UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)
Course Syllabus

1	Course Title	Object Oriented Programming
2	Course Code	CSI 211
3	Trimester and Year	Spring 2018
4	Pre-requisites	CSI 121 Structured Programming Language
5	Credit Hours	3.0
6	Section	
7	Class Hours	
8	Class Room	
9	Instructor's Name	Tanjina Helaly
10	Email	tanjina@cse.uiu.ac.bd
11	Office	
12	Counselling Hours	
13	Text Book	Java The Complete Reference, Herbert Schildt
14	Reference	Head First Java(O'Reilly – Kathy Sierra & Bert Bates) Java: How to Program, 9th Edition (Deitel)
15	Course Contents (approved by UGC)	Object oriented fundamentals, Java Application, Java applets, Methods, Arrays, String & characters, Graphics & java2D, Basic graphical user interface components, Multithreading, Multimedia, Files & streams, JDBC, Servlets, RMI, Networking, Java beans.

| 16 | Course Outcomes (COs) |

COs	Description
CO1	Describe the Object Oriented Programming Features.
CO2	Apply the OOP features in solving programming problem.
CO3	Develop efficient and effective software applications.
CO4	Be able to use the Library effectively.

| 17 | Teaching Methods | Lecture, Case Studies, Project Developments. |

| 18 | CO with Assessment |

CO	Assessment Method	(%)

	Methods	-	Attendance	5
		1	Assignments	5
		1,2,3	Class Tests	20
		1,2,3,4	Midterm exam	30
		1,2,3,4	Final exam	40

19	**Mapping of COs and Program outcomes**

COs	Program Outcomes(POs)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	X											
CO2	X	X										
CO3	X	X	X									
CO4	X				X							

20	**Lecture Outline**

Class	Topics/Assignments	COs	Reading Reference	Lecture Outcomes/Activities
1	Introduction, Review of Programming, programming language, compiler	-	Slide	1. What Programming is? 2. Describe different types of programming. 3. Differentiate between Programming and Programming Language.
2	Introduction to OOP, Java basics(Why Java, Application Class, Main method, identifier)	CO1		1. What is Application class 2. Describe rules of java identifier. 3. Develop basic Hello World program.
3	Java Basics(data type, operator, control statement, array)	CO1	Chapter 3, 4, 5	1. Describe data type, operators, control statement. 2. Define what array is and why we use array. 3. Develop simple program using different types of data, operator and control statement.
4	Class and Object(Constructor, constructor overloading, Initialization	CO1	Chapter 6, 7	1. Describe what class and object are.

			block, this keyword, default value, member of class, create object and access member, getter/setter)			2. Describe who the members of a class are. 3. Able to create class and object and access members.
		5	Some Concepts: Scope of variable, ref variable, pass by value/reference, garbage collection, package, Library, access modifier.	C01	Chapter 6, 7, 9	1. Differentiate between normal and reference variable. 2. Explain Scope of a variable. 3. Describe the effect of pass-by-value and pass-by-reference. 4. Describe what is accessible from a specific point in regards to access modifier & package, 5. Describe how to use package and what the benefit of library is.
		6	**Assessment (CT1).** String Class and manipulation	CO4	Chapter 16	1. Able to create String object. 2. Able to do String manipulation via String class's method e.g. concatenation, substring, equals, toLower()…
		7	OOP Feature: Inheritance, this and super keyword, Object Class.	CO1, CO2	Chapter 8	1. Explain what inheritance is. 2. Describe what get inherited to child class and what can't be inherited. 3. Get familiar with Object class and some of its method.
		8	OOP Feature: Encapsulation, Method overloading)	CO1, CO2	Chapter 7	1. Explain what encapsulation and overloading are and where to use these features. 2. Describe importance of encapsulation and

					overloading.
					3. Able to develop code using encapsulation and overloading.
9	OOP Feature: Method Overriding, override equals() and toString() method.	CO1, CO2, CO3	Chapter 8		1. Explain what method overriding is and where to use this feature. 2. Describe importance of method overriding 3. Able to develop code using overriding.
10	Static & Final keyword, SubClass Polymorphism, Benefit of Polymorphism	CO1, CO2, CO3	Chapter 7		1. Describe what is static and final variable and method. 2. Explain the benefits
11	**Assessment (CT2).** Abstraction, Abstract Class, abstract method	CO1, CO2, CO3	Chapter 8		1. Explain what abstraction is & how to achieve abstraction.
12	Review				
	MIDTERM EXAM				
13	Interface- variables, methods, abstract class vs. interface	CO1, CO2, CO3	Chapter 8		1. Explain what interface is & how to declare an interface. 2. How can we use interface to achieve inheritance relationship.
14	Exception – try/catch/finally, nested try/catch, throw vs. throws, method stack	CO3, CO4	Chapter 10		1. Explain what Exception is. 2. Explain how to handle exception using try/catch block. 3. Explain how to throw an exception.
15	Checked/unchecked exception. User Defined Exception	CO3, CO4	Chapter 10		1. Differentiate between checked and unchecked exception. 2. Can create and use user defined exception.
16	**Assessment (CT3).** Nested Class-anonymous class, inner class, accessing variable and method of nested class.	CO1	Chapter 7		1. Explain and Apply Nested Classes: Local, Inner and Anonymous class concept.
17	GUI Basic – Components, Container, Layout	C03, C04	Chapter 31-33		1. Explain different components of GUI. 2. Create GUI application using different Layout

					and components.
18	GUI Event Handling- source, listener, event object. Steps to handle event. Handle multiple events	C03, C04	Chapter 24-26	1. Explain and apply the event handling process. 2. Develop GUI application involving multiple event handling.
19	IO- Streams, Buffering, File read/write	CO3, CO4	Chapter 20	1. Explain the IO model, buffering. 2. Able to develop application involve reading from/writing to file.
20	**Assessment (CT4).** Thread- What is thread, create and run thread, Runnable interface vs. Thread Class, Scheduling, Life Cycle and States	CO3, CO4	Chapter 11	1. Explain what Thread is. 2. Able to create and run Thread.
21	Thread- Synchronization, How to synchronize. Sleep(), join(), isAlive()..	CO3, CO4	Chapter 11	1. Able to synchronize among multiple threads.
22	Collections- framework, list, set, hashtable	CO3, CO4	Chapter 18	1. Explain the components of Collection framework. 2. Able to use the already defined Collection classes.
23	**Assessment (CT5).** Generics, Comparable, Comparator	CO3, C04	Chapter 18	1. Able to use Comparable, Comparator to compare the items in a Collection. 2. Able to create generic method.
24	Review			

Appendix 1: Assessment Methods

Assessment Types	Marks
Attendance	5%
Assignments	5%
Class Tests	20%
Mid Term	30%
Final Exam	40%

Appendix 2: Grading Policy

Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
			F (Fail)	<55	0.00

Appendix-3: Program outcomes

POs	Program Outcomes
PO1	An ability to apply knowledge of mathematics, science, and engineering
PO2	An ability to identify, formulate, and solve engineering problems
PO3	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
PO4	An ability to design and conduct experiments, as well as to analyze and interpret data
PO5	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
PO6	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
PO7	A knowledge of contemporary issues
PO8	An understanding of professional and ethical responsibility
PO9	An ability to function on multidisciplinary teams
PO10	An ability to communicate effectively
PO11	Project Management and Finance
PO12	A recognition of the need for, and an ability to engage in life-long learning