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 Programming 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. Actual computer programs are constructed by apply 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, handling exceptions in Java, 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	apply the basics of elementary programming such as variables, conditional and iterative execution, arrays and methods in Java;	10%
CO2	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;	30%
CO3	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;	30%
CO4	use Java SDK and Java IDE tools to develop Java applications with debugging;	25%
CO5	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	**Apply** the basics of elementary programming such as variables, conditional and iterative execution, arrays and methods in Java;	**a**	Cognitive/Apply	Lecture	quiz/ exam/ lab
CO2	**Explain** 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;	**a**	Cognitive/ Understand	Lecture	quiz/ exam/ lab
CO3	**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	Exam / Lab / Project
CO4	**Use** Java SDK and Java IDE tools to develop Java applications with debugging;	**e**	Cognitive/Apply	Lecture	Lab/ Project

CO5	**Support** as a team member to develop applications as a project team;	**i**	Affective/ Attitude	Lab	Project / presentation

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	5	10
Quizzes	20	20
Midterm Exam	30	20
Final Exam	40	25
Term Project		20

12. **Grading policy:** As per NSU grading policy available in

http://www.northsouth.edu/academic/grading-policy.html