B.Sc. (IT) PROGRAM OUTCOMES

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

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

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

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

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

Program: B.Sc.(Information Technology)
Year : Third Year
Semester V

Subject: Software Project Management

Course Code: BITS501

Course Outcomes:
After completion of the course learners will be able to,

No	Course outcomes	PO mapping
CO 1 (Remember)	identify and describe the key phases of software project planning and management.	PO1, PO2
CO 2 (Understanding)	understand the models used for the development of the project and the concepts of socio technical systems ,critical systems etc.	PO1, PO2,PO 3,PO4
CO 3 (Applying)	illustrate design ,user interface and apply quality management techniques needed to develop a software	PO 1,PO 2,PO 4
CO 4 (Analyzing)	select an appropriate process model for software projects	PO 2,PO-3,PO 4
CO 5 (Evaluating)	appraise the concepts of process improvement, service orientation ,software reuse etc.	PO 1,PO 2,PO 4,PO 5
CO 6 (Create)	write software project synopsis and design the UML diagrams.	PO 1,PO 2,PO 3,PO 4

Program: B.Sc.(Information Technology)
Year : Third Year
Semester V

Subject: Internet of Things

Course Code: BITS502

Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1(Remember)	describe the architecture of Internet of Things.	PO-2, PO3
CO 2 (Understanding)	explain different protocols used in IoT.	PO-2, PO3, PO-4
CO 3 (Applying)	apply various programming techniques of IoT.	PO-1, PO-2, PO-3
CO 4 (Analyzing)	analyse various platforms used in IoT.	PO-2, PO3, PO-4
CO 5 (Evaluating)	summarize prototyping models for IoT.	PO2,PO-3, PO-4
CO 6 (Creating)	integrate ethics of IoT technology with mass manufacturing of the IoT devices.	PO-2, PO-3, PO4, PO-5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester V

Subject: Advanced Web Programming

Course Code: BITS503
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1 (Remember)	describe the working of .NET framework.	PO-1,PO-2,PO3,PO-4
CO 2 (Understanding)	explain and demonstrate how to create dynamic Web pages using web forms and code behind file.	PO-1,PO-2,PO3,PO-4
CO 3 (Applying)	use advanced controls such as validation controls, navigation controls, master pages, styles, themes,	PO-1,PO-2,PO3,PO-4
CO 4 (Analyzing)	connect the web applications using SqlDataSource with GridView, DetailsView and FormView controls.	PO-1,PO-2,PO3,PO-4
CO 5 (Evaluating)	compare different mechanisms and controls and choose a concept that fits the problem description.	PO-1,PO-2,PO3,PO-4
CO 6 (Creating)	develop web applications using a combination of client-side and server-side technologies.	PO-1, PO-2, PO-3, PO-4, PO-5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester V

Subject: Linux System Administration

Course Code: BITS505
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1(Remember)	identify various linux commands, roles and responsibilities of Linux System Administrator.	PO2, PO3
CO 2 (Understanding)	explain concepts related to packages, Network configuration, file sharing and security.	PO2, PO3
CO 3 (Applying)	illustrate the working of Mail server, DHCP, DNS, Web server , HA clusters and Installation server.	PO2, PO3
CO 4 (Analyzing)	compare different file sharing and authentication mechanisms.	PO2,PO3, PO4
CO 5 (Evaluating)	evaluate various cryptographic services.	PO2,PO3, PO4
CO 6 (Creating)	design firewall rules for security of internal network and write bash shell scripts.	PO1, PO2, PO3,PO4, PO5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester V

Subject: Next Generation Technologies

Course Code: BITS507
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1(Remember)	describe the structure and components of MongoDB database, jQuery and JSON effectively.	PO-1,PO-2
CO 2 (Understanding)	explain and demonstrate the fundamental concepts required for new age technologies like big data, NoSQL etc. understand fundamental concepts in MongoDB such as architecture, election process, and storage structure.	PO-1,PO-2,PO-4
CO 3 (Applying)	apply different MongoDB techniques such as creating collections, documents, index structures, backup and restore.	PO-1,PO-2,PO-3,PO-4
CO 4 (Analyzing)	select the concepts in order to solve real world problems using MongoDB, jQuery and JSON.	PO-1,PO-2,PO-3,PO-4
CO 5 (Evaluating)	compare MongoDB with other new age technologies, old age storage with new age SSDs.	PO-1,PO-2,PO-3,PO-4
CO 6 (Creating)	design different kinds of applications using MongoDB, jQuery and JSON.	PO-1,PO-2,PO-3, PO-4,PO-5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester VI

Subject: Software Quality Assurance
Course Code: BITS601

Course Outcomes:
After completion of the course learners will be able to,

No	Course outcomes	PO mapping
CO 1 (Remember)	describe the foundational concepts of software quality assurance.	PO1, PO2
CO 2 (Understanding)	explain the process of testing software application	PO1, PO2, PO3
CO 3 (Applying)	demonstrate the different testing tools.	PO 1,PO 2,PO 4
CO 4 (Analyzing)	differentiate between verification and validation.	PO 2,PO 4
CO 5 (Evaluating)	appraise the concepts of testing such as process improvement, software reuse etc.	PO 1,PO 2,PO 4,PO 5
CO 6 (Create)	design test cases automate test execution and analysis.	PO 1,PO 2,PO 3,PO 4,PO5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester VI

Subject: Security in Computing

Course Code: BITS602
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1 (Remember)	identify the three pillars of Computer Security and examine potential threat. Define network security concepts and study different Web security mechanisms.	PO-1,PO-3, PO-4
CO 2 (Understanding)	understand how Authentication, Access Control, and Cryptography can be used to thwart potential threats. Understand why networked computers have their own particular vulnerabilities and how to mitigate exposure, how databases present distinct security challenges, and how they can be compromised.	PO-2, PO-3, PO-4
CO 3 (Applying)	apply various Encryption mechanisms for secure transmission of data and management of key required for encryption. Apply methods to detect, prevent and repair attacks in networked computing systems.	PO-1, PO-2, PO-3,PO-4
CO 4 (Analyzing)	analyze authentication, confidentiality and privacy issues in cloud computing and be able to infer how non-technical issues like privacy, ethics, and legal aspects of security can affect computing. Prioritize physical security, authentication requirements and classify various authentication mechanisms.	PO-2, PO-3, PO-4
CO 5 (Evaluating)	appraise hash functions, authentication, firewalls, intrusion detection techniques and apply methods for authentication, access control, intrusion detection and prevention. Detect Mobile and Web application security threats.	PO-1, PO-3, PO-4, PO-5
CO 6 (Creating)	develop concept of security needed in communication of data through computers and networks along with various possible attacks, identify and mitigate software security vulnerabilities in existing systems. Formulate cryptography algorithms and protocols to achieve computer security. Develop security mechanisms to protect computer systems and networks.	PO-2, PO-3,PO-4, PO-5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester VI

Subject: Business Intelligence

Course Code: BITS603
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1(Remember)	describe the structure and components of Business Intelligence and Decision Support System effectively.	PO-1,PO-2,PO3,PO-4
CO 2 (Understanding)	understand foundations, definitions, architecture and capabilities of DSS and BI.	PO-1,PO-2,PO 3,PO-4
CO 3 (Applying)	apply different techniques of classification, clustering, Data Mining etc.	PO-1,PO-2,PO 3,PO-4
CO 4 (Analyzing)	select the concepts in order to solve real world problems using various Business Intelligence techniques.	PO-1,PO-2,PO-3,PO-4,PO 5
CO 5 (Evaluating)	compare various Business Intelligence techniques.	PO-1,PO-2,PO-4
CO 6 (Creating)	design different kinds of programs using Power BI and R tool.	PO-1,PO-2,PO-3, PO-4,PO-5

Program: B.Sc.(Information Technology)
Year : Third Year
Semester VI

Subject: Principles of Geographic Information Systems

Course Code: BITS604
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1 (Remember)	describe the components of GIS .	PO-1,PO-2,PO-4
CO 2 (Understanding)	explain and demonstrate capabilities of GIS	PO-1,PO-2,PO-4
CO 3 (Applying)	apply the cartographic principles and GIS methods in map making.	PO-1,PO-2,PO-3,PO-4
CO 4 (Analyzing)	integrate and analyse spatial data using QGIS software	PO-1,PO-2,PO-3,PO-4
CO 5 (Evaluating)	decide the technique used for working with GIS data in order to design map.	PO-1,PO-2,PO-3,PO-4
CO 6 (Creating)	design maps in QGIS software.	PO-1, PO-2, PO-3, PO-4

Program: B.Sc.(Information Technology)
Year : Third Year
Semester V

Subject: IT Service Management

Course Code: BITS606
Course Outcomes:
After completion of the course learners will be able to,

No	Course Outcomes	PO Mapping
CO 1(Remember)	describe the fundamental principles of IT service management and best practices.	PO-1,PO-2
CO 2 (Understanding)	explain service organisations, drivers and relationships.	PO-1,PO-2,PO-4
CO 3 (Applying)	solve problems through the lens of management theories	PO-1,PO-2,PO-4
CO 4 (Analyzing)	select the best management practice from a technical and non-technical perspective	PO-1,PO-2,PO-3,PO-4
CO 5 (Evaluating)	evaluate the best ITSM approach for a given case study	PO-1,PO-4,PO5
CO 6 (Creating)	integrate the various latest IT applications available for various sectors	PO-1,PO-2,PO-3, PO-4,PO-5