

## **B.Sc. Part – I Computer Science (Optional) (Semester – I)**

### **DSC-A11: Problem Solving using Computers**

#### **Course Outcomes:**

- 1) Demonstrate a familiarity of computer programming language concepts.
- 2) Understand to develop C programs on Linux platform.
- 3) Apply C programming control structures for problem solving.
- 4) Understand working and implementation of arrays.

### **DSC-A12 Database Management System**

#### **Course Outcomes:**

- 1) Describe the basic concepts of DBMS and various databases used in real applications.
- 2) Demonstrate the principles behind systematic database design approaches.
- 3) Design ER-models to represent simple database application scenarios
- 4) Improve the database design by normalization.

## **B.Sc. Part – I Computer Science (Optional) (Semester – II)**

### **DSC-B11 Programming Skills Using ‘C’**

#### **Course Outcomes:**

- 1) Understand the concept and importance of pointers in C language.
- 2) Demonstrate an understanding of functions in problem solving.
- 3) Understand working of structure and dynamic memory allocation.
- 4) Apply file handling techniques using C language.

## **DSC-B12 Relational Database Management System**

### **Course Outcomes:**

- 1) Understand the importance and working of database.
- 2) Demonstrate an understanding of the relational data model.
- 3) Understand the concept of normalization and apply such knowledge to the normalization of a database.
- 4) Apply SQL queries for database management

## **Practical Paper Based on DSC-A11 and DSC-B11 DSC-A12 and DSC-B12**

### **Course Outcomes:**

1. Understand and trace the execution of programs written in C language.
2. Write the C code for a given algorithm
3. Discuss normalization techniques with simple examples.
4. Describe transaction processing and concurrency control concepts.

## **B.Sc. Part – II Computer Science (Optional) (Semester – III)**

### **Course Code: DSC-C11 Web Technology**

#### **Course Outcomes:**

1. Understand the principles of web design.
2. Construct basic websites using HTML and Cascading Style Sheets.
3. Build dynamic web pages with validation using JavaScript.
4. Develop a modern web application that meets the current industry requirement.

### **Course Code: DSC-C12 Object Oriented Programming Using C++**

#### **Course Outcomes:**

1. Understand how C++ improves C with object oriented features
2. Learn syntax and semantics of C++ programming language
3. Learn how to overload functions and operators in C++.
4. Learn how to design C++ classes for code reuse.

## **B.Sc. Part – II Computer Science (Optional) (Semester – IV)**

### **Course Code: DSC-D11 Cyber Security Essentials**

#### **Course Outcomes:**

1. Understand the concept of information security management.
2. Learn different access control methods.
3. Understand wireless network security.
4. Learn cyber security laws and the importance of security audit.

### **Course Code: DSC-D12 Data Structure Using C++**

#### **Course Outcomes:**

1. Understand the basic concepts such as Abstract Data Types, Linear and Non-Linear Data structures.

2. Choose appropriate data structures to represent data items in real-world problems.
3. Design programs using a variety of data structures such as array, stacks, queues, and linked list.
4. Analyze and implement various kinds of searching and sorting techniques.

## **Practical Based on DSC-C11**

### **Course Outcomes:**

1. Acquire the ability to analyze problems, design algorithms and implement solutions using PHP.
2. Develop the ability to design and implement PHP programs that interact with user inputs, perform calculations and generate dynamic web contents.
3. Create PHP scripts capable of inserting and modifying data in a MySQL database.
4. Design web pages with the ability to retrieve and present data from a MySQL database.

## **Practical Based on DSC-C12**

### **Course Outcomes:**

1. Apply the concepts of object-oriented programming
2. Illustrating the functions, objects and process of data manipulations using C++.
3. Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
4. Demonstrate the use of various OOPs concepts with the help of programs.

## **B.Sc. Part – III Computer Science (Optional) (Semester – V)**

### **Course Code: DSE-21E Core Java**

#### **Course Outcomes:**

1. Object oriented programming concepts using Java.
2. Knowledge of input, its processing and getting suitable output.
3. Understand, design, implement and evaluate classes and applets
4. Understand concept of Multiprogramming and Exception Handling

### **Course Code: DSE-22E C# Programming**

#### **Course Outcomes:**

1. Introduce the students to the basics of OOPs and windows application program.
2. Understand features of C# DOT NET
3. Develop the console and GUI applications using C# .Net
4. Understand concept of Exception Handling

### **Course Code: DSE-23E LINUX Part I**

#### **Course Outcomes:**

1. Upon completion of this course, students should have a good working knowledge of Linux.
2. Allowing them to easily use any Linux distribution.
3. This course shall help student to learn advanced subjects in computer science practically.
4. Ability to write Shell Programming using Linux commands.

## **Course Code: DSE-24E Python Part I**

### **Course Outcomes:**

1. To understand why Python is a useful scripting language for developers
2. To learn how to write loops and decision statements in Python
3. To learn how to use lists, tuples, and dictionaries in Python programs
4. Develop problem solving skills and their implementation through Python.

## **B.Sc. Part – III Computer Science (Optional) (Semester – VI)**

### **Course Code: DSE-21F Advanced Java**

#### **Course Outcomes:**

- 1) The student will be able to develop distributed business applications, develop web pages using advanced server-side programming through servlets and Java server pages.
- 2) Demonstrate approaches for performance and effective coding
- 3) To learn database programming using Java
- 4) To study web development concept using Servlet and JSP

### **Course Code: DSE-22F ASP .NET**

#### **Course Outcomes:**

- 1) Understand multi-tier web based application development using the .NET framework.
- 2) Learn the basics of distributed Web application development.
- 3) Implement various server controls for website development
- 4) Apply validation and state management for interactive website development

## **Course Code: DSE-23F Linux Part II**

### **Course Outcomes:**

1. This course covers design principles of Linux Operating System Memory management.
2. Structure of File system and virtual file system is also elaborated.
3. This course contains details of shell programming and introduces System administration
4. Able to create file systems and directories and operate them.

## **Course Code: DSE-24F Python Part II**

### **Course Outcomes:**

1. To learn how to write functions and pass arguments in Python
2. To learn how to build and package Python modules for reusability
3. To learn how to use exception handling in Python applications for error handling
4. Understand advance data types in Python Programming.