North Maharashtra University, Jalgaon

FACULTY OF COMMERCE & MANAGEMENT

Structure and Syllabus of –

Second Year BCA [Sem. III]

Bachelor of Computer Application (BCA)

W.E.F. Academic Year 2012-13

North Maharashtra University, Jalgaon

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FACULTY OF COMMERCE & MANAGEMENT

Bachelor of Computer Application [BCA] Sem -III

W.E.F. FROM ACADEMIC YEAR: 2012-13

Subject Code	Name	Marks
BCA – 31	Fundamentals Of Management & Micro Economics	100
BCA – 32	Information System Audit (ISA) & Numerical Methods	100
BCA – 33	Introduction to RDBMS	100
BCA – 34	Object Oriented Programming Using C++	100
BCA – 35	Practicals on ISA and Numerical Methods	100
BCA – 36	Practicals on RDBMS using Oracle D2K	100
BCA – 37	Practicals on C++	100

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FACULTY OF COMMERCE & MANAGEMENT

B.C.A. Semester III

BCA – 31   Fundamentals of Management & Micro Economics

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

1) Management   **Lecture- 8**

- a) Introduction
- b) Meaning, Nature and Characteristics Of Management.
- c) Scope And Functional Areas Of Management.
- d) Management As A Science, Arts Or Profession.
- e) Management / Administration.
- f) Principle of Management.
- g) Social Responsibility of Management And Ethics.

2) Functional Areas of Management   **Lecture- 16**

- a) Planning
    - i) Nature, Objectives and Importance Of Planning.
    - ii) Types Of Plans (In Brief Only).
    - iii) Planning Process
- b) Decision Making
    - i) Process /Steps Of Decision Making.
    - ii) Types Of Decision Making.
- c) Organizing
    - i) Principle Of Organization.
    - ii) Types Of Organization
    - iii) Authority- Responsibility.
    - iv) Span Of Control.
- d) Directing : Meaning And Nature
- e) Concept And Leadership Styles
- f) Motivation.
- g) Coordination & Control.
    - i) Meaning, Importance And Technique Of Co-Ordination.
    - ii) Nature And Scope Of Control.
    - iii) Types Of Control.
    - iv) Control Process.

3) An Introduction to the Market Economy   **Total: 6**

      (a) The Themes Of Microeconomics
      (b) Importance & Applicability Of Microeconomics To Actual Decision Making
      (c) Meaning Of Capitalist Economy &Its Features
      (d) Concepts Of Economic Agents
      (e) Supply & Demand: Meaning & Determinants
      (f) Elasticity Of Demand & Supply
      (g) Production & Cost Functions

4) Market   **Total: 8**

      a) Introduction - Concept Of Market
      b) Meaning, Features and Definition of "Market".
      c) Definition, Meaning and Features of Perfect Competition.
      d) Definition, Meaning and Features of Monopoly
      e) Definition, Meaning and Features of Oligopoly.
      f) Concept of Equilibrium.

5) Optimization Behavior of Economic Agents   **Total: 10**

      a) Meaning Of Optimization & Economic Agents
      b) Consumer's Optimization Of Satisfaction Ordinal Utility View
      c) Optimization Of Profit By Firm Under
          i)   Perfect Competition Market
          ii)   Monopoly Market
      d) Optimization Of Factor Earning By Factor Owner Under Perfect Competition Market

Recommended Books:

1. Principles Of Management: T. Ramasami, Himalaya Publication
2. Management :VSP, Rao & V. Harikrishna, Excell Books
3. Management: Reddy & Tripathi
4. Economics: Samuelson & Nourdus
5. Positive Economics: R.G. Lipsey
6. Micro Economics: N Gregory Mankiv

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B.C.A. Semester III

BCA – 32   Information System Audit (ISA) & Numerical Methods

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

1) Overview Of Information System Auditing   **Lectures:6**

   a)   Introduction

   b)   Need For Control And Audit Of Computers

   c)   Effects Of Computers On Internal Control

   d)   Effects Of Computers On Auditing

   e)   Foundations Of Information System Audit

2) Conducting An Information System Audit   **Lectures:8**

   a)   Introduction

   b)   Nature Of Controls

   c)   Audit Risks

   d)   Types Of Audit Procedures

   e)   Steps In An Audit

   f)   Auditing Around Or Through The Computer

3) Information System Audit Management   **Lectures:10**

   a)   Introduction

   b)   Managing The Information System Audit Function

   c)   Planning Function

   d)   Organising Function

   e)   Staffing Function

   f)   Leading Function

   g)   Control Information

h) Information System Audit Professionalism

i) Future Of Information System Auditing

Numerical Methods

4) Finite Difference Operators   **(5 Lectures)**

a) Definition Of Forward Difference Operator

b) Backward Difference Operator,

c) Shift Operator.

d) Statement Of Properties Of Difference Operators.

e) Relation Between Difference Operators (Without Proof)

f) Construction Of Difference Table.

g) Simple Numerical Problems.

5) Interpolation   **(8 Lectures)**

a) Meaning Of Interpolation

b) Assumptions Of Interpolation

c) Newton's Forward And Backward Interpolation Formulae Without Proof

d) Lagrange's Interpolation Formula Without Proof

e) Simple Numerical Problems

6) Numerical Integration   **(6 Lectures)**

a) Statement Of Trapezodial Rule, Simpson's 1/3 Rule And 3/8 Rule

b) Simple Numerical Problems

Reference Book

1. Information System Control And Audit, Ron Weber, Pearson

2. Business Mathematics: Sancheti & Kapoor, S. Chand Publication.

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B.C.A. Semester III

BCA – 33   Introduction to RDBMS

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

1) Database Systems

   a) Definition of DBMS & RDBMS
   b) File processing system Vs DBMS
   c) Limitation of file processing system
   d) Advantages and Disadvantages of RDBMS

2) Data Models

   a) Relational Model
   b) Network Model
   c) Hierarchical Model
   d) Entity Relationship Model
   e) Keys: Super, Candidate, Primary, Foreign Key, Entity Integrity, Referential Integrity, Integrity Constraints

3) Relational Database Design

   a) Introduction
   b) Normalization
   c) Normal Form:1 NF, 2 NF, 3 NF

4) Introduction to Oracle & Structured Query Language (SQL)

   a) Introduction to Oracle & SQL
   b) Data types in oracle, Operators in oracle, Working with tables.
   c) Introduction to DML, TCL, DDL, DCL, Integrity constraints.
   d) Functions in Oracle, Numeric Function, Character Function, Date Function, Conversion Function, Group Function

5) Sub Queries & Joins

   a) Sub Queries using correlated queries, view, Sequence,
   b) Set Operators, Joins, Inner joins, Equi, Non Equi, Self-join & Outer Joins

6) PL/SQL

   a) Introduction
   b) PL/SQL Blocks

c) Advantages of PL/SQL
d) Control Structures

7) Cursor

a) Implicit Cursors and Explicit Cursors

8) Triggers

a) Meaning and importance of trigger
b) Database trigger

9) Introduction to Developer 6i

a) Working with the Form Developer Environment
b) Designing and Running Forms
c) Designing and Running Reports
d) Using Menu

Reference Book:

1. Oracle PL/SQL by Example, Rosenweig, Pearson Education
2. Database System Concepts :- Abraham Silberschatz, Henry F. Korth & S. Sudarshan, McGraw-Hill
3. Oracle- D2K by Ivan Bayros

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B.C.A. Semester III

BCA – 34   Object Oriented Programming Using C++

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

1. Introduction and Features

Fundamentals of object oriented programming – procedure oriented programming vs. object oriented programming (OOP), Object oriented programming concepts – Structures, Classes, reusability, encapsulation, inheritance, polymorphism, dynamic binding, message passing

2. Language Constructs

Review of constructs of C used in C++ : variables, types and type declarations, user defined data types; increment and decrement operators, relational and logical operators; if then else clause; conditional expressions, input and output statement, loops, switch case, arrays, structure, unions, functions, pointers; preprocessor directives

3. Classes and Objects

Defining Objects, Array of Object, Creation, accessing class members, Private Vs Public, Constructor and Destructor, Types of Constructor

4. Member Functions

- Method definition
- Use of Friend
- Inline Implementation
- Constant member functions

5. Overloading Member Functions

- Concept, Need, Types of operator overloading
- Overloading Unary operators
- Overloading binary operators

6. Inheritance

Definition of inheritance, types of inheritance, single inheritance, hierarchical inheritance, multiple inheritance, hybrid inheritance, Accessing protected, private, public data, inheriting constructors, constructor for virtual base classes, constructors and destructors of derived classes, nesting of classes.

7. Pointers

Introduction, Creating Object pointer, this pointer, pointer arithmetic, accessing member using pointer

8. Polymorphism and Virtual Functions

Introduction, types, implementing early and late binding, virtual function, need for virtual functions, virtual base class, abstract base classes and pure virtual functions, virtual destructors

9. File and Streams

Concept of file, different operation of the file, Instruction to file streams classes, methods of file handling, header files, updating of file, opening and closing a file

RECOMMENDED BOOKS

1. C++: An introduction to programming by Jense Liberty Tim Keogh: BPB Publications, New Delhi
2. OO Programming in C++ by Robert Lafore: , Galgotia Publications Pvt. Ltd., Daryaganj, New Delhi
3. Object Oriented Programming Using C++, Sanjeev Sofat, Cyber Tech. Publication, New Delhi
4. Object Oriented Programming in C++ by E. Balaguruswamy, TMH Publishing Co. Ltd., New Delhi
5. C++ Primier by Stephen Parata , TMH Publishing Co. Ltd., New Delhi
6. C++ Primer by SB Lippman and J Lajoie; Addison Wesley (Singapore) Pvt. Ltd., New Delhi
7. Mastering C++ by KR Venugopal and Rajkumar, T Ravishankar; Tata McGraw Hill Publishing Co. Ltd., New Delhi
8. Object Oriented Data Structuring using C++ by KS Easwarakumar; Vikas Publishing House Pvt. Ltd., New Delhi
9. Programming in C and C++ by SS Khandare; S Chand and Company Ltd. New Delhi
10. Object Oriented Programming using C++ by B Chandra, Narosa Publishing House Pvt Ltd., Daryaganj, New Delhi 110002
11. Object Oriented Programming using C++ by R Rajaram , New age International (P) Ltd, Publishers New Delhi
12. Programming in C++ by N Dale, C. Weems and Headington, Narosa Publishing House Pvt Ltd., Daryaganj, New Delhi 110002

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B.C.A. Semester III

BCA – 35   Practicals on ISA and Numerical Methods

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

LIST OF PRACTICALS

Practical Course on ISA

Study any organization which is using information system for various organizational, computational and information security aspects. Also Identify information security threats and suggest remedies. Prepare study report. Group size is maximum 4 students.

Note - Exam will be conducted on the basis of study report

Practicals on Numerical Methods (BCA-35)

1. Construction Of Forward Difference Table.

2. Construction Of Backward Difference Table.

3. Problems based on Newton's forward difference formula.

4. Problems based on Newton's backward difference formula.

5. Problems Based On Numerical Integration.

6. Problems Based On Trapezodial Rule

7. Problems Based On Simpson's 1/3rd Rule

8. Problems Based On Simpson's 3/8th Rule

The above practical are to be performed using Matlab software

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B.C.A. Semester III

BCA – 36   Practicals on RDBMS using Oracle D2K

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

1. Create table, Insert Records and perform simple SQL

2. Create table with various constraints as PRIMARY KEY, REFERENCES KEY, and CHECK & NOT NULL Constraints

3. Write down SQL by using

  i.   GROUP BY
  ii.   HAVING CLAUSE

4. Write down SQL by using

  i.   Aggregate functions
  ii.   Date functions
  iii.   String functions

5. Write down PL/SQL for FOR, WHILE LOOP and IF.. END IF .

6. Write down PL for Implicit & Explicit cursors.

7. Create Simple Data Entry form.

8. Create Master Detail data entry Form

9. Design Simple Report.

10. Design Master Detail Report.

11. Design Matrix Report.

12. Design Labels.

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B.C.A. Semester III

BCA – 37   Practicals on C++

80 + 20 Pattern: External Marks 80 + Internal Marks 20 = Maximum Total Marks: 100

[Total Lectures: 48]

1. Write a program to demonstrate use of various operators.
2. Write a program to demonstrate use of constructor and destructor.
3. Write a program to demonstrate use of array manipulations.
4. Write a program to demonstrate use of string manipulations.
5. Write a program to demonstrate use of function overloading.
6. Write a program to demonstrate use of operator overloading.
7. Write a program to demonstrate use of inheritance.
8. Write a program to demonstrate use of friend function.
9. Write a program to demonstrate use of recursive function.
10. Write a program to demonstrate use of files