

Course Code	TKIE161103
Course Name	Fundamental of Programming
Course Instructors	Silmi Fauziati ; Markus Nurtiantara Aji ; Anugerah Galang Persada ; Warsun Najib
Course Type	Required
Course Classification	Engineering Topics
Credit / Contact Hour per Week	3 / 150 minutes per Week
Course Description	This course will discuss about program development steps ranging from defining problems to be solved, determining program inputs and outcomes and determining processing steps by utilizing operators and operands, data types and structures, programming controls and some programming strategies and modularities. This course will also discuss how the program runs on a computer system and how to evaluate and validate programs by utilizing debugging and compilers. This lecture will utilize the procedural programming paradigm represented by the C programming language.
Prerequisites Courses	-
Covered Student Outcome	Fundamental and Engineering Knowledge (a) Development of Engineering Solution (b) Modern Tools Utilization (e)

Learning Mapping		
Code	Learning Outcome	Student Outcome
LO1	Students are able to explain the concept of programming	Fundamental and Engineering Knowledge (a)
LO2	Students are able to develop procedural paradigm program	Fundamental and Engineering Knowledge (a)
LO3	Students are able to utilize various data types and basic data structures to develop the program.	Development of Engineering Solution (b)
LO4	Students are able to implement modular programming and choose various programming strategies to get a good, effective and efficient program.	Modern Tools Utilization (e)

Topic	1. Introduction to Basic Programming 2. Overview Language C 3. Operators in Language C 4. Selection Control Structure 5. Structure of Loop Control 6. Combination of Selection, Repetition and Sequential Structure Control 7. Modularity 8. Communication between Modules 9. Array Process 10. Structure and Union 11. Dynamic Data Types 12. Recursion 13. Constraint, Testing and Debugging 14. Exercises and duties									
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Homework and Quizzes</td> <td>LO1, LO3</td> </tr> <tr> <td>Mid Exam</td> <td>LO2</td> </tr> <tr> <td>Final Exam</td> <td>LO4</td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Homework and Quizzes	LO1, LO3	Mid Exam	LO2	Final Exam	LO4
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Homework and Quizzes	LO1, LO3									
Mid Exam	LO2									
Final Exam	LO4									
Indirect Assessment	Questionnaire (EDOM)									
References	1. Robertson, L. Anne, 2012, Simple Program Design, Thomson Course Technology, United States of America. 2. B. Tucker, 1995, Fundamentals of Computing I, McGraw-Hill, Inc., United States of America.									

	<ol style="list-style-type: none">3. L. Wear, 1991, "<i>Computers</i>", McGraw-Hill, Inc., United States of America.4. Hanly, Jeri R., et.al., 1993, <i>Problem Solving and Program Design in C</i>, Addison Wesley Publishing Company.
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