

1) Information Technology

Programme outcomes, program specific outcomes, and course outcomes offered:

Name of the programme/course	Outcome
BSc (IT)	<p>The B.Sc. Information Technology programme was started in 2001 with an aim to make the students employable and impart industry oriented training. The main objectives of the course are:</p> <ul style="list-style-type: none"> - to think analytically, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex problems. - to apply their knowledge and skills to be employed and excel in IT professional careers and/or to continue their education in IT and/or related post graduate programmes. - to be capable of managing complex IT projects with consideration of the human, financial and environmental factors. - to work effectively as a part of a team to achieve a common stated goal. - to adhere to the highest standards of ethics, including relevant industry and organizational codes of conduct. - to communicate effectively with a range of audiences both technical and non-technical. - to develop an aptitude to engage in continuing professional development. <p>The new syllabus is aimed to achieve the objectives. The syllabus spanning three years covers the industry relevant courses. The students will be ready for the jobs available in different fields like:</p> <ul style="list-style-type: none"> - Software Development (Programming) - Website Development - Mobile app development - Embedded Systems Programming - Embedded Systems Development - Software Testing - Networking - Database Administration - System Administration

	<ul style="list-style-type: none"> - Cyber Law Consultant - GIS (Geographic Information Systems) - IT Service Desk - Security - And many others The students will also be trained in communication skills and green computing.
course outcomes :	
F.Y.BSc (IT)	
Imperative Programming	In computer science, imperative programming is a programming paradigm that uses statements that change a program's state. In much the same way that the imperative mood in natural languages expresses commands, an imperative program consists of commands for the computer to perform
Digital Electronics	<p>At the end of the course, a student will be able to:</p> <ol style="list-style-type: none"> 1. Convert different type of codes and number systems which are used in digital communication and computer systems. 2. Employ the codes and number systems converting circuits and Compare different types of logic families which are the basic unit of different types of logic gates in the domain of economy, performance and efficiency. 3. Analyze different types of digital electronic circuit using various mapping and logical tools and know the techniques to prepare the most simplified circuit using various mapping and mathematical methods. 4. Apply the fundamental knowledge of analog and digital electronics to get different types analog to digitalized signal and vice-versa converters in real world with different changing circumstances. 5. Assess the nomenclature and technology in the area of memory devices and apply the memory devices in different types of digital circuits for real world application.
Operating system	To gain knowledge on distributed operating system concepts that includes architecture, output ,

	inter process communication, network structure, security.
DISCRETE MATHEMATICS	<p>To appreciate the basic principles of Boolean algebra, Logic, Set theory,</p> <ul style="list-style-type: none"> - Permutations and combinations and Graph Theory. - Be able to construct simple mathematical proofs - Be able to understand logical arguments and logical constructs. Have a better - understanding of sets, functions, and relations. - Acquire ability to describe computer programs in a formal mathematical manner
Communication Skills	<p>Students will develop knowledge, <i>skills</i>, and judgment around human <i>communication</i> that facilitate their ability to work collaboratively with others.</p> <p>Such <i>skills</i> could include <i>communication</i> competencies such as managing conflict, understanding small group processes, active listening, appropriate self-disclosure, etc</p>
Object Oriented Programming	<ul style="list-style-type: none"> - Understand the features of C++ supporting object oriented programming - Understand the relative merits of C++ as an object oriented programming language - Understand how to produce object-oriented software using C++ - Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism - Understand advanced features of C++ specifically stream I/O, templates and operator overloading
Microprocessor Architecture	<ol style="list-style-type: none"> 1. Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance. 2. Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor

	<p>and microcontroller.</p> <p>3. Compare accepted standards and guidelines to select appropriate Microprocessor (8085 & 8086) and Microcontroller to meet specified performance requirements.</p> <p>4. Analyze assembly language programs; select appropriate assemble into machine a cross assembler utility of a microprocessor and microcontroller.</p> <p>5. Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices.</p> <p>6. Evaluate assembly language programs and download the machine code that will provide solutions real-world control problems.</p>
Web Programming	<ul style="list-style-type: none"> - design dynamic websites that meet specified needs and interests. - write well-structured, easily maintained, standards-compliant, accessible HTML code. - write well-structured, easily maintained, standards-compliant CSS code to present HTML pages in different ways. - use JavaScript to add dynamic content to pages.
Numerical and Statistical Methods	<ul style="list-style-type: none"> - Use a range of standard numerical methods to solve complex engineering problems - Graphical presentation of data
Green Computing	<ul style="list-style-type: none"> - Discuss Green IT with its different dimensions and Strategies. - Describe Green devices and hardware along with its green software methodologies. - Discuss the various green enterprise activities, functions and their role with IT.
SYBSC IT	

Python Programming	<ul style="list-style-type: none"> - To understand why Python is a useful scripting language for developers. - To learn how to design and program Python applications. - To learn how to use lists, tuples, and dictionaries in Python programs. - To learn how to identify Python object types.
Data Structures	<ul style="list-style-type: none"> - Select appropriate data structures as applied to specified problem definition. - Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures. - Students will be able to implement Linear and Non-Linear data structures. - Implement appropriate sorting/searching technique for given problem. - Design advance data structure using NonLinear data structure. - Determine and analyze the complexity of given Algorithms.
Computer Networks	<ul style="list-style-type: none"> - Independently understand basic computer network technology. - Understand and explain Data Communications System and its components. - Identify the different types of network topologies and protocols.
Database Management Systems	<ul style="list-style-type: none"> - Master the basic concepts and appreciate the applications of database systems. - Master the basics of SQL and construct queries using SQL. - Be familiar with a commercial relational database system (Oracle) by writing SQL using the system. - Be familiar with the relational database theory, and be able to write relational algebra expressions for queries.
Applied Mathematics	<ul style="list-style-type: none"> - Apply mathematical concepts and principles to perform computations

	<ul style="list-style-type: none"> - Apply mathematics to solve problems - Create, use and analyze graphical representations of mathematical relationships
Mobile Programming	<ul style="list-style-type: none"> - Install and configure Android application <i>development</i> tools. - Design and develop user Interfaces for the Android platform. Save state information across important operating system events. - Apply Java <i>programming</i> concepts to Android application <i>development</i>.
Core Java	<ul style="list-style-type: none"> - knowledge of the structure and model of the Java programming language, (knowledge) - use the Java programming language for various programming technologies (understanding) - develop software in the Java programming language, (application) - evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
Introduction to Embedded Systems	<ul style="list-style-type: none"> - 1. Foster ability to understand the internal architecture and interfacing of different peripheral <i>devices</i> with Microcontrollers. - 2. Foster ability to write the programs for microcontroller. 3. Foster ability to understand the role of <i>embedded systems</i> in industry.
Computer Oriented Statistical Techniques	<p>Floating point representation of numbers, Arithmetic operations with normalized floating point numbers and their consequences, Error in number representation</p>
Software Engineering	<p>1. Basic knowledge and understanding of the analysis</p>

	<p>and design of complex systems.</p> <p>2. Ability to apply software engineering principles and techniques.</p> <p>3. Ability to develop, maintain and evaluate large-scale software systems.</p> <p>4. To produce efficient, reliable, robust and cost-effective software solutions.</p>
Computer Graphics and Animation	<p>To train the students to acquire skills in generating marketable computer graphics and animated pictures, especially in the area of advertisements.</p> <p>To train the students to acquire skills and mastery in the use of different software producing graphics and animation.</p> <p>To impart real-life advertisement exposure in an organization/PTC (Production cum Training centre) under OJT.</p>
TYBSc (IT)	
Software Project Management	<p>This module is to prepare students for undertaking large <i>software projects</i>..... <i>Subject</i> Specific Intellectual and Research Skills.... and client-side code; Evaluate the <i>outcome</i> of implementing security measures in server-side and client-side code</p>
Internet of Things	<ul style="list-style-type: none"> - Understand the concepts of Internet of Things -Analyze basic protocols in wireless sensor network - Design IoT applications in different domain and be able to analyze their performance -Implement basic IoT applications on embedded platform
Advanced Web Programming	<ol style="list-style-type: none"> 1) apply three-tier architecture concepts and advanced database techniques in web applications 2) use object-oriented techniques in Web programming 3) develop rich interactive environments for the Web 4) create sites that utilize data validation techniques and secure code

	5) build sites that use session management
Artificial Intelligence	<ul style="list-style-type: none"> -An ability to apply knowledge of computing and mathematics appropriate to the discipline. - An ability to analyze a problem and identify and define the computing requirements appropriate to its solution. -An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
Enterprise Java	<ul style="list-style-type: none"> - Identify advance concepts of java programming with database connectivity. <ul style="list-style-type: none"> - Design and develop platform independent applications using a variety of component based frameworks - Able to implement the concepts of Hibernate, XML& EJB for building enterprise applications.
Software Quality Assurance	<ul style="list-style-type: none"> - know the definition of quality, cost of quality, quality model; b) -apply white-box testing, black-box testing, and inspection techniques - know how test tools can be used in the testing life cycle - use testing metrics for product and process;
Security in Computing	<ul style="list-style-type: none"> - identify some of the factors driving the need for network security - identify and classify particular examples of attacks - define the terms vulnerability, threat and attack - identify physical points of vulnerability in simple networks
Business Intelligence	<ul style="list-style-type: none"> -Identify the major frameworks of computerized decision support: decision support systems (DSS), data analytics and business intelligence (BI). -Explain the foundations, definitions, and capabilities of DSS, data analytics and BI. -List the definitions, concepts, and architectures of data warehousing.

<p>Principles of Geographic Information</p>	<ul style="list-style-type: none">- will be able to generate information from earth observation and GIS data to support the study and visualization of processes in system Earth and the related role of human beings.- In addition to a providing a strong theoretical basis, students will also develop practical skills in the capture and analysis of spatial data and the visualization of the resulting information
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