AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)

Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Undergraduate Program

COURSE PLAN

Spring 2019-2020 SEMESTER

I. Course Title

CSC 1205: Object Oriented Programming 1

II. Credit

3 Credits (2 hours theory and 3 hours Lab per week)

III. Nature

Core Course for CSE, CoE

IV. Prerequisite

CSC 1102 Introduction to Programming
CSC 1103 Introduction to Programming Lab

V. Vision:
Our vision is to be the preeminent Department of Computer Science through creating recognized professionals who will provide innovative solutions by leveraging contemporary research methods and development techniques of computing that is in line with the national and global context.

VI. Mission:
The mission of the Department of Computer Science of AIUB is to educate students in a student-centric dynamic learning environment; to provide advanced facilities for conducting innovative research and development to meet the challenges of the modern era of computing, and to motivate them towards a life-long learning process.

VII - Course Description:

- Developing classes and describe how to declare a class
- Creating Java technology applications that leverage the object-oriented features of the Java language, such as encapsulation, inheritance, polymorphism and abstraction
- Executing Java applications from the command line
- Using Java technology data types and expressions
- Using Java technology flow control constructs
- Using arrays
- Using the concept of package
- Implementation of error-handling techniques using exception handling
- Create an event-driven graphical user interface (GUI) using Swing components: panels, buttons, labels, text fields, and text areas
- Implement input/output (I/O) functionality to read from and write to data and text files and understand advanced I/O streams

VIII – Course outcomes (CO) Matrix:

By the end of this course, students should be able to:

		Level of Domain*				PO Assessed	Assessment Method
		C	P	A	S		

C: Cognitive; P: Psychomotor; A: Affective; S: Soft-skills (CT: Critical Thinking, TS: Teamwork)
**The numbers under the 'Level of Domain' columns represent the level of Bloom's Taxonomy each CO corresponds to.*
*** The numbers under the 'PO Assessed' column represents the PO that each CO corresponds to. Following is the list of the PO the will be assessed:*

PO Assessed				

IX – Topics to be covered in class*:

TOPICS	Specific Objective(s)	Time Frame	Suggested Activities	Teaching Strategy(s)	CO mapped
Introduction to Java Language, Java technology, Java development Environment	Knowing Mission & Vision of AIUB. Understanding Java Language, java development platform and demonstrate the system setup for Java. Develop First Java application.	Week 1	Theory: Lecture LAB: Java Environment Setup, Compilation & Execution, and develop simple class using java	Lecture notes, question-answer session.	
Data Types, Type Casting, Array, String, Loop	Knowing different type of variables, their size, value ranges, default value, wrapper classes and casting from one type to another. Declaring an Array and accessing it Familiarizing with different String Operation	Week 2	Theory: Lecture LAB: Develop simple class to demonstrate data types, type casting, variable types and Array. Take Input from Command Line	Lecture notes, question-answer session.	

Class, Object, Constructors, Methods, Static Keyword	Understanding the concept of Class and Object. Learning about constructors Learning about java methods. Learning about static variable and static method.	Week 3	Theory: Lecture LAB: Develop simple classes with constructors and methods	Lecture notes, question & answer session. Declare Quiz	
OOP Principle: Encapsulation, Usage of User Defined Package	Get familiarized with the concept of encapsulation, setter-getters, access modifiers and their visibility. Understanding user defined packages along with its importance.	Week 4	Theory: Lecture LAB: Develop simple classes to show the visibility of different access modifiers	Lecture notes, question & answer session. Take Quiz	
OOP Principle: Inheritance	Understand the concept of Inheritance Constructor Chaining The keyword this and super.	Week 5	Theory: Lecture LAB: Develop simple classes to demonstrate inheritance	Lecture notes, question-answer session. Declare Quiz	
OOP Principle: Inheritance Contd.	Single, Multilevel, hierarchical, IS-A relationship, HAS-A relationship.	Week 6	Theory: Lecture LAB: Lab Exam	Lecture notes, question-answer session. Take Quiz	
Midterm Week Week 7					
OOP Principle: Polymorphism	Understanding the concept of Polymorphism Constructor Overloading, Method Overloading, Method Overriding, Polymorphic behavior of Objects The final keyword	Week 8	Theory: Lecture LAB: Develop classes to illustrate method overloading, method overriding and polymorphic behavior of objects.	Lecture notes, question-answer session	
OOP Principle: Abstraction, Interface	Understanding the concept of Interface Learn the importance of Interface	Week 9	Theory: Lecture Lab: write a program using the concepts of interface and abstractions.	Lecture notes, question-answer session	

Exception Handling	Learning the difference between error and exception. Knowing about different types of exceptions. Understanding the concept of exception handling.	Week 10	Theory: Lecture LAB: Develop classes to show different exception handling approaches	Lecture notes, question-answer session. Take Quiz	
Introduction to Java GUI and different GUI components, Java Event handling	Identify and use Java swing libraries, basic classes for developing GUI application. Get familiarized with event handling interfaces in Java.	Week 11-12	Theory: Lecture LAB: Develop simple Java swing applications	Lecture notes, question-answer session. Declare Quiz	
File I/O	Input/output (I/O) functionality to read from and write data to text files	Week 13	Theory: Lecture LAB: Develop classes to read from a text file and write in another one	Lecture notes, question-answer session. Declare Quiz	
Final term Week Week 14					

* The faculty reserves the right to change, amend, add or delete any of the contents.

X- Course Requirements*

At least **80% class attendance** and attending at least one quiz in each term is necessary to sit for the midterm exam or final term project defense. Make up for quiz might be arranged if proper medical documents are submitted and approved from the head of the department.

If any assignment is given, the students have to submit it before the deadline. Late submission of assignments might be accepted in emergency cases with some deduction of marks.

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XI – Evaluation & Grading System

The following table shows the evaluation criteria for this course:

Marking System for Mid Term		Marking System for Final Term	
Attendance & Performance	10	Attendance & Performance	10
Quiz (Best 1 out of 2)	30	Quiz (Best 1 out of 2)	30
Lab Tasks	20	Lab Tasks	20
Lab Exam	10	Mini Project/Assignment	30
Mid Term Exam	40	Viva	10

Total	**100**	**Total**	**100**

	l Term

The following table is a reference to AIUB Grading Policy:

Letter	Grade Point	Numerical %
A+	4.00	90 - 100
A	3.85	85 - < 90
B+	3.50	80 - < 85
B	3.25	75 - < 80
C+	3.00	70 - < 75
C	2.75	65 - < 70
D+	2.50	60 - < 65
D	2.25	50 - < 60
F	0.00	< 50 (Fail)

XII – Teaching Methods

Majority of the topics will be covered from the textbook. For the rest of the topics, reference books will be followed. Lectures notes will be uploaded in the VUES course page. White board will be used with multimedia projector for the convenience of the students.

XIII – Textbook/ References

1. Java Complete Reference, 7th Edition, By Herbert Schildt.
2. A Programmer's Guide to Java® SE 8 Oracle Certified Associate (OCA), Khalid A. Mughal.
3. Java How to Program Java, 9th Edition, By Deitel and Deitel.
4. The Java Language Specification, By J. Gosling, B. Joy, G. Steele, G.Bracha and A. Buckley
5. Introduction to Programming Using Java, 6th Edition, By David j. Eck
6. Head First Java, By Kathy Sierra and Bert Bates
7. The Java Tutorials. http://docs.oracle.com/javase/tutorial/

XIV - List of Faculties Teaching the Course

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XV – Verification:

Prepared by : ---------- Date:.....	Checked and certified by: ..... (Head of Department) Date:.....	Approved by: ..... (Dean of Faculty of Science and Technology) Date:.....
	Moderated by : ……. Date : ……..	Moderated by : ……. Date : ……..