BSc(Computer Science)(HI)

The objectives of BSc(CS)(HI) program is to equip students to

1. Demonstrate mastery of Computer Science in the following core knowledge areas
   - Web Development
   - Multimedia Software development
2. Apply problem-solving skills and the knowledge of computer science to solve real world problems.
3. Prepare Software Requirement Specification document and test the software projects based on the Software Development Life Cycle.

COURSE OBJECTIVES

SEMESTER I

PY 1.1 READING & WRITING ENGLISH – Basics

On completion of this course, the student will be able to:

1. understand simple written English.
2. follow instructions given in simple English.
3. use the basic sentence patterns.
4. read and understand the meaning of sentences.
5. learn to use nouns and adjectives.
6. learn to use simple present tense.

PY 1.2 MATHEMATICS – I

1. to give an understanding of important mathematical concepts such as Fundamental operations, Theory of numbers, LCM, HCF, Average, Exponents and powers,
2. Understanding 2-D shapes and to introduce students to mathematical techniques which
3. are relevant to the real world.
4. to enhance those mathematical skills required for further studies in mathematics.

PY 1.3 INDIAN SIGN LANGUAGE – I (Audit only)

1. To acquire signs for a basic functional vocabulary of 400+ words.
2. To learn 100-150 conversational sentences including statements, questions and
3. instructions.
4. Basic communicative competence in Indian sign language.

PY 1.4 OFFICE AUTOMATION SOFTWARE LAB – I

Upon completion of this course, the student will be able to

1. Organize and work with files and folders.
2. Use a suite of productivity tools that will aid in day to day activities.
3. Use a standard spreadsheet processing package exploiting popular features.
    Use a standard presentation package exploiting popular features
4. Access the Internet, Worldwide Web, as well as use Internet directories and search engines, and locate www addresses.

SEMESTER II

PY 2.1 READING & WRITING ENGLISH – Intermediate

On completion of this course, the student

1. Understands simple written English.
2. Follows instructions given in simple English.
3. Uses the basic sentence patterns.
4. Uses different types of sentences meaningfully.
5. Constructs grammatically correct sentences meaningfully.
6. Composes simple letters.

PY 2.2 MATHEMATICS – II

1. to give an understanding of important mathematical concepts such as commercial arithmetic,ratio and proportion, quadratic equations, simple and compound interest, understanding 3D-Shapes and to introduce students to mathematical techniques which are relevant to the real world.
2. To enhance those mathematical skills required for further studies in mathematics.

PY 2.3 INDIAN SIGN LANGUAGE – II (Audit Only)

1. To acquire signs and become fluent in sign usage.
2. To develop a standard signing among the students
3. To reinforce the signs learnt in Semester I
4. Basic communicative competence in Indian sign language.

PY 2.4 OFFICE AUTOMATION SOFTWARE LAB – II

After the completion of this course, the student should be able to

1. perform accounting operations
2. perform presentation skills
3. use an office automation suite exploiting popular features.

SEMESTER III

EHI 1311 COMMUNICATIVE ENGLISH

On completion of this course, the student will

1. Understand the use of English in everyday life.
2. Respond to communication in English in different contexts.
3. Compose paragraphs meaningfully and correctly.
4. Construct grammatically correct sentences meaningfully.
5. Compose simple letters.
6. Get an idea of what a proposal is.
7. Arrange sentences in logical order.

BCS 1331 – MATHEMATICS I

1. To give an understanding of important mathematical concepts such as
2. Fundamental operations, Matrices, Trigonometry, Binomial theorem, permutation and
3. combination, Limits and Derivatives, Differentiation, etc., an
4. to introduce students to mathematical techniques which are relevant to the real world;

5. To enhance those mathematical skills required for further studies in Mathematics.

BCS 1341 COMPUTER FUNDAMENTALS
1. To understand the functional units of a standard PC and its working
2. To get the functional knowledge about PC hardware, operations and concepts.
3. To understand the memory organization in a computer.
4. To review data representation techniques
5. To gain an understanding of basic concepts of digital logic -Boolean algebra, different
6. Number Systems and Logic gates

BCS 1342 OPERATING SYSTEM
1. Upon completion of this course, the student should be able to:
2. understand the fundamental concepts of systems software
3. understand different functions of operating system.
4. understand popular operating systems like Windows and Linux
5. Learn the Linux commands and its applications
6. Explain the features of free & open source software

BCS 1343 OPERATING SYSTEM LAB
This lab work will help the students:
1. in performing basic system operations such as file management, text editing
2. in using common command line processes
3. to understand the Linux commands

BCS 1344 Web Programming using HTML Lab
This course has an emphasis on the design and techniques for developing internet based applications, mainly focusing on web programming using HTML, and designing static web pages.

On completion of this course the students will:
1. Demonstrate an understanding of the Internet and Web Protocols.
2. Be able to learn the elements of HTML and create web pages using HTML code
3. Demonstrate an understanding of Hypertext Mark-up Language (HTML) Programming concepts.
4. Have a comprehensive knowledge of the semantics and syntax of HTML
5. Understand how web pages are published and a site is hosted

SEMESTER IV
EHI 1411 COMMUNICATIVE ENGLISH – II
On completion of this course, the student shall
1. Understand the use of English in everyday life.
2. Understand the use of reporting.
3. Get an idea about the different usages.
4. Learn the format of a typical letter.
5. Comprehend and infer by reading paragraphs.

6. Make use of new words and usages in writing paragraphs.

BCS 1431 MATHEMATICS II
1. to give an understanding of important mathematical ideas such as Fundamental operations, Sets , Integration, Differentiation, Trigonometry , Graphs, Functions and Limits, Analytical Geometry , Statistics etc, and to introduce students to mathematical techniques which are relevant to the real world;
   to enhance those mathematical skills required for further studies in mathematics.

BCS 1441 PROGRAMMING USING C
1. provide the students an introduction to computer programming
2. impart an understanding of the basic concepts of computing
3. provide knowledge about the methodology of problem solving
4. introduce students to the basic components and structure of C program and to develop programming skills.

BCS 1542 PROGRAMMING USING C LAB
To provide a practical knowledge of computer programming.
1. To learn the basic concepts of computing.
2. To know the methodology of problem solving.
3. To develop skills in programming using C language.

BCS 1443 DIGITAL DESIGN LAB
After the completion of Units 1&2, the student should be able to:
1. Analyze and manipulate the dimensions and resolution of an image.
2. Create composite images
3. Enhance the appearance of photos
4. After the completion of Units 3 & 4, the student should be able to:
5. Develop scalable illustrations
6. Design posters, brochures etc.

BCS 1444 MINI PROJECT
Mini project shall serve as an opportunity
1. o for understanding the tool/programming language/platforms taught in the
2. particular semester better
3. o to get practical experience
4. o Chance to showcase skills
5. o To learn about team work, communication skills and responsibilities
6.

SEMESTER V
EHI 1511 COMMUNICATIVE ENGLISH III
On completion of this course, the student
1. Understands the use of reporting.
2. Gets an idea about the different usages.
3. Learns the format of a typical letter.

4. Comprehends and infers by reading paragraphs.
5. Makes use of new words and usages in writing paragraphs.

BCS 1541 DATA STRUCTURES

After the completion of this course, the student should be able to:

1. use appropriate data structures like arrays, linked list, stacks and queues to solve real world problems efficiently.
2. represent and manipulate data using nonlinear data structures like trees for various applications.
3. Illustrate and compare various techniques for searching and sorting.

BCS 1542 PROGRAMMING USING C++

On the completion of this course the student will be able to

1. Understand the concepts of classes and object
2. Define classes for a given situation and instantiate objects for specific problem solving
3. Reuse available classes after modifications if possible
4. Possess skill in object oriented thought process

BCS 1543 PROGRAMMING USING C++ LAB

This course will provide hands-on practice on the object oriented concepts and the students will be able to write C++ programs that make use of the OOP features. The course will give practice in the following topics:

1. basic data types and control structures in C++.
2. managing classes and objects
3. to impart the ability to design anBCS 1545 MINI PROJECTd implement programs using C++ concepts.

BCS 1544 MULTIMEDIA LAB

After the completion of this course, the student should be able to

1. Create 2D graphics & animation
2. Create interactive applications which combine graphics, animation, video and sound.

BCS 1545 MINI PROJECT

Mini project shall serve as an opportunity

1. for understanding the tool/programming language/platforms taught in the particular semester better
2. to get practical experience
3. Chance to showcase skills
4. To learn about team work, communication skills and responsibilities

SEMESTER VI
EHI 1611 COMMUNICATIVE ENGLISH IV
On completion of this course, the student

1. Understands the use of reporting.
2. Gets an idea about the different usages.

3. Learns the format of a typical letter.
4. Makes use of new words and usages in writing paragraphs.
5. Prepares notices.
6. Understands the use of phrasal verbs in sentences.
7. Converts active voice into passive voice.
8. Develops job application letters.

BCS 1641 DATABASE MANAGEMENT SYSTEMS
On the completion of this course the student will
1. Be aware of basic concepts of databases and database management systems
2. Make aware of concepts of relational databases
3. Develop skills to write database queries
4. Develop understanding of backend

BCS 1642 COMPUTER NETWORKS
After the completion of this course, the student should be able to:
1. understand the basic transmission technologies and characteristics
2. understand the use of layer architecture for networking systems
3. understand the main protocols used in local networks
4. identify computer and network security threats, classify the threats

BCS 1643 PROGRAMMING USING C# LAB
1. Understanding C# language and object-oriented concepts
2. Creating Windows-based applications: Forms and Controls
3. Using ADO.NET to access and manipulate database data

BCS 1644 DATABASE MANAGEMENT SYSTEM LAB
This course will provide hands-on practice in writing different SQL statements and analysing them using any RDBMS tool. Practical situation which uses database is introduced in different exercises. The focus is also given in the working of a database in a front end application.

BCS 1645 MINI PROJECT
Mini project shall serve as an opportunity
1. for understanding the tool/programming language/platforms taught in the
2. particular semester better
3. to get practical experience
4. Chance to showcase skills
5. To learn about teamwork, communication skills and responsibilities

SEMESTER VII

EHI 1711 COMMUNICATIVE ENGLISH V
Understands the use of reporting.
1. Get an idea about the different usages.
2. Learn the format of a typical letter.
3. Comprehends and infers by reading paragraphs.
4. Writes dialogues in different situations.

5. Uses gerunds and infinitives appropriately.
6. Writes short travel reports.
7. Composes Email and SMS.
8. Writes letters related to trade enquiries.

BCS 1741 SOFTWARE ENGINEERING

By the end of this course, the student should be able to:

1. Understand the importance and concepts of Software documentation
2. Acquire the skill of software testing
3. Be aware of developing a test plan and software testing tools.

BCS 1742 PROGRAMMING USING JAVA

After the completion of this course, the student should be able to:

1. To learn the basics of Java programming
2. To learn about the concepts of Servlets, Packages and Interfaces
3. To learn the concepts of AWT and Swing

BCS 1743 ASP.NET PROGRAMMING LAB

At the end of this course, the student should be able to:

1. Create an asp.net based web application by using Visual Studio .Net
2. C# language and object-oriented concepts
3. Using ADO.NET to access and manipulate database data

BCS 1744 PROGRAMMING USING JAVA LAB

This course will provide hands-on practice in the following topics, under a variety of programming situations with a focus on writing, debugging and analysing object oriented programs.

BCS 1745 MINI PROJECT

Mini project shall serve as an opportunity

1. for understanding the tool/programming language/platforms taught in the
2. particular semester better
3. to get practical experience
4. Chance to showcase skills
5. To learn about teamwork, communication skills and responsibilities

SEMESTER VIII

EHI 1801 COMMUNICATIVE ENGLISH VI [Audit only]

On completion of this course, the students should be able to

1. Understand the use of English in everyday life.
2. Respond to communication in English in different contexts.
3. Understand the use of reporting.
4. Get an idea about the different usages.
5. Learn the format of a typical letter.
6. Comprehends and infers by reading paragraphs.
7. Makes use of new words and usages in writing paragraphs.

BCS 1841 ADVANCED COMPUTING CONCEPTS

By the end of this course, the student should be able to:

1. Have a general awareness about the recent and trending topics in computer technologies
2. Expose students to some of the latest IT related terminologies

BCS 1861.1 PHP LAB

1. Understand basic skills in PHP scripts
2. Develop interactive web based application using PHP and MySQL
3. Understand the current trends and styles in web design and applications

BCS 1861.2 ANDROID LAB

1. To provide introduction to Android operating system
2. To develop simple mobile applications
3. To equip the students with the basic knowledge and skills for the existing and
4. emerging Mobile Applications and Cloud technology fields

BCS 1842 – MAJOR PROJECT

1. To provide an opportunity to apply the knowledge gained through various courses in solving a real-life problem
2. To provide an opportunity to practice different phases of software/system development life cycle
3. To introduce the student to a professional environment and/or style typical of a global IT industry
4. To provide an opportunity for project management
5. To provide an opportunity for effective, real-life, technical documentation
6. To provide an opportunity to practice time, resource and personnel management