Course Objective and Outcome Form
Department of Electrical and Computer Engineering
School of Engineering and Physical Sciences
North South University, Bashundhara, Dhaka-1229, Bangladesh

1. **Course Number and Title:** CSE215 Programming Language II
   CSE215L Programing Language II Laboratory
2. **Number of Credits:** 3 + 1 = 4 Credits
3. **Type:** Required, Engineering, Lecture + Lab
4. **Prerequisites:** CSE115 Programming Language I
5. **Contact Hours:** Lecture – 3 Hours/Week, Lab – 3 Hours/Week
6. **Course Summary:**

   This course introduces the basic concepts and techniques of object-oriented programming. Programs are written by applying object-oriented programming concepts and using an OOP language. Java is primarily chosen as the programming language in this course. The following topics are covered in this course: Java syntax with elementary programming, primitive data types, strings, operators, statements, arrays and methods, introduction to OOP, classes and objects, constructor, polymorphism, abstract classes and interfaces, file IO operations, exception handling, GUI, multithreading, generics and related concepts.

7. **Course Objectives:**

   The objectives of this course are

   a. to become use to the basics of elementary programming such as variables, conditional and iterative execution, arrays and methods in Java;
   b. to understand the attributes of object oriented programming (encapsulation, polymorphism, etc.) and concepts of OOP such as method overloading, method overriding, static and dynamic binding, abstract class, interface, visibility modifiers;
   c. to design a programming solution using the object oriented programming concept, and apply the concepts of exception handling, graphical user interface (GUI), event-driven programming, multi-threaded programming, generics in Java;
   d. to introduce Java SDK and Java IDE tools to develop Java applications with debugging;
   e. to work in a project team to support as a team member to develop applications.

8. **Course Outcomes (COs):**

   Upon Successful completion of this course, students will be able to:

Sl.	CO Description	Weightage (%)
CO1	**Explain and apply** the attributes of object oriented programming (encapsulation, polymorphism, etc.) and concepts of OOP such as method overloading, method overriding, static and dynamic binding, abstract class, interface, visibility modifiers, as well as IO operations, exception handling, etc.	60%
CO2	design a programming solution using the object oriented programming concept, and apply the concepts of exception handling, graphical user interface (GUI), event-driven programming, multi-threaded programming, generics in Java;	10%
CO3	use Java SDK and Java IDE tools to develop Java applications with debugging;	25%
CO4	support as a team member to develop applications as a project team;	5%

9. **Mapping of CO-PO:**

Sl.	CO Description	POs	Bloom's taxonomy domain/level	Delivery methods and activities	Assessment tools
CO1	**Explain and apply** the attributes of object oriented programming (encapsulation, polymorphism, etc.) and concepts of OOP such as method overloading, method overriding, static and dynamic binding, abstract class, interface, visibility modifiers, as well as IO operations, exception handling, etc.	**a**	Cognitive/ Understand+ Apply	Lecture	Mid, Final
CO2	**Design** a programming solution using the object oriented programming concept, and apply the concepts of exception handling, graphical user interface (GUI), event-driven programming, multi-threaded programming, generics in Java	**c**	Cognitive/ Create	Lecture	Project
CO3	**Use** Java SDK and Java IDE tools to develop Java applications with debugging	**e**	Cognitive/ Apply	Lecture	Lab-work

CO4	**Support** as a team member to develop applications as a project team	**i**	Affective/ Attitude	Lab	Project presentations/ Survey

10. **Resources**

Text books:

No	Name of Author(s)	Year of Publication	Title of Book	Edition	Publisher's Name	ISBN
1	Y. Daniel Liang	2015	Intro to Java Programming, Comprehensive Version	10th	Pearson	ISBN-13: 9780133813463

Reference books:

No	Name of Author(s)	Year of Publication	Title of Book	Edition	Publisher's Name	ISBN
1	Herbert Schildt	2017	Java: The Complete Reference	10th	McGraw-Hill Education	978-1259589331

Online resources:

Course slides are available in the course repository.
Java SE Development Kit 8 – Oracle website
NetBeans IDE (https://netbeans.org/)

11. **Weightage Distribution among Assessment Tools**

Assessment Tools	**Theory Weightage (%)**	**Lab Weightage (%)**
Class Performance	5	5
Assignment	10	10
Quizzes/Lab work	20	20
Midterm Exam	30	20
Final Exam	35	25
Term Project	-	20

12. **Grading policy:** As per NSU grading policy available in http://www.northsouth.edu/academic/grading-policy.html

13. **Topics covered and level of coverage (**Topic/Hours**):**

Course Topics	**Coverage**
Data types, Arithmetic and Boolean Expressions, Statements	3.0hrs
Loops and Conditional Statements	3.0hrs
Arrays and Multidimensional Arrays	3.0hrs
Methods, Method Overloading	3.0hrs
Classes & Objects	4.5 hrs
Inheritance and Polymorphism	4.5 hrs
Abstract Classes and Interfaces	1.5hrs
Exception Handling	1.5hrs
Graphical User Interfaces and Java 2-D Game Development	6.0hrs
File I/O	3.0 hrs
Generics and Multithreading	3.0hrs