UNIVERSITY OF DELHI

CNC-II/093/1(23)/2022-23/
Dated: 06.02.2023

NOTIFICATION

Sub: Amendment to Ordinance V

[E.C Resolution No. 38-1/ (38-1-12) dated 08.12.2022]

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

Add the following:

Syllabi of Semester-I of the Web Designing vocational course based on Undergraduate Curriculum Framework -2022 under Kalindi College to be implemented from the Academic Year 2022-23.

B.Voc.- Web Designing
Kalindi College

Category-I

DISCIPLINE SPECIFIC CORE COURSE – 1 Computer Fundamentals

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Computer Fundamentals	4	3	0	1	Class XII Pass	NA

Learning Objectives

To introduce the basic knowledge of computer fundamentals, its uses and working with Operating Systems.

Learning Outcomes

On successful completion of the course, students will be able to:

1. Understand the basic knowledge of computer concepts and components.
2. Understanding the concepts of operating system, window interfaces, control panel, system tools, and files.
3. Perform basic arithmetic operations using different number systems including binary arithmetic.
4. Enumerate different types of input/ output devices and types of memory.
5. Proficiency in applications such as Word and Excel.

SYLLABUS OF DSC-01

Unit I Basic Structure (9 Hours)

Computer and its characteristics, application of computers, generation of computers, types of computer, block diagram of computer, central processing unit (CPU) , arithmetic logic unit ,registers, control unit , input and output devices (keyboard, mouse, light pen, joystick, scanner, monitor, printers, etc.). switched mode power supply (SMPS), motherboard, ports and interfaces, expansion cards, ribbon cables, memory chips, and processors.

Unit 2 Data Representation (12 Hours)

Number system (binary, decimal, octal, hexadecimal) and character representation, binary arithmetic (addition, subtraction using 1'scomplement and 2'scomplement), binary coding schemes—EBCDIC, ASCII, Unicode.

Unit 3 Software (09 Hours)

Types of software, operating system as user interface, types of operating system, programming language, device drivers, linker, and loader, utility programs,

Unit 4 Memory Organization (9 Hours)

Memory representation, memory hierarchy, cache memory, primary memory, secondary

memory, hard disks, optical disks.

Unit 5 Emerging Technologies (06 Hours)

Bluetooth, cloud computing, big data, data mining, mobile computing and embedded systems.

Practical component – 30 Hours

The practical assignment must include connecting parts of a computer and assembling it to an extent, media formatting and installation of some software. Practical exercises based on Open Office tools using document preparation and spreadsheet handling packages.

Essential Readings

1. R.Thareja, Fundamentals of computers 2nd edition, Oxford University Press, 2019
2. A. Goel, Computer Fundamentals, Pearson Education, 2010.
3. P. Aksoy, L. DeNardis, Introduction to Information Technology, Cengage Learning, 2006
4. P. K.Sinha, P. Sinha, Fundamentals of Computers, BPB Publishers, 2007

DISCIPLINE SPECIFIC CORE COURSE – 2 Object Oriented Programming with C++

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Object Oriented Programming with C++	4	3	0	1	Class XII Pass	NA

Learning Objectives

This course is designed to introduce programming concepts using C++ to students. The course aims to develop structured as well as object-oriented programming skills using C++ programming language. The course also aims to achieve competence amongst its students to develop correct and efficient C++ programs to solve problems spanning multiple domains.

Learning Outcomes

On successful completion of the course, students will be able to:

1. Write simple programs using built-in data types of C++.
2. Implement arrays and user defined functions in C++.
3. Write programs using dynamic memory allocation, handling external files, interrupts and exceptions.
4. Solve problems spanning multiple domains using suitable programming constructs in C++.
5. Solve problems spanning multiple domains using the concepts of object-oriented programming in C++.

SYLLABUS OF DSC-02

Unit 1 Introduction to C++ (6 Hours)

Overview of Procedural and Object-Oriented Programming, Using main() function, Header Files, Compiling and Executing Simple Programs in C++.

Unit 2 Programming Fundamentals (9 Hours)

Data types, Variables, Operators, Expressions, Arrays, Keywords, Decision making constructs, Iteration, Type Casting, Input-output statements, Functions, Command Line Arguments/Parameters

Unit 3 Object Oriented Programming (12 Hours)

Concepts of Abstraction, Encapsulation. Creating Classes and objects, Modifiers and Access Control, Constructors, Destructors, Implementation of Inheritance and Polymorphism, Template functions and classes

Unit 4 Pointers and References (12 Hours)

Static and dynamic memory allocation, Pointer and Reference Variables, Implementing Runtime polymorphism using pointers and references DRAFT

Unit 5 Exception and File Handling (6 Hours)

Using try, catch, throw, throws and finally; Nested try, creating user defined exceptions, File I/O Basics, File Operations

Practical component – 15 Hours

Programming exercises using Dev C++.

Essential Readings

1. Stephen Prata, C++ Primer Plus, 6th Edition, Pearson India, 2015.
2. E Balaguruswamy, Object Oriented Programming with C++, 8th edition, McGraw-Hill Education, 2020.
3. D.S. Malik, C++ Programming: From Problem Analysis to Program Design, 6th edition, Cengage Learning, 2013.

Suggested Readings

1. Herbert Schildt, C++: The Complete Reference, 4 th edition, McGraw Hill, Latest Edition.
2. A. B. Forouzan, Richard F. Gilberg, Computer Science: A Structured Approachusing C++, 2nd edition, Cengage Learning, 2010.

DISCIPLINE SPECIFIC CORE COURSE – 3 Fundamentals of Mathematics

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Fundamentals of Mathematics	4	3	1	0	Class XII Pass	NA

Learning Objectives

The objective of this course is to introduce the basic tools of sets, relations and functions. It aims to enhance the knowledge of the students about the basics of mathematics to enable them to solve real life problems.

Learning Outcomes

On successful completion of the course, students will be able to:

1. Gain knowledge about the basic concepts of sets, relations and functions.
2. Apply the knowledge of matrices and determinants for solving real-world problems involving linear systems of equations.
3. Apply knowledge of calculus for maximizing and minimizing the real-life situation.

SYLLABUS OF DSC-03

Unit 1: Sets, Relations and Functions: (12hours)

Set- union, intersection, difference, complement. Relation- domain, co-domain, range. Types of relations, closure of relations etc. Functions- introduction to functions, properties of functions,

types of functions, inverse of a function, composite function, relation vs. function. Concepts of limit and continuity of a function.

Unit 2: Matrices and Determinants: (18 hours)

Definition of a matrix, types of matrices, algebra of matrices, transpose of a matrix, adjoint of a matrix, inverse of a matrix through adjoint. Applications of matrices- solving systems of linear equations using Matrix method and Cramer's method, calculation of values of determinants up to third order.

Unit 3: Differentiation and Integration: (15 hours)

Differentiation- concept of differentiation, rules of differentiation, increasing and decreasing intervals for a given function, applications of derivatives. Maxima and Minima of functions (involving second or third order derivatives) and their applications.

Integration- Definite and indefinite integration.

Essential Readings:

1. Robert G Bartle, Donald R Sherbert, Introduction to Real Analysis, latest edition, John Wiley & Sons.
2. Lay, David C., Lay, Steven R., & McDonald, Judi J, Linear Algebra and its Applications, 5th edition, Pearson Education, 2016.
3. Anton, Howard, Bivens, Irl, & Davis, Stephen, Calculus, 10th edition, John Wiley & Sons Singapore Pvt. Ltd., 2016.

Suggested Readings:

1. Kenneth Hoffman, Ray Kunze, Linear Algebra, latest edition, Prentice-hall inc., Englewood Cliffs, New Jersey