Aggarwal College Ballabgarh
A Post Graduate Co-educational College
(Affiliated to M. D. University, Rohtak)
NAAC Accredited 'A' Grade (CGPA: 3.40)

Diploma Course in Computer Applications

This programme contains six Certificate Courses and one Diploma Course.

- Certificate in Computer overview and programming structure and methodology
- Certificate in Working with MS Office 2013
- Certificate in Logic Building and Effective Problem Solving.
- Certificate in Information Systems and Common Business Processes
- Certificate in JAVA 7
- Certificate in Professional skills

Objectives

- Ability to get overview of the computers and program structure and methodology.
- Proficiency to Create documents, Analyze data and make presentations.
- Demonstrate the ability to learn Logic Building and Effective Problem Solving.
- Create deep focus on enterprise resource planning, sales and marketing and managing data using SQL.
- Familiarize students with the knowledge of object oriented programming language using Java.
- Helps students to; enhance their Interview handling skills, identify and develop knowledge and skills.

Benefits

- Core concepts of program structure and methodology which enables student to get basics of programming
- Create professional documents using Word, Analyze and manipulate data using Excel and create professional presentation using PowerPoint
- The Learner will be able to create flowcharts and write pseudo codes.
- This program imparts of information system and common Business Processes and Manage data using SQL
- Create object-oriented applications using Java The Programming in Java course is mapped with Oracle Certified Professional, Java SE 7
- Professional skills also include learning every aspect of a job and doing it to the best of one's ability.

Duration
400 Hours

Examination

Semester-1

Paper	Title of the paper
Paper-1	Introduction to computer and Operating System
Paper-2	Understanding Programming and Software Applications

Semester-2

Paper	Title of the paper
Paper-1	Fundamental of Data with Data Tools
Paper-2	MS Office Fundamental

Project
Project using Microsoft EXCEL 2013 and get presented using PowerPoint.

Semester-3

Paper	Title of the paper
Paper-1	Fundamental of Programming Part 1
Paper-2	Fundamental of Programming Part 2

Semester-4

Paper	Title of the paper
Paper-1	Introduction of programming component
Paper-2	Data Management System

Project:
Project using SQL data base

Semester-5

Paper	Title of the paper
Paper-1	Fundamental of Java
Paper-2	Data Structure with Java and Concurrency API

Semester-6

Paper	Title of the paper
Paper-1	Professional Skill Development Part 1
Paper-2	Professional Skill Development Part 2

Project
Project using Core JAVA

Final Certificate after successful completion of three years: Diploma in Computer Applications

SEMESTER: 1

Objective
This program will enable the students to get overview of the computers and program structure and methodology.

Benefit
Core concepts of program structure and methodology which enables student to get basics of programming

Duration
59 hours

Examination
Pen & Paper after completion of program

Course contents& Syllabus
Introduction to computer and Operating System – Paper 1

- Identify various computer systems
    - Mini computers
    - Micro Computers
    - Desktop computers
    - Laptop
    - Palmtop
    - Super computers
- Identify components of a PC system
    - Motherboard
    - Hard disk
    - Lan card
    - Pen drive
    - Floppy drive
    - CD Drive
    - Printers
    - Plotters
    - Keyboard
    - Monitor
    - Central Processing Unit
    - Mouse

- Identify types of files used to organize data
    -
- Work with Windows
    - User Interface
    - Graphical user interface
    - Character user interface
    - Desktop
    - My computers

- Folders and files
- Cut copy and paste.
- Work with Linux
  - Why Linux.
  - Properties of operating system.
  - Commands in Linux.
  - Graphical user interface in Linux.

Understanding Programming and Software Applications – Paper 2

- Use Internet and Social Networking media
  - How to use
  - Why to use.
  - Search engines
- Understand the need of Critical Thinking and Problem Solving in programming
  - What is Critical Thinking?
  - Why is critical thinking required?
  - Demonstration of critical thinking through practicals.
- Get acquainted with Digital Data
  - What is digital data and where we use it.
- Use algorithms for designing programs
  - Logic building.
  - Create flow charts .
  - Write pseudo codes.
- Identify and apply software testing techniques
  - What is a need to software testing?
  - Different tools of software testing.

- Work with MS word 13
  - Create Documents.
  - Open, Save documents.
  - Print documents.
  - Cut Copy Paste
  - Mail merge
  - Representing Data in Tabular form.
  - Inserting data from different sources.
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Certification
Certificate in Computer overview and programming structure and methodology

SEMESTER: 2

Objective
Create documents, Analyze data and make presentations

Benefit
Create professional documents using Word, Analyze and manipulate data using Excel and create professional presentation using PowerPoint

Duration
60 hours

Examination
Pen & Paper after completion of program

Course contents & Syllabus
Fundamental of Data with Data Tools – Paper 1

- Get introduced to IT Fundamentals and computer.
  - Recap of first semester.
- Work with MS Excel 2013
  - Worksheets and Workbook.
  - All functions.
  - Charts.
  - Pivot table.

MS Office Fundamental – Paper 2
- Work with MS Power Point 2013
  - Creating presentation.
  - Different views of slides.
  - Inserting clipart.
  - Animation in PowerPoint.
- Work with MS Outlook 2013
  - Configure Outlook.
  - Managing mails in different folders.
  - Usage of Calendar.
  - Usage of meetings.
- Get introduced to Digital Lifestyle.
  - What is digital lifestyle?

Certification
Certificate in Working with MS Office 2013

Project
Project using Microsoft EXCEL 2013 and get presented using PowerPoint.

SEMESTER: 3

Objective
The learner will be able to learn Logic Building and Effective Problem Solving
Benefit
The Learner will be able to create flowcharts and write pseudocodes.
Duration
70 hours
Examination
Pen & Paper after completion of program

Course contents & Syllabus
Fundamental of Programming Part 1 – Paper 1

- Identify the input and output requirements of a computer problem
  - What is input?
  - What is output?
  - Diagrammatic representation of input and output.

- Explain programs and programming languages
  - What is a program?
  - What is a programming language?
  - Different types of languages.
- Identify the various tools for problem solving
  - Input box
  - Output box
  - Start
  - Terminator.
  - Decision Box.
  - Flow of data.
- Solve problems using flowcharts
  - Represent log of the different problems using Flowcharts.
- Represent decisions and repetitive processes in a flowchart
  - Iterative Data.
  - Loops.

Fundamental of Programming Part 2 – Paper 2
- Solve problems using a pseudocode
  - What is a Pseudocode?
  - Representation of logic using pseudocodes.
- Use variables and constants
  - What is a variable and constants?
  - What is memory allocation?
- Identify data types
  - Different Data Types
  - Integer, character, float, double , string.
- Identify operators
  - Arithmetic operators.
  - Logical operators.
  - Boolean operators.

- Perform the conditional execution
  - If else conditions.

        o   When then

Certification
Certificate in Logic Building and Effective Problem Solving

SEMESTER: 4

Objective
This program focuses on enterprise resource planning, sales and marketing and managing data using SQL

Benefit
This program imparts of information system and common Business Processes and Manage data using SQL

Duration
66 hours

Examination
Pen & Paper after completion of program

Course contents & Syllabus
Introduction of programming component – Paper 1

- Implement iterative processes
    - Loops.
    - While loop.
    - Do while Loop.

- Implement modular programming
    - Functions.
    - Batches.
    - Procedures.

- Work with arrays
    - What is an array?
    - What is the difference between variable and Array.
    - Single dimensional Array
    - Double Dimensional Array.
    - Manipulate arrays using loops

- Understand Organization and their Business Processes
    - What is organization?

- o What are different business processes?
- Understand Information Systems
  - o What is information Systems?
  - o How to implement Information systems

- Identify the need of Enterprise Resource Planning
  - o Resource Planning.
  - o Enterprise resource planning.
- Manage Sales and Marketing Using Information Systems
  - o What is sales and Marketing?
  - o Why Sales and Marketing?
  - o How to implement Sales and Marketing using Information systems.

Data Management System – Paper 2

- Manage Production Using Information Systems
- Manage Logistics Using Information Systems
- Learn about Human Resource Management Using Information Systems
  - o What is Human Resource?
  - o What are the different Job roles of Human Resource?
  - o How we can manage Human Resources using Information Systems.
- Manage Financial Accounting Using Information Systems
  - o Idea of Financial Accounting?
  - o Different tools in Information
- Create Financial Statements.
  - o Tradding Account.
  - o Profit and loss Account.
  - o Balance sheet.
  - o Cash flow statement.
- Manage The Supply Chain Using Information Systems
  - o Subsidiary books.
- Learn about Data Models
  - o What is a Data Models.
  - o Different types of Data Models.
- Create Database Design
  - o What is a database?
  - o Create database.
  - o Manage database.
- Normalize and De-normalize Data
  - o What is normalization?
  - o Why to normalize data?
  - o Different forms of Normal Form.
- Manipulate Data in Tables
  - o What is a table?
  - o What is tupple?
  - o What is a field?
- Implement Indexes, Views, and Full-Text Search
  - o What is an Index?
  - o Why we need indexing.
  - o Different types of Indexes.
  - o Full-Text Search.

- o Why Views.
- Implement Stored Procedures and Functions
  - o Stored procedures.
  - o Stored procedures with input parameters.
  - o Stored procedures with Output Parameters.
  - o Functions
  - o Difference between function and stored procedure.
- Work with Triggers and Transactions
  - o Triggers.
  - o Different types of Triggers.
  - o Insert, update and delete Trigger.
- Monitor and Optimize Performance

Certification
Certificate in Information Systems and Common Business Processes

Project
Project using SQL data base

SEMESTER: 5

Objective

The objective of this course is to familiarize students with the knowledge of object oriented programming language using Java

Benefit

Create object-oriented applications using Java the Programming in Java course is mapped with Oracle Certified Professional, Java SE 7

Duration

77 hours

Examination

Pen & Paper after completion of program

Course contents & Syllabus

Fundamental of Java – Paper 1

- Get overview of Java
    - Java Programs Are Platform-Independent
    - Java SE Platform Versions
    - The Java Community, Open jdk
    - Class Structure , A Simple Class , Code Blocks , Primitive Data Types
    - Java SE 7 Numeric and Binary Literals
    - Strings and String operation , if-else
- Implement Operators
    - Logical Operators , Relational Operator, Arithmetic Operator

- Work with Conditional and Loop Constructs
    - Loop , for loop , while , do- while
    - Arrays and for-each Loop
    - String switch Statement
    - Class and Object, Method, Constructor , Creating an Instance of an Object
    - package Statement , import Statement
- Work with Arrays, Enums, and Strings
- Implement Inheritance and Polymorphism
    - Define Inheritance and Types of Inheritance
    - Abstract Class and Interface
    - Compile-time and Run-time Polymorphism
- Handle Errors and Events
    - Exception Categories , Exception Handling
    - The try-catch Statement , finally clause
    - Declaring and Throwing Exceptions
    - Layout Manager and Event Handling

- Work with Streams
    - Data Within Streams
    - Byte Stream Input Stream and Output Stream Methods
    - Character Stream Reader and Stream Writer Methods

- o Processing Streams
- o Writing to Standard Output , Reading from Standard Input , Channel IO
- o Persistence , Serialization and Object Graphs , Transient Fields and Objects

- Work with NIO Classes and Interfaces
  - o New File I/O API (NIO.2) , Limitations of java.io.File , File Systems, Paths, Files
  - o Relative Path Versus Absolute Path , Java NIO.2 Concepts
  - o Path Interface
  - o Removing Redundancies from a Path
  - o Creating a Subpath , Joining Two Paths , Creating a Path Between Two Paths

Data Structure with Java and Concurrency API – Paper 2
- Get Introduced to JDBC
  - o Using a Vendor's Driver Class
  - o Create Applications Using Advanced Features of JDBC
  - o Using a ResultSet Object , Controlling ResultSet Fetch Size
  - o ResultSetMetaData
  - o Using PreparedStatement , Using CallableStatement
- Apply Inner Classes and Type Casting
  - o Anonymous Inner Classes
  - o Nested Classes
  - o Autoboxing and Autounboxing
- Work with Regular Expression and Localization
  - o Pattern and Matcher
  - o Character Classes , Predefined Character Classes
  - o Quantifiers , Greediness , Boundary Matcher
  - o Why Localize?
  - o Locale , Resource Bundle , Resource Bundle File , Date and Currency
- Work with Generics
  - o Simple Cache Class Without Generics
  - o Generic Cache Class , Generics in Action , Generics with Type Inference Diamond
- Work with Collections
  - o Collection Types , List Interface
  - o Array List Implementation Class , Array List Without Generics
  - o Set Interface and classes
  - o Map Interface and classes

- Work with Threads
  - o The Thread Class , Extending Thread , Starting a Thread
  - o Implementing and executing Runnable
- Implement Thread Synchronization and Concurrency
  - o The java.util.concurrent Package
  - o The java.util.concurrent. Atomic Package
  - o The java.util.concurrent. Locks Package

Certification
Certificate in JAVA 7

SEMESTER: 6

Objective
This course will enable student to; enhance their Interview handling skills, identify and develop knowledge and skills

Benefit
Professional skills also include learning every aspect of a job and doing it to the best of one's ability
Business writing skills and ability to provide data in standard formats is a key skill, employers look for.

Duration
68 hours

Examination
Pen & Paper after completion of program

Course contents & Syllabus
Professional Skill Development Part 1 – Paper 1

- Effective Conversation.
  - Identify the importance of conversation in communication
  - Explain the stages in a conversation
  - Identify the constituents of a good conversation
  - Understand the techniques to improve conversation
  - Identify common errors in speech
  - Practice conversational skills tough role play
- Assertive Communication
  - Assess your assertive communication skills
  - Identify the features of assertive communication
  - Understand the techniques for assertiveness
  - Understand types of questions
  - Practice asking quality questions
- Written Communication
  - Identify the need of effective business writing
  - Understand the types of business writing
  - Appreciate and use five C's of effective writing
  - Identify and correct mistakes in writing
  - Identify how to make business writing effective
- Self-Presentation
  - Understand the concept and importance of first impressions
  - Understand the concept of 'self-brand'
  - Understand the importance of creating a visual identity
  - Understand grooming guidelines
- Working in Teams.
  - Understand teamwork and the importance of working in teams
  - Understand team roles and the responsibilities of a team member
  - Explain effective leadership
- Critical Thinking and Problem Solving
  - Apply critical thinking and problem solving techniques and processes

- o Summarise the process and conclusions derived
- o Perform project management activities to fulfil the requirement of the assigned project

Professional Skill Development Part 2 – Paper 2

- Health, Safety and Security
  - o Explain the need for workplace safety
  - o Explain the basic workplace safety guidelines
  - o Identify the common safety signs used
  - o Identify and address security teats and risks
- Planning and Prioritizing
  - o Explore the various strategies of effectively utilizing the available time
  - o Create an action plan to manage time
  - o Identify your role and responsibilities in carrying out your work
  - o Identify the need to plan and organize your work to achieve targets and deadlines
- Values and ethics concepts
  - o Understand the importance of business ethics
  - o Understand the importance of business values
  - o Identify the role of business values on quality and business growth
  - o Evaluate what is responsibility and how to become responsible
  - o Apply the guidelines for showing respect and maintaining integrity
- SWOT and Self-Awareness
  - o Recognize personal strengths and weaknesses
  - o Understand Personal Quality Initiative (PQI)
  - o Create a self-development plan
- Providing Data in Various Formats
  - o Understand the importance of presenting data in professional life
  - o Identify the guidelines when presenting data
  - o Identify the tools used to present and report data
  - o Identify the different formats and reporting types used in professional life
- Develop your knowledge, skills, and competence
  - o Provide data/ information in standard formats
  - o Identifying training needs
  - o Understanding Organization Policies and Procedures
  - o Aptitude Test practice
- Understanding Organization Policies and Procedures
  - o Understand the need of organization policies and procedures
  - o Identify the common policies and procedures used in organizations

Certification
Certificate in Professional skills

Project
Project using Core JAVA