

## S.Y.B.Sc.(INFORMATION TECHNOLOGY)

### B.Sc.(IT) PROGRAM OUTCOMES

PO- 1: After completing three years Degree Course – Bachelor of Science (Information Technology) (B.Sc.-IT) program, Learners will develop foundational knowledge of computer programming.

PO- 2: Learners will acquire practical knowledge, training in professional skills and ethics to build competencies in the area of information technology.

PO- 3: Learners will develop their personalities along with commercial, communication, research, analytical and managerial skills in practical and theoretical concepts in Information Technology.

PO- 4: Learners will enhance IT skills and be able to relate to global challenges and be exposed to newer avenues in Information Technology.

PO- 5: Learners will be trained in leadership skills and demonstrate social responsibilities with sensitivity towards environment and sustainability.

**Course Name: PYTHON PROGRAMMING**

**SEM: III**

**Course Code: BITS301**

No	Course Outcomes	PO Mapping
CO 1 (Remember)	The learner will be able to describe the structure and components of a Python program effectively.	PO-1,PO-2,PO-4
CO 2 (Understanding)	The learner will be able to explain and demonstrate the fundamental concepts in python such as functions, strings, regular expressions, multithreading, object-oriented programming.	PO-1, PO-2,PO-4
CO 3 (Applying)	The learner will be able to apply different data structures such as list, tuples and dictionaries.	PO-1,PO-2,PO-4
CO 4 (Analyzing)	The learner will be able to select the concepts in order to solve real world problems in python.	PO-1,PO-2,PO-4
CO 5 (Evaluating)	The learner will be able to compare python with other classical programming languages.	PO-1,PO-2,PO-4
CO 6 (Creating)	The learner will be able to design different kinds of applications in Python.	PO-1, PO-2,PO-3, PO-4,PO-5

--	--	--

**Course Name: DATA STRUCTURES**

**SEM: III**

**Course Code: BITS302**

No	Course Outcomes	PO Mapping
CO 1(Remember)	Learners will be able to identify how various data structures are helpful in data management and data organization.	PO-1, PO-3
CO 2 (Understanding)	Learners will be able to describe how data structures can be used in various domains.	PO-1, PO-3
CO 3 (Applying)	Learners will be able to use various functions on data structures.	PO-1, PO-2, PO-3
CO 4 (Analyzing)	Learners will be able to compare and differentiate between various data structures.	PO-1, PO-3
CO 5 (Evaluating)	Learners will be able to discriminate and assess appropriate data structures for various applications.	PO-1, PO-3, PO-4
CO 6 (Creating)	Learners will be able to write codes to implement various data structures in Python.	PO-1, PO-2, PO-3, PO-4

**Course Name: COMPUTER NETWORKS**

**SEM: III**

**Course Code: BITS303**

No	Course Outcomes	PO Mapping
CO 1(Remember)	The learner will be able to identify the taxonomy and terminology related to computer networking	PO-1, PO-4, PO-2
CO 2 (Understanding)	The learner will be able to describe different transmission media and multiplexing techniques.	PO-1, PO-4
CO 3 (Applying)	The learner will be able to apply different OSI layers and its applications in networking.	PO-1, PO-4
CO 4 (Analyzing)	The learner will be able to explain various protocols and applications.	PO-1, PO-4
CO 5 (Evaluating)	The learner will be able to summarize various protocols.	PO-1, PO-4
CO 6 (Creating)	The learner will be able to integrate different OSI layers and its applications in networking.	PO-1, PO-4, PO-3, PO-5

**Course Name: DATABASE MANAGEMENT SYSTEM****SEM: III****Course Code: BITS304**

No	Course Outcomes	PO Mapping
CO 1 (Remember)	The learner will be able to describe the role of database management systems in information technology domain.	PO- 1, PO- 3, PO-4
CO 2 (Understanding)	The learner will be able to explain transaction management design principles.	PO- 1, PO- 3, PO-4
CO 3 (Applying)	The learner will be able to execute SQL queries for defining and manipulating database information.	PO- 1, PO- 3, PO-4
CO 4 (Analysing)	The learner will be able to integrate the concepts of RDBMS.	PO- 1, PO- 3, PO-4
CO 5 (Evaluating)	The learner will be able to summarize the usage of functions and procedure in PL/SQL.	PO- 1, PO- 3, PO-4
CO 6 (Creating)	The learner will be able to design databases for various software projects.	PO- 1, PO-2, PO- 3, PO-4, PO-5

**Course Name: COMPUTER ORIENTED STATISTICAL TECHNIQUES****SEM: III****Course Code: BITS305**

No	Course Outcomes	PO Mapping
CO 1 (Remember)	The learner will be able to define and use the basic terminologies of statistics.	PO-1, PO-3, PO-4
CO 2 (Understanding)	The learner will be able to interpret data meaningfully.	PO-3, PO-4
CO 3 (Applying)	The learner will be able to apply summary measures of averages and dispersion to draw useful conclusions.	PO-3, PO-4
CO 4 (Analyzing)	The learner will be able to analyze statistical data using measures of central tendency, dispersion and location.	PO-2, PO-3, PO-4
CO 5 (Evaluating)	The learner will be able to evaluate the real-life problems and draw inferences.	PO-3, PO-4
CO 6 (Creating)	The learner will be able to construct suitable statistical models to handle various socioeconomic phenomena.	PO-3, PO-4

**Course Name: CORE JAVA**

**SEM: IV**

**Course Code: BITS401**

<b>No</b>	<b>Course Outcomes</b>	<b>PO Mapping</b>
CO 1 (Remember)	The learner will be able to list and use various object oriented features in java programming language.	PO-1, PO-2, PO-4
CO 2 (Understanding)	The learner will be able to identify classes, objects, data members of class, methods and relationship between them for a specific problem.	PO-1, PO-2, PO-4
CO 3 (Applying)	The learner will be able to apply the java concepts in order to solve real world problems.	PO-1, PO-2, PO-4
CO 4 (Analyzing)	The learner will be able to explain how to achieve reusability using inheritance, interfaces and packages.	PO-1, PO-2, PO-4
CO 5 (Evaluating)	The learner will be able to discriminate and assess the java programming and other programming languages such as C, C++.	PO-1, PO-2, PO-4
CO 6 (Creating)	The learner will be able to design event driven java applications.	PO-1, PO-2, PO-3, PO-4, PO-5

**Course Name: INTRODUCTION TO EMBEDDED SYSTEMS**

**SEM: IV**

**Course Code: BITS402**

<b>No</b>	<b>Course Outcomes</b>	<b>PO Mapping</b>
CO 1(Remember)	The learner will be able to describe the architecture of microcontroller systems.	PO-1, PO-3
CO 2 (Understanding)	The learner will be able to explain the basic working of embedded system applications.	PO-1, PO-3
CO 3 (Applying)	The learner will be able to apply various programming techniques of embedded systems.	PO-1, PO-3, PO-2
CO 4 (Analyzing)	The learner will be able to analyse various embedded system techniques.	PO-1, PO-3
CO 5 (Evaluating)	The learner will be able to summarize various embedded system development lifecycle models.	PO-1, PO-3, PO-4

CO 6 (Creating)	The learner will be able to integrate hardware and software design in embedded systems.	PO-1, PO-3, PO-5
--------------------	---	------------------

**Course Name: APPLIED MATHEMATICS**

**SEM: IV**

**Course Code: BITS403**

No	Course Outcomes	PO Mapping
CO 1 (Remember)	The learner will be able to identify and use mathematical concepts to solve problems.	PO-1, PO-3, PO-4
CO 2 (Understanding)	The learner will be able to differentiate various differential equations and solve them.	PO-3, PO-4
CO 3 (Applying)	The learner will be able to apply mean value theorems, intermediate value theorem and Taylor's theorem.	PO-3, PO-4
CO 4 (Analyzing)	The learner will be able to analyze and solve engineering problems using Laplace Series.	PO-2, PO-3, PO-4
CO 5 (Evaluating)	The learner will be able to evaluate the various elements of applied mathematics.	PO-3, PO-4
CO 6 (Creating)	The learner will be able to use concepts of applied mathematics to design animation and gaming programs.	PO-3, PO-4

**Course Name: SOFTWARE ENGINEERING**

**SEM: IV**

**Course Code: BITS404**

No	Course Outcomes	PO Mapping
CO 1 (Remember)	The learner will be able to define various software development process models and describe the basics of agile software development.	PO-2, PO-4
CO 2 (Understanding)	The learner will be able to interpret the concepts of socio-technical systems, critical systems, requirement engineering process and system models.	PO-2, PO-3 PO-4
CO 3 (Applying)	The learner will be able to illustrate architectural design, user interface design & apply quality management techniques needed to develop a software.	PO-1, PO-2, PO-4
CO 4 (Analyzing)	The learner will be able to differentiate between verification & validation and explain the concepts of software testing, software measurement & cost estimation.	PO-2, PO-4
CO 5 (Evaluating)	The learner will be able to summarize the concepts of process improvement, service-oriented software engineering, software reuse and distributed software	PO-1, PO-2, PO-4, PO-5

	engineering.	
CO 6 (Creating)	The learner will be able to write software project synopsis and design UML diagrams.	PO-1, PO-2, PO-3, PO-4,

**Course Name: COMPUTER GRAPHICS AND ANIMATION**

**SEM: IV**

**Course Code: BITS405**

No	Course Outcomes	PO Mapping
CO 1 (Remember)	The learner will be able to identify the use of components and basic concepts of graphics systems.	PO- 1, PO- 2
CO 2 (Understanding)	The learner will be able to summarize various algorithms to scan, convert the basic geometrical primitives, Area filling, clipping.	PO- 1, PO- 2
CO 3 (Applying)	The learner will be able to implement basics of transformations in both theoretical and practical.	PO- 1, PO- 2
CO 4 (Analysing)	The learner will be able to compare various transformation techniques in computer graphics.	PO- 1, PO- 2, PO-3
CO 5 (Evaluating)	The learner will learn to monitor the appearance of objects on screen from different viewpoints.	PO- 1, PO- 2
CO 6 (Creating)	The learner will be able to create graphics and animations.	PO- 1, PO- 2, PO-4, PO-5