


<b>Course Outline</b>	
<b>COMP6099</b> <b>Advanced Object Oriented Programming</b> <b>(2)</b>	
<b>Effective Date</b> 01 February 2018	<b>Study Program</b> <b>Computer Science</b>
	<b>Revision 2</b>

### 1. Course Description

This course learn how to formulate, develop, and implement Java database graphical user interface programming based on object oriented programming concept

### 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
(SO-3) - able to assess technology trend in informatics area to deliver alternative solution of software development
(SO-7) - Graduates will able to create software by implementing mathematical models
(SO-4) - Able to produce software applications which can solve the problems in informatics industry;

### 3. Topics

- Introduction to Java Programming language
- Methods, Array and Exception Handling
- Java Collection
- Object and Classes
- Inheritance and Polymorphism
- Abstract Classes and Interface
- Introduction to Java GUI
- Event Driven Programming
- Java GUI Component Manipulation
- Menu, Toolbar, and Dialog Component
- Container and Layout Manager Component
- Introduction to Database
- Java Database Programming

### 4. Learning Outcomes

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

- LO 1: Apply concept of object oriented programming on Java technology
- LO 2: Demonstrate database programming application on Java technology
- LO 3: Demonstrate graphical user interface programming on Java technology

**5. Teaching And Learning Strategies**

In this course, the lecturers might deploy several teaching learning strategies, including Demonstration, and Exercise and solve problem with students.

**6. Textbooks and Other Resources**

**6.1 Textbooks**

1. Y. Daniel Liang. (2015). *Introduction to JAVA programming : comprehensive version*. 10. Pearson Education. Essex. ISBN: 9781292070018.

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/periode\\_1720/COMP6099 - Array.zip](http://www.lmscontent.binus.ac.id/digitalcontent/periode_1720/COMP6099_-_Array.zip)
2. <http://www.codeproject.com/Articles/33536/An-Introduction-to-Java-GUI-Programming>
3. <http://www.docs.oracle.com/javase/tutorial/jdbc/overview/index.html>
4. [http://www.tutorialspoint.com/java/java\\_object\\_classes.htm](http://www.tutorialspoint.com/java/java_object_classes.htm)
5. <http://www.docs.oracle.com/javase/tutorial/jdbc/overview/index.html>
6. <http://www.clear.rice.edu/comp310/JavaResources/GUI/>
7. [http://www.tutorialspoint.com/java/java\\_collections.htm](http://www.tutorialspoint.com/java/java_collections.htm)
8. <http://www.clear.rice.edu/comp310/JavaResources/GUI/>
9. <http://www.beginnersbook.com/2013/03/oops-in-java-encapsulation-inheritance-polymorphism-abstraction/>
10. [http://www.tutorialspoint.com/java/java\\_arrays.htm](http://www.tutorialspoint.com/java/java_arrays.htm)
11. <http://www.developer.com/java/data/understanding-and-using-the-java-delegation-event-model.html>
12. [http://www.tutorialspoint.com/swing/swing\\_layouts.htm](http://www.tutorialspoint.com/swing/swing_layouts.htm)
13. <http://www.beginnersbook.com/2013/05/java-introduction/>
14. <http://www.beginnersbook.com/2013/03/oops-in-java-encapsulation-inheritance-polymorphism-abstraction/>

**7. Schedule**

**Theory**

Session/ Mode	Related LO	Topics	References
1 F2F	LO 1	Introduction to Java Programming language - Java Technology Introduction - Creating, Compiling, and Executing a Java Program - Identifiers and Variables - Assignment statements and expressions - Data Types - Loop and Selection - Run a Simple Java Program	- Introduction to Java Programming language - Introduction to Java programming : comprehensive version. international edition, Chapter 1-4 - Introduction to Java Programming language, <a href="http://www.beginnersbook.com/2013/05/java-introduction/">http://www.beginnersbook.com/2013/05/java-introduction/</a>
2 F2F	LO 1	Methods, Array and Exception Handling - Methods - Single Dimensional Arrays - Multidimensional Arrays - Exception Handling	- Methods, Array and Exception Handling - Introduction to JAVA programming : comprehensive version, Chapter 2,5,6,7 & 13 - Array, <a href="http://www.lmscontent.binus.ac.id/digitalcontent/periode_1720/COMP6099_-_Array.zip">http://www.lmscontent.binus.ac.id/digitalcontent/periode_1720/COMP6099 - Array.zip</a> - Arrays, <a href="http://www.tutorialspoint.com/java/java_arrays.htm">http://www.tutorialspoint.com/java/java_arrays.htm</a>
3 F2F	LO 1	Java Collection - Generic class and Method - ArrayList Class - Vector Class - Stack Class	- Java Collection - Introduction to JAVA programming : comprehensive version, Chapter 21-22

			- Java Collection, <a href="http://www.tutorialspoint.com/java/java_collections.htm">http://www.tutorialspoint.com/java/java_collections.htm</a>
4 GSLC	LO 1	Object and Classes - Defining Classes for Objects - Constructing Objects Using Constructors - Visibility Modifier - Java Package - Data Field Encapsulation - Immutable Object	- Object and Classes - Introduction to JAVA programming : comprehensive version, Chapter 8 & 10 - Object and Classes, <a href="http://www.tutorialspoint.com/java/java_object_classes.htm">http://www.tutorialspoint.com/java/java_object_classes.htm</a>
5 F2F	LO 1	Inheritance and Polymorphism - Superclasses and Subclasses - Using the super Keyword - Overriding Methods - Overriding vs Overloading - Polymorphism	- Inheritance and Polymorphism - Introduction to JAVA programming : comprehensive version, Chapter 11 - Inheritance and Polymorphism, <a href="http://www.beginnersbook.com/2013/03/oops-in-java-encapsulation-inheritance-polymorphism-abstraction/">http://www.beginnersbook.com/2013/03/oops-in-java-encapsulation-inheritance-polymorphism-abstraction/</a>
6 F2F	LO 1	Abstract Classes and Interface - Java Interface - Abstract Classes - Comparable Interface - Implementation of Interface	- Abstract Classes and Interface - Chapter 14 - Abstract classes, <a href="http://www.beginnersbook.com/2013/03/oops-in-java-encapsulation-inheritance-polymorphism-abstraction/">http://www.beginnersbook.com/2013/03/oops-in-java-encapsulation-inheritance-polymorphism-abstraction/</a>
7 F2F	LO 1 LO 2	Introduction to Java GUI - Swing vs AWT - The Java GUI API - Frames - Basic Layout Manager - Panels - Label, TextField and Button - Run a simple Java GUI	- Introduction to Java GUI - Chapter 12 & 17 - Java GUI, <a href="http://www.codeproject.com/Articles/33536/An-Introduction-to-Java-GUI-Programming">http://www.codeproject.com/Articles/33536/An-Introduction-to-Java-GUI-Programming</a>
8 F2F	LO 1 LO 2	Event Driven Programming - Event and Event Source - Listener, Registration and Handling Event - Inner Classes - Windows Event - Mouse Event - Key Event - Listener Interface Adapter	- Event Driven Programming - Introduction to JAVA programming : comprehensive version, Chapter 16 - Event Driven Programming, <a href="http://www.developer.com/java/data/understanding-and-using-the-java-delegation-event-model.html">http://www.developer.com/java/data/understanding-and-using-the-java-delegation-event-model.html</a>
9 F2F	LO 1 LO 2	Java GUI Component Manipulation - Button - CheckBox - Radio Button - TextFields - List - Scrolls - Creating multiple windows	- Java GUI Component Manipulation - Introduction to JAVA programming : comprehensive version, Chapter 16-17 - Java GUI Component Manipulation, <a href="http://www.clear.rice.edu/comp310/JavaResources/GUI/">http://www.clear.rice.edu/comp310/JavaResources/GUI/</a>

10 F2F	LO 1 LO 2	Menu, Toolbar, and Dialog Component - Menus - JToolBar - Action interface - JOptionPane - Custom Dialog - JTable - Table Model and Table Column Model - Autosort and Filtering	- Menu, Toolbar, and Dialog Component - Introduction to JAVA programming : comprehensive version, Chapter 34 & 36 - Menu, Toolbar, and Dialog Component, <a href="http://www.clear.rice.edu/comp310/JavaResources/GUI/">http://www.clear.rice.edu/comp310/JavaResources/GUI/</a>
11 GSLC	LO 1 LO 2	Container and Layout Manager Component - Swing Container Structures - Layout Managers - Creating Custom Layout Managers - JScrollPane - JTabbedPane - JSplitPane	- Container and Layout Manager Component - Introduction to JAVA programming : comprehensive version, Chapter 33 - Container and Layout, <a href="http://www.tutorialspoint.com/swing/swing_layouts.htm">http://www.tutorialspoint.com/swing/swing_layouts.htm</a>
12 F2F	LO 1 LO 2 LO 3	Introduction to Database - Relational Database System - SQL Introduction - Database Manipulation - JDBC	- Introduction to Database - Introduction to JAVA programming : comprehensive version, Chapter 37 - Introduction to Database, <a href="http://www.docs.oracle.com/javase/tutorial/jdbc/overview/index.html">http://www.docs.oracle.com/javase/tutorial/jdbc/overview/index.html</a>
13 F2F	LO 1 LO 2 LO 3	Java Database Programming - Building Connection to Database - Query in Java - Prepared Statement - Developing Database Application Using JDBC	- Java Database Programming - Introduction to JAVA programming : comprehensive version, Chapter 37 - Introduction to Database, <a href="http://www.docs.oracle.com/javase/tutorial/jdbc/overview/index.html">http://www.docs.oracle.com/javase/tutorial/jdbc/overview/index.html</a>

**8. Evaluation**

**Theory**

Assessment Activity	Weight	Learning Outcomes		
		1	2	3
Assignment	20%	√	√	√
Mid Exam	30%	√	√	
Final Exam	50%	√	√	√

**Practicum**

-




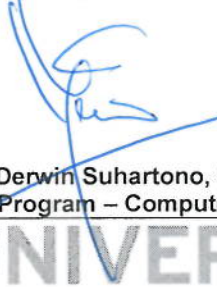
**Final Evaluation Score**

Aspects	Weight
Theory	100%
Practicum	0%

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 apply object oriented programming in Java Technology	Object oriented programming on Java technology completely constructed with solution case appropriate	Object oriented programming on Java technology completely constructed but solution case not appropriate	Object oriented programming on Java technology incompletely constructed and solution case not appropriate	Object oriented programming on Java technology inadequate constructed and solution case not appropriate
	1.2. Ability to identify and define the object oriented concept in Java Technology	Object oriented concept in Java technology is completely identified and clearly defined	Object oriented concept in Java technology is completely identified but not clearly defined	Object oriented concept in Java technology is not completely identified and not clearly defined	Object oriented concept in Java technology is inadequately identified and not defined
LO 2	2.1. Ability to identify and define graphical user interface component	Graphical user interface in Java technology is completely identified and defined	Graphical user interface in Java technology is somehow identified and defined	Graphical user interface in Java technology is not completely identified and defined	Graphical user interface in Java technology is inadequately identified and defined
	2.2. Ability to demonstrate graphical user interface programming on Java technology	Graphical user interface programming is completely demonstrated with correct solution case	Graphical user interface programming is completely demonstrated but applying incorrect solution case	Graphical user interface programming is incompletely demonstrated and applied incorrect solution case	Graphical user interface programming is not demonstrated
LO 3	3.1. Ability to demonstrate java graphical user interface with database	Java graphical user interface connect completely to database technology with correct solution case	Java graphical user interface connect completely to database technology with incorrect solution case	Java graphical user interface connect incompletely to database technology with incorrect solution case	Java graphical user interface is not connected to database technology with incorrect solution case

	3.2. Ability to demonstrate query data manipulation with database	Query data such as insert, update and delete are completely applied with correct syntax on the solution case	Query data such as insert, update and delete are not completely applied with correct syntax on the solution case	Query data such as insert, update and delete are not completely applied with incorrect syntax on the solution case	Query data such as insert, update and delete are inadequately applied
--	---	--	--	--	---

<p>Prepared by</p>  <p>D5872 - Harry Ham, S.Kom., M.Eng.</p>	<p>Checked by</p>  <p>D5872 - Harry Ham, S.Kom., M.Eng. Acting as Subject Content Specialist</p>
<p>Approved by</p>  <p>D5872 - Harry Ham, S.Kom., M.Eng. Acting as Subject Content Coordinator</p>	<p>Acknowledged by</p>  <p>D3690 - Derwin Suhartono, S.Kom., M.T.I. Head of Program – Computer Science</p>

BINUS UNIVERSITY