**LEAD CITY UNIVERSITY**



***Faculty of Basic Medical and Applied Sciences***

***Department of Computer Science***

# COURSE PARTICULARS

## Course Code: CSC 211

## Course Title: Computer Programming II (Java)

## No. of Units: 3 Status: Compulsory

## Semester: Second

## Session: 2019/20

# LECTURERS DETAILS

## Name: Mr. O. D. Ogunsanwo

## Qualifications: MSc. Computer and Information Science,

## BSc. Computer Science,

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## Area of Specialization: Information Technology / Computer Security and Database.

**Course description:**

This course is designed to introduce students to fundamental knowledge of programming concept, including the study of a Scripting independent language concepts and the realization of those concepts using Java Programming Language.

**Course Objectives**

1. To develop a basic understanding of general programming and the difference between Java and other programming languages.
2. To familiarize with the basic concept of java programming.
3. To develop a basic understanding on the major features and functions of java programming language.
4. To define the terminology, features, classifications, Structures and characteristics embodied in Java Programming.
5. To develop a basic understanding on how to analyze an information problem and develop a Java Program to solve them.

**Course Outline**

|  |  |
| --- | --- |
| **Week** | **Topics to be covered** |
| 1. | Introduction to Java Programming Basics: Installing and Running java Applications, Typical structure of a java Program. |
| 2. | Fundamentals of Java Program and Development  Techniques concept |
| 3. | Java Class, Objects, Instance and Methods, and  Constructors. (Instance Variables) |
| 4. | Conditional Statement Structures, Pre-Conditional Statement (IF\_Else, Then\_Else, IF\_then\_Else, While\_Do etc) and Post – Conditional Statements (Do\_while, For loop etc). |
| 5. | Case and Select Statement Structure. |
| 6. | Continuous Assessment 1 |
| 7. | Introduction to Recursion Concept e.g. Using Factorials, Probability solutions- Permutations and Combinations. |
| 8. | Introduction to java Applets: creating, writing and running java applets, |
| 9. | Characters, Strings and Arrays |
| 10 | Inheritance (Multiple and Single) and Polymorphism, |
| 11 | Implementation and Java Program Practice: Implement various class Assignments, Develop mini-software  Projects with java. |
| 12. | Event Driven Programs, Data driven Programs,  Encapsulation. |
| 13. | Continuous Assessment II |
| 14. | Revision |
| 15. | Examination |

## Assessment Criteria

|  |  |  |
| --- | --- | --- |
| **S/No** | **Components** | **Percentage of total mark** |
| 1. | Test/Class assignments | 10 |
| 2. | Practical | 20 |
| 3. | Attendance | 10 |
| 4. | Exam | 60 |
|  | Total | 100% |

## RECOMMENDED TEXTBOOKS

1. Java for Beginners 2nd Edition by S.O Akinola
2. Java, How to Program, 10th Edition by H.M. Deitel and P.J. Deitel
3. Java from the Beginning by Jan Skansholm.
4. Introduction to Java Programming, fourth edition by Y. Daniel Liang.
5. Teach Yourself java in 21 days by Laura Lemay and Charles L. Perkins

## ON-LINE LIBRARY

1. [www.sunjava.com](http://www.sunjava.com/)
2. [www.unesco.com](http://www.unesco.com/)
3. [www.sams.net](http://www.sams.net/)

## TUTORIAL QUESTIONS WITH MARKING GUIDE

**QUESTION 1**

1. Give 3 differences between Java Programing language as an object-oriented programming language and any typical procedural language of your choice. 3 marks
2. Using the concept of Java methods, write a Java application that solves the Permutation

problem i.e. nPr 9 marks

1. Give 3major advantages you can infer from using method in the program you wrote in (b)

3 marks

**QUESTION 2**

1. A class can be visualized as a three-segment box. With aid of a diagram, explain element of each segment. 5 marks
2. Write a class “Rectangle. Class” in Jxvg ;p,’n v,nava and also a class named “RectangleTest” to test the workability of the Rectangle class. 5 marks each = 10 marks

**QUESTION 3**

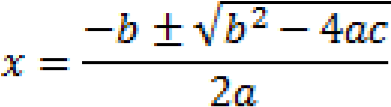
1. Define the term Inheritance 2marks
2. State Four (4) major Advantages of Inheritance. 4 marks

(c ) Write a Java class that can be used to capture Patient records in a modest Clinical

Information System. 9 marks **QUESTION 4**

1. There are three aspects to consider when writing your own class.

i. Briefly explain them and 3 marks ii. write a syntax for calling a class in Java. 2 marks

1. Write a Java program, **using a class** to compute the roots of any quadratic equation whose model equation is:

10 marks

**QUESTION 5**

1. Briefly explain each of the following Java class members:
   1. Field (ii) Method (iii) Constructor 2marks each = 6 marks
2. Write a simple java program to compute
   1. Nth term (**4 marks**) and (ii) Sum of Nth term of an A.P series (**5 marks**)

9 marks

**QUESTION 6**

(a) What is a Java applet? and how is it different from Java application 5 marks (b) Develop an applet that reads in:

i. the radius of circle ii. draw its diameter, iii. area and

iv. circumference. 2.5 marks each = 10 marks

**QUESTION 7**

1. Briefly explain 4 advantages of using methods in programs 8 marks
2. Develop an applet that draws “You are welcome to LCU Java Applet World” on the

screen. 7 marks

**QUESTION 8**

1. Differentiate and State the similarities between the following

(i) Class variable vs Variable (ii) Constructor vs Method

(iii) Java Applet and Java Application 2marks each = 6 marks

1. Using the IF\_then Else Statement, write a java snippet code for the class CGPA. Also write a test program (called CGPA) to test all the methods defined in the class.

9 marks

**QUESTION 9**

1. Define the term Encapsulation? 2 marks
2. Discuss two (2) major Advantages of Encapsulation. 6 marks

(c ) Write a Java program to find all substrings of any given string and the prints them.

7 marks

**QUESTION 10**

1. Write a Java control structure method to return the factorial of a number, n. 5 marks
2. An applet container expects every Java applet to have methods named ***init, start, paint, stop and destroy***. Briefly explain each. 2 marks each = 10 marks **QUESTION 11**
3. (i) Define the term Polymorphism 2marks

(ii) Implement Polymorphism with a class/program example. 5 marks

1. Consider the following program segment/snippet:

String partofAnthem = **“knowledge for self-reliance”** Write Java snippet to:

i) Get the total length of the string. ii) Get the character at position 12 iii) Print out only ***“self-reliance”***  iv) Reverse string.

2 marks each = 8 marks