



**INSTITUT TEKNOLOGI SEPULUH NOPEMBER
FACULTY OF SCIENCE AND DATA ANALYTICS
DEPARTMENT OF STATISTICS
STATISTICS UNDERGRADUATE PROGRAM**

Course

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| Course Name | : | Computer Programming |
| Course Code | : | SS234101 |
| Credit | : | 4 SKS |
| Semester | : | I |

COURSE DESCRIPTION

This course aims to equip students with knowledge of parts of computers and how computers work. Students are also equipped with the ability to use application software such as spreadsheet processing programs and data management systems using Excel to solve real problems. In addition, students are given the material on the basics of programming algorithms as well as the ability to compile, test and run programs in C++ language and then apply them to solve simple statistics problems. The material is delivered through interactive lectures, discussions, exercises, practicums, and Problem Based Learning. Computer programming are computational courses. This course aims to allow students to create simple programs with object- oriented programming languages to solve statistical problems. The learning strategy to achieve the objectives of giving this course is a discussion and explanation of the basics of programming and practicum directly by making a program from the given case. Students are also expected to demonstrate and explain the programs that have been created.

PROGRAM LEARNING OUTCOME

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| PLO-5 | Able to apply statistical theory to statistical methods |
| PLO-6 | Able to design, collect, and perform data management with the right methodology |
| PLO-7 | Able to use modern computing devices to solve statistical problems |
| PLO-8 | Able to use computational techniques to solve statistical problems |

COURSE LEARNING OUTCOME

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| CLO.1 | Able to understand the use of data types, variables and assignments in computational techniques |
| CLO.2 | Able to use control structure (conditional statements and looping) in computer programming |
| CLO.3 | Able to identify and formulate array, record (user define type) and filling data types for computer programming |
| CLO.4 | Able to use computational techniques and modern computer tools (high language) to apply commands in computer programming |
| CLO.5 | Able to apply statistical theory and statistical methods using computer programming |

MAIN SUBJECT

1. Computer, computer work procedure, concept and number system
2. C++ language structure, data types in C++, arithmetic and logical operations in C++

3. IF and Case Conditional Statements, while;do;for loop algorithm
4. Array data types, one dimensional array, two dimensional array
5. Procedure and function
6. Struct data types
7. Read to file and write from file
8. Read structure/array to file, Write structure/array to file

PREREQUISITE

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REFERENCES

1. Pozrikidis,C., 2007. Introduction to C++ Programming and Graphics.
2. Reynolds, C. dan Tymann,P., 2003. Principles of Computer Science. McGraw-Hill.
3. Tremblay dan Bunt. 2000. An Introduction to Computer Science and Algorithm Approach. McGraw-Hill.
4. Verschuuren, G, M. 2008. Excel 2007 for Scientists. Holy Macro Books.