


Course Outline	
COMP6047 Algoritma dan Pemrograman (4/2)	
Effective Date 01 September 2016	Study Program Computer Science Revision 2

1. Course Description

This course comprises algorithm definition, basic principles of programming with C, how to make a program using C programming language, problem solving in C, and learning about many functions and features in C which can be used. By completing this course, students will have basic knowledge related with C and able to develop program using C programming language. This course is prerequisite for Data Structure course.

2. Graduate Competency

Each course in the study program contributes to the graduate competencies that are divided into employability and entrepreneurial skills and study program specific outcomes, in which students need to have demonstrated by the time they complete their course.

BINUS University employability and entrepreneurial skills consist of planning and organizing, problem solving and decision making, self management, team work, communication, and initiative and enterprise.

2.1. Employability and Entrepreneurial Skills

Aspect	Key Behaviour

2.2. Study Program Specific Outcomes

Study Program Specific Outcomes
Able to apply knowledge and understanding of mathematical concepts, principles and theories relating to computer science knowledge.
Able to demonstrate knowledge and understanding of algorithm concepts, principles and theories relating to computer science knowledge.
Able to classify problems and to apply design and development principles for specific problems

3. Topics

- Algorithm & Programming and Introduction to C Programming (L)
- Formatted Input / Output (L)
- Operator, Operand, and Arithmetic (L)
- Algorithm & Programming (T)
- Introduction to C Programming I (T)
- Program Control: Selection (L)
- Introduction to C Programming II and Formatted Input / Output (T)
- Operator, Operand, and Arithmetic (T)
- Program Control: Repetition (L)
- Program Control: Selection (T)
- Program Control: Repetition (T)
- Pointers and Arrays (L)
- Pointers and Arrays 1(T)
- Pointers and Arrays 2(T)
- Material Review I.1 (T)
- Material Review I.2 (T)

- Material Review I (L)
- Quiz I (T)
- Quiz I Review (T)
- Structures & Union (T)
- Memory Allocation (T)
- Function and Recursion (L)
- Structures and Union and Memory Allocation (L)
- Function and Recursion 1(T)
- Function and Recursion 2(T)
- File Processing (L)
- File Processing 1(T)
- File Processing 2(T)
- Sorting and Searching (L)
- Sorting (T)
- Searching (T)
- Material Review II.1 (L)
- Material Review II.1 (T)
- Material Review II.2 (T)
- Material ReviewII.2 (L)
- Quiz II
- Quiz II Review

4. Learning Outcomes

On successful completion of this course, student will be able to:

- LO 1: Explain Explain kind of algorithms in problem solving
- LO 2: Apply Apply syntax and functions in C language in problem solving
- LO 3: Construct Construct a program using C language in problem solving
- LO 4: Design Design a program with file processing using C language in problem solving
- LO 5: Choose Choose the best sorting and searching algorithm in problem solving

5. Teaching And Learning Strategies

In this course, the lecturers might deploy several teaching learning strategies, including Discussion, Lecture, Guided Practice, Exercising the method for some cases, and Problem Solving.

6. Textbooks and Other Resources

6.1 Textbooks

1. Paul J. Deitel. (2016). *C how to program : with an introduction to C++*. 08. Pearson Education. Hoboken. ISBN: 9780133976892.
2. Jeri R. Hanly , Elliot B. Koffman. (2009). *Problem Solving and Program Design in C*. 06. Addison-Wesley. Boston. ISBN: 978-0321535429.

The book in the first list is a must to have for each student.

6.2 Other Resources

1. <http://www.lmscontent.binus.ac.id/digitalcontent/Calling%20function.rar>
2. <http://www.sorting-algorithms.com/>
3. <http://www.dropbox.com/s/igmhl18uelr308d/Repetition.mp4?dl=0>
4. <http://www.lmscontent.binus.ac.id/digitalcontent/Calling%20function.rar>
5. <http://www.lmscontent.binus.ac.id/digitalcontent/Calling%20function.rar>
6. <http://www.dropbox.com/s/igmhl18uelr308d/Repetition.mp4?dl=0>
7. <http://www.sorting-algorithms.com/>
8. <http://www.aelinik.free.fr/c/ch02.htm>
9. <http://www.aelinik.free.fr/c/ch05.htm>
10. http://www.cs.iupui.edu/~n305/spring11/book_slides/chtp6_11.ppt
11. <http://www.aelinik.free.fr/c/ch02.htm>
12. <http://www.exforsys.com/tutorials/c-language/dynamic-memory-allocation-in-c.html>
13. <http://www.aelinik.free.fr/c/ch12.htm>
14. <http://www.mycplus.com/tutorials/c-programming-tutorials/file-handling/>
15. <http://www.cs.cf.ac.uk/Dave/C/>
16. <http://www.aelinik.free.fr/c/ch12.htm>
17. <http://www.unf.edu/~broggio/cop2221/2221pseu.htm>

18. <http://www.aelinik.free.fr/c/ch21.htm>
19. <http://www.docs.roxen.com/pike/7.0/tutorial/statements/conditions.xml>
20. http://www.tutorialspoint.com/cprogramming/c_recursion.htm
21. <http://www.exforsys.com/tutorials/c-language/c-pointers.html>
22. <http://www.cs.bu.edu/teaching/c/file-io/intro/>
23. <http://www.cs.bu.edu/teaching/c/file-io/intro/>
24. http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm
25. <http://www.aelinik.free.fr/c/ch10.htm>
26. http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/
27. <http://www.mycplus.com/tutorials/c-programming-tutorials/file-handling/>
28. <http://www.unf.edu/~broggio/cop2221/2221pseu.htm>
29. <http://www.lysator.liu.se/c/c-faq/c-9.html>
30. http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/
31. <http://www.en.algoritmy.net/article/40348/Interpolation-search>
32. <http://www.mycplus.com/tutorials/c-programming-tutorials/file-handling/>
33. http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm
34. <http://www.docs.roxen.com/pike/7.0/tutorial/statements/conditions.xml>
35. <http://www.exforsys.com/tutorials/c-language/c-pointers.html>
36. <http://www.cs.cf.ac.uk/Dave/C/>
37. <http://www.aelinik.free.fr/c/ch05.htm>
38. <http://www.aelinik.free.fr/c/ch06.htm>
39. <http://www.aelinik.free.fr/c/ch15.htm>
40. <http://www.lysator.liu.se/c/c-faq/c-9.html>
41. <http://www.aelinik.free.fr/c/ch07.htm>
42. <http://www.aelinik.free.fr/c/ch15.htm>
43. <http://www.exforsys.com/tutorials/c-language/c-pointers.html>
44. <http://www.aelinik.free.fr/c/ch06.htm>
45. http://www.tutorialspoint.com/cprogramming/c_recursion.htm
46. <http://www.aelinik.free.fr/c/ch19.htm>
47. <http://www.cs.cf.ac.uk/Dave/C/>
48. http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/
49. <http://www.aelinik.free.fr/c/ch15.htm>
50. <http://www.aelinik.free.fr/c/ch19.htm>
51. <http://www.aelinik.free.fr/c/ch04.htm>
52. <http://www.aelinik.free.fr/c/ch05.htm>
53. <http://www.aelinik.free.fr/c/ch12.htm>
54. <http://www.aelinik.free.fr/c/ch19.htm>
55. http://www.cs.iupui.edu/~n305/spring11/book_slides/chtp6_11.ppt
56. http://www.cs.iupui.edu/~n305/spring11/book_slides/chtp6_11.ppt
57. <http://www.aelinik.free.fr/c/ch07.htm>
58. <http://www.aelinik.free.fr/c/ch04.htm>
59. <http://www.aelinik.free.fr/c/ch22.htm>
60. <http://www.unf.edu/~broggio/cop2221/2221pseu.htm>
61. <http://www.cs.bu.edu/teaching/c/file-io/intro/>
62. http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/
63. http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm
64. <http://www.unf.edu/~broggio/cop2221/2221pseu.htm>
65. <http://www.aelinik.free.fr/c/ch06.htm>
66. <http://www.sorting-algorithms.com/>
67. <http://www.aelinik.free.fr/c/ch10.htm>
68. <http://www.aelinik.free.fr/c/ch12.htm>
69. http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm
70. <http://www.en.algoritmy.net/article/40348/Interpolation-search>
71. <http://www.aelinik.free.fr/c/ch02.htm>
72. <http://www.cs.cf.ac.uk/Dave/C/>
73. <http://www.sorting-algorithms.com/>
74. <http://www.exforsys.com/tutorials/c-language/dynamic-memory-allocation-in-c.html>
75. <http://www.aelinik.free.fr/c/ch05.htm>
76. <http://www.aelinik.free.fr/c/ch04.htm>
77. <http://www.aelinik.free.fr/c/ch21.htm>
78. <http://www.aelinik.free.fr/c/ch12.htm>

- 79. http://www.tutorialspoint.com/cprogramming/c_recursion.htm
- 80. <http://www.aelinik.free.fr/c/ch22.htm>
- 81. <http://www.lysator.liu.se/c/c-faq/c-9.html>
- 82. <http://www.cs.bu.edu/teaching/c/file-io/intro/>
- 83. <http://www.aelinik.free.fr/c/ch21.htm>
- 84. <http://www.unf.edu/~broggio/cop2221/2221pseu.htm>
- 85. <http://www.aelinik.free.fr/c/ch12.htm>
- 86. <http://www.aelinik.free.fr/c/ch06.htm>
- 87. <http://www.aelinik.free.fr/c/ch04.htm>
- 88. <http://www.exforsys.com/tutorials/c-language/dynamic-memory-allocation-in-c.html>
- 89. <http://www.aelinik.free.fr/c/ch22.htm>

7. Schedule

Theory

Session/ Mode	Related LO	Topics	References
1 F2F	LO 1 LO 2	Algorithm & Programming and Introduction to C Programming (L) <ul style="list-style-type: none"> - Definition - Development Steps - Pseudo-code - Flow Chart - Structured Theorem - History of C - C Standard library - C Structure - Comments - Escape Sequences - Character - Identifier - Keyword - Variable - Data Type - Constant - Size Of - Suffix 	<ul style="list-style-type: none"> - Algorithm & Programming and Introduction to C Programming - C how to program : with an introduction to C++ Chapter 1-3 - Problem Solving and Program Design in C, - Data Types and Names in C, http://www.aelinik.free.fr/c/ch04.htm - Writing Your First C Program, http://www.aelinik.free.fr/c/ch02.htm - Pseudocode Examples, http://www.unf.edu/~broggio/cop2221/2221pseu.htm - Programming C, http://www.cs.cf.ac.uk/Dave/C/ - General C, http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/ - Intro to File Input/Output in C, http://www.cs.bu.edu/teaching/c/file-io/intro/ - Reading from and Writing to Standard I/O, http://www.aelinik.free.fr/c/ch05.htm
2 F2F	LO 1 LO 2	Formatted Input / Output (L) <ul style="list-style-type: none"> - Input - Output - Guest Lecturer 	<ul style="list-style-type: none"> - Formatted Input / Output - C how to program : with an introduction to C++ , Chapter 9 - Problem Solving and Program Design in C, - Intro to File Input/Output in C, http://www.cs.bu.edu/teaching/c/file-io/intro/

			<ul style="list-style-type: none"> - Pseudocode Examples, http://www.unf.edu/~broggio/cop2221/2221pseu.htm - General C, http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/ - Writing Your First C Program, http://www.aelinik.free.fr/c/ch02.htm - Programming in C, http://www.cs.cf.ac.uk/Dave/C/ - Reading from and Writing to Standard I/O, http://www.aelinik.free.fr/c/ch05.htm - Data Types and Names in C, http://www.aelinik.free.fr/c/ch04.htm
3 F2F	LO 1 LO 2 LO 3	Operator, Operand, and Arithmetic (L) <ul style="list-style-type: none"> - Operator and Operand Introduction - Assignment Operators - Arithmetic Operators - Relational Operators - Conditional Expressions - Logical Operators - Bitwise Operators - Pointer Operators - Precedence and Associative 	<ul style="list-style-type: none"> - Operator, Operand, and Arithmetic (L) - C how to program : with an introduction to C++ , Chapter 2, 3, 4 - Manipulating Data with Operators, http://www.aelinik.free.fr/c/ch06.htm
4 F2F	LO 1	Algorithm & Programming (T) <ul style="list-style-type: none"> - Definition - Development Steps - Pseudo-code - Pseudo-code Examples - Flow Chart - Flow Chart Example - Structured Theorem - Exercise 	<ul style="list-style-type: none"> - Algorithm & Programming - Problem Solving and Program Design in C, - C how to program : with an introduction to C++ , Chapter 3 - General C, http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/ - Pseudocode Examples, http://www.unf.edu/~broggio/cop2221/2221pseu.htm - Dave C, http://www.cs.cf.ac.uk/Dave/C/
5 F2F	LO 1	Introduction to C Programming I (T) <ul style="list-style-type: none"> - History of C - C Standard library - C Structure - Comments - Escape Sequences - Character - Identifier - Keyword - Exercise 	<ul style="list-style-type: none"> - Introduction to C Programming I - C how to program : with an introduction to C++ , Chapter 1, 2 - Problem Solving and Program Design in C, - General C, http://www.physics.drexel.edu/courses/Comp_Phys/General/C_basics/ - Dave C, http://www.cs.cf.ac.uk/Dave/

			<p>C/ - Pseudocode Examples, http://www.unf.edu/~broggio/cop2221/2221pseu.htm - Writing Your First C Program, http://www.aelinik.free.fr/c/ch02.htm</p>
6 F2F	LO 1 LO 2 LO 3	<p>Program Control: Selection (L) - Selection Definition - If - If-Else - Nested If - Using If - Switch-Case - ?: Operator - Error Type</p>	<p>- Program Control: Selection (L) - C how to program : with an introduction to C++ , Chapter 3-4 - Manipulating Data with Operators, http://www.aelinik.free.fr/c/ch06.htm - tutorial statements, http://www.docs.roxen.com/pike/7.0/tutorial/statements/conditions.xml - Getting Controls, http://www.aelinik.free.fr/c/ch10.htm</p>
7 F2F	LO 1 LO 2	<p>Introduction to C Programming II and Formatted Input / Output (T) - Variable - Data Type - Constant - Size Of - Suffix - Exercise - Output Operation - Output Formatting - Output Example - Input Operation - Input Formatting - Input Example - Cursor Placement</p>	<p>- Introduction to C Programming II and Formatted Input / Output - Problem Solving and Program Design in C, - C how to program : with an introduction to C++ , Ch. 1, 2, 9 - Manipulating Data with Operators, http://www.aelinik.free.fr/c/ch06.htm - Data Types and Names in C, http://www.aelinik.free.fr/c/ch04.htm - Teaching C, http://www.cs.bu.edu/teaching/c/file-io/intro/ - Reading from and Writing to Standard I/O, http://www.aelinik.free.fr/c/ch05.htm</p>
8 F2F	LO 1 LO 2	<p>Operator, Operand, and Arithmetic (T) - Operator and Operand Introduction - Assignment Operators - Arithmetic Operators - Relational Operators - Conditional Expressions - Logical Operators - Bitwise Operators - Pointer Operators - Precedence and Associative - Exercise</p>	<p>- Operator, Operand, and Arithmetic (T) - C how to program : with an introduction to C++ , Chapter 2-4 - Problem Solving and Program Design in C, - Data Types and Names in C, http://www.aelinik.free.fr/c/ch04.htm - Reading from and Writing to Standard I/O, http://www.aelinik.free.fr/c/ch05.htm</p>

			<ul style="list-style-type: none"> - Tutorials C language, http://www.cs.bu.edu/teaching/c/file-io/intro/ - Manipulating Data with Operators, http://www.aelinik.free.fr/c/ch06.htm
9 F2F	LO 2 LO 3	Program Control: Repetition (L) <ul style="list-style-type: none"> - Repetition Definition - For - While - Do-While - Repetition Operation 	<ul style="list-style-type: none"> - Program Control: Repetition (L) - C how to program : with an introduction to C++ , Chapter 3-4 - Repetition, http://www.dropbox.com/s/igmhl18uelr308d/Repetition.mp4?dl=0 - Doing the Same Thing Over and Over, http://www.aelinik.free.fr/c/ch07.htm
10 F2F	LO 2 LO 3	Program Control: Selection (T) <ul style="list-style-type: none"> - Selection Definition - If - If-Else - Nested If - Program Examples - Using If - Switch-Case - ?: Operator - Error Type - Program Examples Using Switch-Case - Program Examples Using ?: - Exercise 	<ul style="list-style-type: none"> - Program Control: Selection (T) - C how to program : with an introduction to C++ , Chapter 3-4 - The if statement, http://www.docs.roxen.com/pike/7.0/tutorial/statements/conditions.xml - Getting Controls, http://www.aelinik.free.fr/c/ch10.htm
11 F2F	LO 2 LO 3	Program Control: Repetition (T) <ul style="list-style-type: none"> - Repetition Definition - For - While - Repetition Operation - Break Vs. Continue - Program Examples - Exercise 	<ul style="list-style-type: none"> - Program Control: Repetition (T) - C how to program : with an introduction to C++ , Chapter 3-4 - Repetition, http://www.dropbox.com/s/igmhl18uelr308d/Repetition.mp4?dl=0 - Doing the Same Thing Over and Over, http://www.aelinik.free.fr/c/ch07.htm
12 F2F	LO 2 LO 3	Pointers and Arrays (L) <ul style="list-style-type: none"> - Pointer Definition - Pointer Concept - Pointer to Pointer - Array 	<ul style="list-style-type: none"> - Pointers and Arrays (L) - C how to program : with an introduction to C++ , Chapter 6-7 - Tutorials C language, http://www.exforsys.com/tutorials/c-language/c-pointers.html - Storing Similar Data Items, http://www.aelinik.free.fr/c/ch12.htm
13 F2F	LO 2 LO 3	Pointers and Arrays 1(T) <ul style="list-style-type: none"> - Pointer Definition - Pointer Concept 	<ul style="list-style-type: none"> - Pointers and Arrays (T) - C how to program : with an introduction to C++

		<ul style="list-style-type: none"> - Pointer to Pointer - Array Definition - Array Initialization - Pointer Constant & Pointer Variable - Accessing Array - 2 and 3 Dimensional Array - String Manipulation - Program Examples - Exercise 	<ul style="list-style-type: none"> , Chapter 6-7 - Storing Similar Data Items, http://www.aelinik.free.fr/c/ch12.htm - Tutorials C language, http://www.exforsys.com/tutorials/c-language/c-pointers.html
14 F2F	LO 2 LO 3	Pointers and Arrays 2(T) <ul style="list-style-type: none"> - Pointer Definition - Pointer Concept - Pointer to Pointer - Array Definition - Array Initialization - Pointer Constant & Pointer Variable - Accessing Array - 2 and 3 Dimensional Array - String Manipulation - Program Examples - Exercise 	<ul style="list-style-type: none"> - Pointers and Arrays (T) - C how to program : with an introduction to C++ , Chapter 6-7 - Tutorials C language, http://www.exforsys.com/tutorials/c-language/c-pointers.html - Storing Similar Data Items, http://www.aelinik.free.fr/c/ch12.htm
15 F2F	LO 1 LO 2 LO 3	Material Review I.1 (T) <ul style="list-style-type: none"> - Algorithm & Programming - Introduction to C Programming - Formatted Input / Output - Operator, Operand, and Arithmetic - Program Control: Selection - Program Control: Repetition - Pointers and Arrays 	<ul style="list-style-type: none"> - Material Review I (T) - Problem Solving and Program Design in C, - C how to program : with an introduction to C++ , Chapter 1, 2, 3, 4, 6, 7, 9 - Algorithm & Programming, http://www.unf.edu/~broggio/cop2221/2221pseu.htm - Pointers and Arrays, http://www.aelinik.free.fr/c/ch12.htm
16 F2F	LO 1 LO 2 LO 3	Material Review I.2 (T) <ul style="list-style-type: none"> - Algorithm & Programming - Introduction to C Programming - Formatted Input / Output - Operator, Operand, and Arithmetic - Program Control: Selection - Program Control: Repetition - Pointers and Arrays 	<ul style="list-style-type: none"> - Material Review I (T) - C how to program : with an introduction to C++ , Chapter 1, 2, 3, 4, 6, 7, 9 - Problem Solving and Program Design in C, - Pointers and Arrays, http://www.aelinik.free.fr/c/ch12.htm
17 F2F	LO 1 LO 2 LO 3	Material Review I (L) <ul style="list-style-type: none"> - Algorithm & Programming - Introduction to C Programming - Formatted Input / Output - Operator, Operand, and Arithmetic - Program Control: Selection - Program Control: Repetition - Pointers and Arrays 	<ul style="list-style-type: none"> - Material Review I (L) - C how to program : with an introduction to C++ Chapter 1, 2, 3, 4, 6, 7, 9 - Problem Solving and Program Design in C, - Pointers and Arrays, http://www.aelinik.free.fr/c/ch12.htm
18 F2F	LO 1 LO 2 LO 3	Quiz I (T) <ul style="list-style-type: none"> - Algorithm and Programming - Introduction to C Programming - Formatted Input / Output - Operator, Operand and Arithmetic - Program Control: Selection - Program Control: Repetition - Pointers and Arrays 	<ul style="list-style-type: none"> - Quiz I

<p>19 F2F</p>	<p>LO 1 LO 2 LO 3</p>	<p>Quiz I Review (T) - Discussion - Quiz I Review</p>	<p>- Quiz I Review - C how to program : with an introduction to C++ , - Problem Solving and Program Design in C,</p>
<p>20 F2F</p>	<p>LO 2 LO 3</p>	<p>Structures & Union (T) - Structure Definition - Structure Declaration - Local Structure - Nested Structure - Structure Initialization - Array of Structure - Typedef - Union Definition - Union Declaration - Enumeration - Exercise</p>	<p>- Structures & Union - C how to program : with an introduction to C++ , Chapter 10 - C Programming - Dynamic Memory allocation, http://www.exforsys.com/tutorials/c-language/dynamic-memory-allocation-in-c.html - C storage classes, http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm - Collecting Data Items of Different Types, http://www.aelinik.free.fr/c/ch19.htm - Structs, Enums, and Unions, http://www.lysator.liu.se/c/c-faq/c-9.html</p>
<p>21 F2F</p>	<p>LO 2 LO 3</p>	<p>Memory Allocation (T) - Static Variable - Register Variable - External Variable - Void * Data Type - Command Execution - Memory Concept - Static Memory Allocation - Macro - Pointer to Function - C Preprocessor - Exercise</p>	<p>- Memory Allocation - C how to program : with an introduction to C++ , Chapter 2, 13, 14 - C Programming - Dynamic Memory allocation, http://www.exforsys.com/tutorials/c-language/dynamic-memory-allocation-in-c.html - Collecting Data Items of Different Types, http://www.aelinik.free.fr/c/ch19.htm - C storage classes, http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm - Structs, Enums, and Unions, http://www.lysator.liu.se/c/c-faq/c-9.html</p>
<p>22 F2F</p>	<p>LO 2 LO 3</p>	<p>Function and Recursion (L) - Modular Programming - Function - Identifier Scoping - Passing Parameter - Recursion Definition - Recursive Function - Iterative vs. Recursive</p>	<p>- Function and Recursion (L) - C how to program : with an introduction to C++ , Chapter 5 - Calling Function by Value or by Reference, http://www.lmscontent.binus.ac.id/digitalcontent/Calling%20function.rar - Recursion, http://www.tutorialspoint.com/cprogramming/c_recursion.htm - Functions in C,</p>

			<p>http://www.aelinik.free.fr/c/ch15.htm</p> <ul style="list-style-type: none"> - C storage classes, http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm
23 F2F	LO 2 LO 3	<p>Structures and Union and Memory Allocation (L)</p> <ul style="list-style-type: none"> - Structures - Union - Memory Allocation 	<ul style="list-style-type: none"> - Structures and Union and Memory Allocation - C how to program : with an introduction to C++ , Chapter 2, 10, 13, 14 - Structs, Enums, and Unions, http://www.lysator.liu.se/c/c-faq/c-9.html - C Programming - Dynamic Memory allocation, http://www.exforsys.com/tutorials/c-language/dynamic-memory-allocation-in-c.html - Collecting Data Items of Different Types, http://www.aelinik.free.fr/c/ch19.htm - C storage classes, http://www.tutorialspoint.com/cprogramming/c_storage_classes.htm
24 F2F	LO 3	<p>Function and Recursion 1(T)</p> <ul style="list-style-type: none"> - Modular Programming - Function Definition - Function Prototype - Identifier Scoping - Passing Parameter - Program Examples Using Function - Recursion Definition - Recursive Function - Iterative vs. Recursive - Program Examples Using Recursive - Exercise 	<ul style="list-style-type: none"> - Function and Recursion (T) - C how to program : with an introduction to C++ Chapter 5 - Calling Function by Value or by Reference, http://www.lmscontent.binus.ac.id/digitalcontent/Calling%20function.rar - Recursion, http://www.tutorialspoint.com/cprogramming/c_recursion.htm - Functions in C, http://www.aelinik.free.fr/c/ch15.htm
25 F2F	LO 3	<p>Function and Recursion 2(T)</p> <ul style="list-style-type: none"> - Modular Programming - Function Definition - Function Prototype - Identifier Scoping - Passing Parameter - Program Examples Using Function - Recursion Definition - Recursive Function - Iterative vs. Recursive - Program Examples Using Recursive - Exercise 	<ul style="list-style-type: none"> - Function and Recursion (T) - C how to program : with an introduction to C++ Chapter 5 - Calling Function by Value or by Reference, http://www.lmscontent.binus.ac.id/digitalcontent/Calling%20function.rar - Functions in C, http://www.aelinik.free.fr/c/ch15.htm - Recursion, http://www.tutorialspoint.com/cprogramming/c_recursion.htm

<p>26 F2F</p>	<p>LO 2 LO 3 LO 4 LO 5</p>	<p>File Processing (L) - Files and Streams - File Definition - Open File - Close File - Input File - Output File</p>	<ul style="list-style-type: none"> - File Processing (L) - C how to program : with an introduction to C++ Chapter 11 - Disk File Input and Output: Part II, http://www.aelinik.free.fr/c/ch22.htm - Disk File Input and Output: Part I, http://www.aelinik.free.fr/c/ch21.htm - C programming tutorials, http://www.mycplus.com/tutorials/c-programming-tutorials/file-handling/ - Book Slides, http://www.cs.iupui.edu/~n305/spring11/book_slides/chtp6_11.ppt
<p>27 F2F</p>	<p>LO 2 LO 3 LO 4</p>	<p>File Processing 1(T) - Files and Streams - File Definition - Open File - Close File - Input File - Output File - Program Examples - Exercise</p>	<ul style="list-style-type: none"> - File Processing (T) - C how to program : with an introduction to C++ Chapter 11 - Disk File Input and Output: Part II, http://www.aelinik.free.fr/c/ch22.htm - File Handling in C Language, http://www.mycplus.com/tutorials/c-programming-tutorials/file-handling/ - Book Slides, http://www.cs.iupui.edu/~n305/spring11/book_slides/chtp6_11.ppt - Disk File Input and Output: Part I, http://www.aelinik.free.fr/c/ch21.htm
<p>28 F2F</p>	<p>LO 2 LO 3 LO 4</p>	<p>File Processing 2(T) - Files and Streams - File Definition - Open File - Close File - Input File - Output File - Program Examples - Exercise</p>	<ul style="list-style-type: none"> - File Processing (T) - C how to program : with an introduction to C++ Chapter 11 - File Handling in C Language, http://www.mycplus.com/tutorials/c-programming-tutorials/file-handling/ - Disk File Input and Output: Part II, http://www.aelinik.free.fr/c/ch22.htm - Disk File Input and Output: Part I, http://www.aelinik.free.fr/c/ch21.htm - Book Slides, http://www.cs.iupui.edu/~n305/spring11/book_slides/chtp6_11.ppt

29 F2F	LO 2 LO 3 LO 4 LO 5	Sorting and Searching (L) - Bubble Sort - Selection Sort - Insertion Sort - Quick Sort - Merge Sort - Linear Search - Binary Search - Interpolation Search	- Sorting and Searching - C how to program : with an introduction to C++ , Chapter 6, 7, 14 - algorithms, http://www.sorting-algorithms.com/ - algorithms, http://www.sorting-algorithms.com/ - Interpolation, http://www.en.algoritmy.net/article/40348/Interpolation-search
30 F2F	LO 2 LO 3 LO 5	Sorting (T) - Bubble Sort - Insertion Sort - Quick Sort - Merge Sort - Exercise - Selection Sort	- Sorting - C how to program : with an introduction to C++ Ch. 6, 7 - algorithms, http://www.sorting-algorithms.com/ - algorithms, http://www.sorting-algorithms.com/
31 F2F	LO 2 LO 3 LO 5	Searching (T) - Linear Search - Binary Search - Interpolation Search - Exercise	- Searching - C how to program : with an introduction to C++ Ch. 14 - Interpolation, http://www.en.algoritmy.net/article/40348/Interpolation-search
32 F2F	LO 2 LO 3 LO 4 LO 5	Material Review II.1 (L) - Function and Recursion - Structures and Union	- Material Review II.1 (L) - C how to program : with an introduction to C++ , Ch. 2, 5, 6, 7, 10, 11, 13, 14
33 F2F	LO 2 LO 3 LO 4 LO 5	Material Review II.1 (T) - Function and Recursion - Structures and Union - Memory Allocation - File Processing - Sorting - Searching	- Material Review II.1 (T) - C how to program : with an introduction to C++ Ch. 2, 5, 6, 7, 10, 11, 13, 14
34 F2F	LO 2 LO 3 LO 4 LO 5	Material Review II.2 (T) - Function and Recursion - Structures and Union - Memory Allocation - File Processing - Sorting - Searching	- Material Review II.2 (T) - C how to program : with an introduction to C++ , Ch. 2, 5, 6, 7, 10, 11, 13, 14
35 F2F	LO 2 LO 3 LO 4 LO 5	Material Review II.2 (L) - File Processing - Sorting - Searching	- Material Review II.2 (L) - C how to program : with an introduction to C++ , Ch. 2, 5, 6, 7, 10, 11, 13, 14
36 F2F	LO 2 LO 3 LO 4 LO 5	Quiz II - Structures and Union - Function and Recursion - Memory Allocation - File Processing - Sorting - Searching	- Quiz II

37 F2F	LO 2 LO 3 LO 4 LO 5	Quiz II Review - Discussion - Quiz II Review	- Quiz II Review
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8. Evaluation

Theory

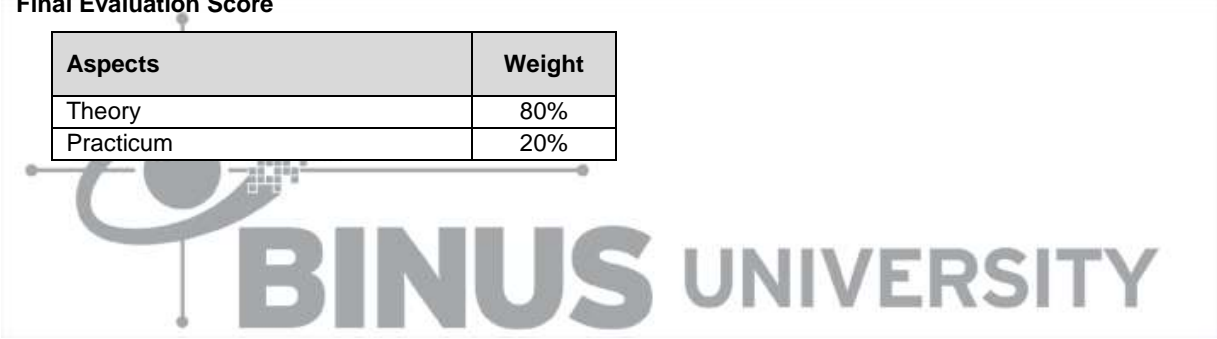
Assessment Activity	Weight	Learning Outcomes				
		1	2	3	4	5
Assignment	12%	√	√	√	√	√
Mid Exam	38%	√	√	√	√	
Final Exam	50%		√	√	√	√

Practicum

Assessment Activity	Weight	Learning Outcomes				
		1	2	3	4	5
Worksheet	50%	√	√	√	√	√
Final Report	50%	√	√	√	√	√

Final Evaluation Score





Aspects	Weight
Theory	80%
Practicum	20%



9. A. Assessment Rubric (Study Program Specific Outcomes)

LO	Indicators	Proficiency Level			
		Excellent (85 – 100)	Good (75 – 84)	Average (65 – 74)	Poor (<= 64)
LO 1	1.1. Ability to explain many kind of algorithms	Correct explanation is given with relevant examples	Correct explanation is given with partially relevant examples	Correct explanation	Incorrect explanation
	1.2. Ability to design pseudo-code in many kind of problems	Correctly and effectively designing pseudo-code in many kind of problems	Correctly designing pseudo-code in many kind of problems	Partially correct in pseudo-code in many kind of problems a clear pseudo-code	Incorrectly designing pseudo-code in many kind of problems the pseudo-code
LO 2	2.1. Ability to use input operation	The usage of input operation is correct and effective to solve the programming problem	The usage of input operation is correct to solve the problem	The usage of input operation is partially correct	The usage of input operation is not correct
	2.2. Ability to use output operation	The usage of output operation is correct and effective to solve the programming problem	The usage of output operation is correct to solve the problem	The usage of output operation is partially correct	The usage of output operation is not correct
LO 3	3.1. Ability to apply logic thinking	Correctly and effectively applying logic thinking to solve the programming problem	Correctly applying logic thinking to solve the programming problem	Partially correct in applying logic thinking to solve the programming problem	Incorrectly applying logic thinking to solve the programming problem
	3.2. Ability to operate syntax and functions in C	All the syntax and functions in C are correctly and effectively operated	All the syntax and functions in C are correctly operated	Only some of the syntax and functions in C are correctly operated	None of the syntax and functions in C are correctly operated
LO 4	4.1. Ability to use input by using File Processing	The usage of input by using File Processing is correct and effective to solve the programming problem	The usage of input by using File Processing is correct to solve the problem	The usage of input by using File Processing is partially correct	The usage of input by using File Processing is not correct

	4.2. Ability to use output by using File Processing	The usage of output by using File Processing is correct and effective to solve the programming problem	The usage of output by using File Processing is correct to solve the problem	The usage of output by using File Processing is partially correct	The usage of output by using File Processing is not correct
LO 5	5.1. Ability to choose the sorting algorithm to solve the programming problem	Correctly choosing the most effective sorting algorithm to solve the programming problem	Correctly choosing effective sorting algorithm to solve the programming problem	Correctly choosing sorting algorithm to solve the programming problem	Incorrectly choosing sorting algorithm to solve the programming problem
	5.2. Ability to choose the searching algorithm to solve the programming problem	Correctly choosing the most effective searching algorithm to solve the programming problem	Correctly choosing effective searching algorithm to solve the programming problem	Correctly choosing searching algorithm to solve the programming problem	Incorrectly choosing searching algorithm to solve the programming problem

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