North South University (NSU)
Department of Electrical and Computer Engineering
CSE 215: Programming Language II
Fall 2020 (September ~ December, 2020)

Course Instructor: Dr. Mohammed Shafiul Alam Khan
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University of Dhaka, Dhaka -1000, Bangladesh

Class Hours: Sunday and Tuesday (09:40 AM – 11:10 AM and 01:00 PM – 02:30 PM)

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Overview of the Course

This is a more traditional programming course for computer science majors and other students with deep interest in the subject. This course introduces the basic concepts and techniques of object-oriented programming. Actual programs are constructed using one or more high level languages with emphasis placed on the concepts introduced in the previous course. Java is primarily chosen as the programming language in this course. Reusability, readability, and documentation are also strongly stressed. This course has mandatory laboratory sessions every week.

Learning Outcomes

Upon the completion of the course, the students should:

- Possess a solid understanding of important concepts for object-oriented programming.
- Learn the required skill to use an object-oriented programming language to solve practical problems.
- Gain the ability to learn new object-oriented programming language quickly.
- Write programs using graphical user interface (GUI) components and Java's Event Handling Model.

Course Content

- Introduction: programming and types of programming languages, example programming languages, how object-oriented programming (OOP) differs from structured programming, examples of OOP languages, history of Java, setting up working environment with Java, how Java works, Java IDE, bytecode and JVM
- Language basics: identifier, keyword, primitive data types, operators: bitwise operators, arithmetic operators, assignment operators, relational and logical operators; standard programming style and documentation
- Control flow structure: if-else, switch, and loops
- Functions / method fundamental: signature of a function, user-defined methods, function

overloading, Java package/library methods.

- Object-Oriented Programming (OOP) basics: classes and objects, instance variables and instance methods, member access modifiers: public, private, protected; constructors, overloaded constructors, set and get method for accessing private data, final instance variables, UML to represent OOP design, garbage collection, static class members and methods, this operator.
- Array and String in Java
- Feature of OOP: abstraction, encapsulation, inheritance, polymorphism, super class, subclass, dynamic method binding, overloading and overriding methods, abstract class, interfaces.
- File Input Output in Java
- Exception handling
- Example Java packages, i.e. Graphical User Interface (GUI) programming in Java

Lab Activities

Lab manual will be provided separately in Lab class.

Required Text and Materials

- Java: The Complete Reference, by Herbert Schildt
- Introduction to Java Programming by Y. Daniel Liang

Reference Text and Materials

- Java How to Program, by Paul Deitel, Harvey Deitel
- Introduction to Programming in Java – MIT Open Course Ware (https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-092-introduction-to-programming-in-java-january-iap-2010/index.htm)

Assessment and Grading Policy

The components in evaluation are as follows.

Assessment Tools	Weightage (%)
Class attendance	10%
Class performance and participation	5%
Assignments	15%
Project demonstration and presentation	15%
In class exams	25%
Final exam	30%

Final Grade will be calculated as per University rules which is as follows,

Numerical Scores	Letter Grade	Numerical Scores	Letter Grade	Numerical Scores	Letter Grade
93 and above	A	80 ~ 82	B-	67 ~ 69	D+
90 ~ 92	A-	77 ~ 79	C+	60 ~ 66	D
87 ~ 89	B+	73 ~ 76	C	Below 60	F
83 ~ 86	B	70 ~ 72	C-		

Class Policy

Assignments: There will be several home works/ assignments throughout the semester. **No late submission will be accepted.** To be successful in the exam, you should solve homework problems independently, although you may discuss with your friends to understand a more comprehensive picture of the problems.

Class Project: Students need to form a group of 4 to 5 participants for class project. Every group will present their project proposal on the 5th week of the course and modify the proposal based on the instructor's feedback. Final project demonstration and presentation will take place on the last week of the semester.

Class Performance: Students are required to attend all classes. **Recovering missed lecture content or assignment information is the responsibility of the student**. Office appointments will not be used to substitute for class attendance. Prior to class, reading assignments must be completed and **any other assignments must be submitted at the beginning of the class period**. Asking questions, participation in class activities, including discussion groups and in-class assignments, is a component of class performance. Failure to prepare and participate effectively will negatively impact the learning processes devised for the class.

General Course Administration: The class presentations will be interactive lectures. Instructor will provide lecture slides after the lecture sessions. Lecture slides are also accessible through Google Drive link (*https://drive.google.com/drive/folders/1Uy-d2V8OqaZ5gBgz6e7EtNUyYO6qB4ud?usp=sharing*).

Academic Honesty: Any means of unauthorized assistance in preparing materials that a student submits as original work is deemed to be cheating and constitutes grounds for disciplinary action. Instructors are expected to use reasonably practical means of preventing and detecting cheating. Any student judged to have engaged in cheating might receive a reduced grade for the work in question, a failing grade in the course, or such other lesser penalty, as the instructor deems appropriate. Serious instances may be referred to the Disciplinary Committee in the Office of the Vice Chancellor.

Best of Luck!!