



BCA Semester II

BCA201: Object Oriented Programming Using Java

Credit: 04, IA Marks: 25, ESE Marks: 75

Lectures: 45 Hours, Tutorial: 15 Hours

OBJECTIVES OF THE COURSE:

1. To understand Object Oriented Concepts using Java Language.
2. To develop, debug and document programs in Java using OOP paradigms.
3. To develop and deploy applications and applets in JAVA.
4. To develop and deploy GUI using JAVA Swing and AWT.

UNIT-I

Lectures: 11

Object Oriented Programming: Introduction of OOPS, basics of OOP, fundamental characteristics of OOP, benefits of object-oriented programming, applications of OOP, Introduction to Programming Languages, The Evolution of Java, Object-Oriented Programming Concepts and Java,

Java Programming: The Primary Characteristics of Java, The Architecture, Programming with Java, Data types, control structured, arrays, strings.

UNIT-II

Lectures: 11

Objects, classes, and methods, Constructing objects, Accessor and mutator methods, object references. **Java classes:** Abstract classes, static classes, Inner classes, Wrapper classes, static methods, static field, scope, introduction to strings, string tokenization, methods, method overloading, constructor overloading, use of this keyword, use of to String () method, arrays.

UNIT-III

Lectures: 11

Extending Classes and Inheritance: Use and Benefits of Inheritance in OOP, Type of Inheritance in Java, Inheriting Data Members and Methods, Role of Constructors in inheritance, Overriding Super Class Methods, Polymorphism, Type Compatibility and Conversion, Implementing interfaces.

UNIT-IV

Lectures: 12

Exception Handling: Importance of exceptions, throwing exceptions, checked and unchecked exceptions.

Files and Streams: streams, readers, and writes, reading and writing text files.

Database Connectivity: JDBC architecture Establishing connectivity and working with connection interface, Creating, and executing SQL statements.

Java applets, AWT controls (Button, Labels, Combo box, list and other Listeners, menu bar) layout manager, string handling (only main functions), Introduction to JAVA Swing, Event Handling.



Course Outcome: After successful completion of this course students will be able to:

S. No.	Course Outcome	Bloom's Taxonomy
1	Understand structure and model of the Java programming language Understand	K1
2	Analyze and develop exception handling and multithreaded programs Analyze	K3
3	Design and Develop GUI based applications using AWT & Swing Create	K4, K5
4	Apply knowledge of JDBC to create programs for establishing database connectivity.	K5, K6

Suggested Readings:

1. Patrick Naughton and Herbertz Schildt, “Java-2 The Complete Reference”, TMH.
2. E. Balagurusamy, Programming With Java: A Primer, TMH.
3. Shelley Powers, “Dynamic Web Publishing”, Techmedia.
4. Ivor Horton, “Beginning Java-2” SPD Publication.
5. Jason Hunter, “Java Servlet Programming” O’Reilly



BCA Semester II
BCA202: Statistics

Credit: 04, IA Marks: 25, ESE Marks: 75
Lectures: 45 Hours, Tutorial: 15 Hours

OBJECTIVES OF THE COURSE:

1. To understand the scope of statistics and concept of population, sample and data condensation.
2. To learn the concept of measures of central tendency and dispersion.
3. To know the concept of correlation and regression.
4. To get the idea and applications of permutations and combinations.
5. To learn about sample space, events and probability.
6. To know the concept of statistical quality control.

UNIT-I

Lectures: 11

Population, Sample and Data Condensation: Definition and scope of statistics, concept of population and sample with Illustration, Raw data, attributes and variables, classification, frequency distribution, Cumulative frequency distribution. Bar chart, Pie Chart and Histogram.

UNIT-II

Lectures: 11

Measures of Central Tendency and Dispersion: Concept of central Tendency, requirements of a good measure of central tendency, Arithmetic mean, Median, Mode, Harmonic Mean, Geometric mean for grouped and ungrouped data.

Concept of dispersion, absolute and relative measure of dispersion, range, mean deviation from mean, standard deviation, variance, coefficient of variation.

UNIT-III

Lectures: 11

Correlation, Regression, Permutations and Combinations: Correlation, Karl Pearsons correlation coefficients, Rank correlation coefficients, Regression lines, Properties of regression coefficients. Permutations and Combinations: Permutations of 'n' dissimilar objects taken 'r' at a time (with or without repetitions). $nPr = n!/(n-r)!$ (without proof). Combinations of 'r' objects taken from 'n' objects, $nCr = n!/(r!(n-r)!)$ (without proof), Simple examples and applications.

UNIT-IV

Lectures: 12

Sample space, Events, Probability and Statistical Quality Control: Experiments and random experiments, Ideas of deterministic and non-deterministic experiments, Definition of sample space, discrete sample space, events, Types of events, Union and Intersections of two or more events, mutually exclusive events, Complementary event, Exhaustive event, Simple examples, Classical definition of probability, Addition theorem of probability without Proof (upto three events are expected), Definition of conditional probability Definition of independence of two events, simple numerical problems.

Statistical Quality Control: Introduction, control limits, specification limits, tolerance limits, process and product control, Control charts for X and R, Control charts for number of defective {n-p chart}, control charts for number of defects {c - chart}.



Course Outcome: After successful completion of this course students will be able to:

S. No.	Course Outcome	Bloom's Taxonomy
1	CO1. Describe and discuss basics of statistical analysis, concepts of population, sample and data condensation. Calculate and interpret concepts of central tendency and dispersion.	K1, K2
2	CO2. Ability to interpret correlation and regression concepts and solve problems related to them.	K2, K3
3	CO3. Understand fundamentals of permutations and combinations and solve problems related to these techniques.	K2, K3
4	CO4. Demonstrate knowledge of basic concepts of sample space, events and Statistical Quality Control techniques. Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events.	K2, K3

Suggested Readings:

1. S.C. Gupta - Fundamentals of statistics - Sultan Chand & sons, Delhi.
2. D.N. Elhance - Fundamentals of statistics - Kitab Mahal, Allahabad.
3. Montogomery D.C. – Statistical Quality Control - John Welly and Sons
4. Goon, Gupta and Dasgupta - Fundamentals of statistics - The world press private ltd., Kolkata.
5. Probability theory and random process by S.P. Eugene Xavier, S. Chand & company Pvt. Ltd.
6. Mathematics and statistics by Ajay Goyal, Taxman Allied Service Pvt. Ltd.



BCA203: Lab: OOP using Java

Credit: 04, ESE Marks: 100

OBJECTIVES OF THE COURSE:

1. To implement Object Oriented Concepts using Java Language.
2. To develop and deploy applications and applets in JAVA.
3. To develop and deploy GUI using JAVA Swing and AWT, JDBC.
4. To develop and deploy web applications.

Following concepts should be implemented by using JAVA programming language.

- Class, object, abstract classes and interfaces.
- Overloading, overriding and various forms of inheritance.
- Create packages and multiple threads in Java.
- Input/output and Applets.
- Exception handling.
- String handling.
- Event handling (Mouse and Keyboard events).
- Layout Manager create different applications.
- Create and manipulate Text Area, Canvas, Scroll Bars, Frames and Menus using swing/AWT
- Client Server Interaction with stream socket connections.
- Read data from disk file.

Course Outcome: After successful completion of this course students will be able to:

S. No.	Course Outcome	Bloom's Taxonomy
1	CO1. To implement Object Oriented Concepts using Java Language.	K2, K3
2	CO2. To develop and deploy applications and applets in JAVA.	K2, K3
3	CO3. To develop and deploy GUI using JAVA Swing and AWT, JDBC.	K2, K3
4	CO4. To develop and deploy web applications.	K3, K4



BCA Semester II (SEC-2)

BCA204: Office Automation-II

Credit: 03, ESE Marks: 40, Practical Marks: 60
Lectures: 30 Hours, Practical: 30 Hours

OBJECTIVES OF THE COURSE:

1. To design the presentation using MS-Power Point.
2. To explore various features of MS-Access and its applications.

UNIT-I

Lectures: 07

MS-Power Point: Introduction to Presentation, Opening New Presentation, Different Presentation Templates, Setting Backgrounds, Selecting Presentation Layouts.

Creating a Presentation: Setting Presentation style, Adding text to the Presentation, Creating, Saving and Printing a presentation, Adding a slide to presentation, Navigating through a presentation, Slide-sorter, Slide-show.

UNIT-II

Lectures: 08

MS-Power Point: Formatting a Presentation: Adding style, Colour, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout.

Adding Graphics to the Presentation- Inserting pictures, movies, tables etc into presentation, Drawing Pictures using Draw.

Adding Effects to the Presentation: Setting Animation & transition effect.

Printing Handouts: Generating Standalone Presentation viewer.

UNIT-III

Lectures: 08

MS-Access: Data and information, Limitations of Manual Data Processing, Advantages of databases.

Introduction to MS-Access: Creating Tables, Modifying Table Structures, Data Entity, Edit, Delete, Importing and Exporting table.

Queries: Select Queries, Grouping, Parameters, Data Formatting, queries based on multiple sources, Cross Tab Queries, Action Queries, Make Table Queries, Append, Delete and Update Queries.

UNIT-IV

Lectures: 07

MS-Access: Forms and Reports: Forms—functions and uses, creating, modifying labels List Boxes, Dialog Boxes, finding data using form, managing table data using form, filtering data.

Reports: Creating, Modifying reports, Creating Reports, grouping data within a report, summarizing data in a report, formatting report detail and printing reports.



Course Outcome: After successful completion of this course students will be able to:

S. No.	Course Outcome	Bloom's Taxonomy
1	CO1. Acquire knowledge about MS-Power Point: new presentation, adding slides, working with presentation templates, setting styles, slide-show functionalities.	K1, K2, K3
2	CO2. Acquire knowledge about MS-Power Point: different formatting styles used in that, working with graphics and animation.	K2, K3
3	CO3. To understand MS-Access: concept of data and information, advantages of database.	K1, K2
4	CO4. Acquire knowledge about MS-Access: working with tables: creating, modifying, data manipulation, exporting tables, etc. and working with queries on tables. Acquire knowledge about MS-Access: working with reports and forms.	K2, K3

Suggested Readings:

1. MS-Office 2000 (For Windows) – By Steve Sagman.
2. Office 2007 – By Shelly, Cengage Publication.
3. MS-Office 2007 – Michael Price
4. Comdex windows 7 with Office 2010 – By Vikas Gupta, Dreamtech Press
5. MS-Office 2000 – No Experience Required, Courter G. and Marquis A., BPB Publications.
6. Working in Microsoft Office, Mansfield R., Tata McGraw Hill Edition.
7. Teach Yourself Microsoft Office 2000, Perry G., Techmedia.



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BCA 204 (SEC-2): Lab: Office Automation-II

MS-POWERPOINT: Creating, Editing, Formatting: font name, size, color, alignment, changing, Inserting table, picture, background, graph, symbol, hyperlink, object, diagram, Adding Graphics to the Presentation, Adding Effects to the Presentation, Setting Presentation style, templates.

MS-ACCESS: Creating database, table, querying tables, report. Insert, retrieve & edit data, working with Forms and Reports: modifying, creating, summarizing and managing them.