3 Have knowledge about data structures and C++ programming language.	PLO3
	CO4 Have knowledge about data types for array and records / struct and can implement them in a computer program.	PLO4
	CO5 Have knowledge about modular programming and can implement it in a computer program.	PLO4
	CO6 Be able to explain and competent in how to implement sorting and searching algorithms.	PLO4
	CO7 Have knowledge about pointer data type and can implement it in a computer program.	PLO4
	CO8 Be able and competent in solving more complex programming problems.	PLO5
Content	<p>Programming I provides the knowledge and skills required for students to be able to:</p> <ul style="list-style-type: none"> • Analyze problems • Design algorithms • Determine suitable data structures such that the computer program generated is structured and efficient. <p>This course uses a procedural programming methodology and is more focused on algorithms and their associated programs, due to the fact that the data structures being used are still simple.</p> <p>After completing this course, students are expected to be able to analyze problems, determine a suitable algorithm to solve it, and implement it using the C++ programming language.</p>	
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%) - 10% CO3: Problem 3 in mid-term exam (5%); problem 4 in mid-term	

	<p>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>W1: Introduction to Algorithms, Thomas H. Cormen, Charles E. Leiserson, et.al., third edition, 2014.</p> <p>W2: Data Structures and Algorithms in C++, Adam Drozdek, Fourth Edition, 2012.</p> <p>W3: Munir, R., 2004, Algoritma dan Pemrograman, Informatika, Bandung.</p> <p>A1: Data Structures Using C , Tenenbaum, A., Y. Langsam, and M. Augenstein, 1990, Prentice-Hall.</p> <p>A2: C++ for everyone, Cay S. Horstmann, 2009.</p>