



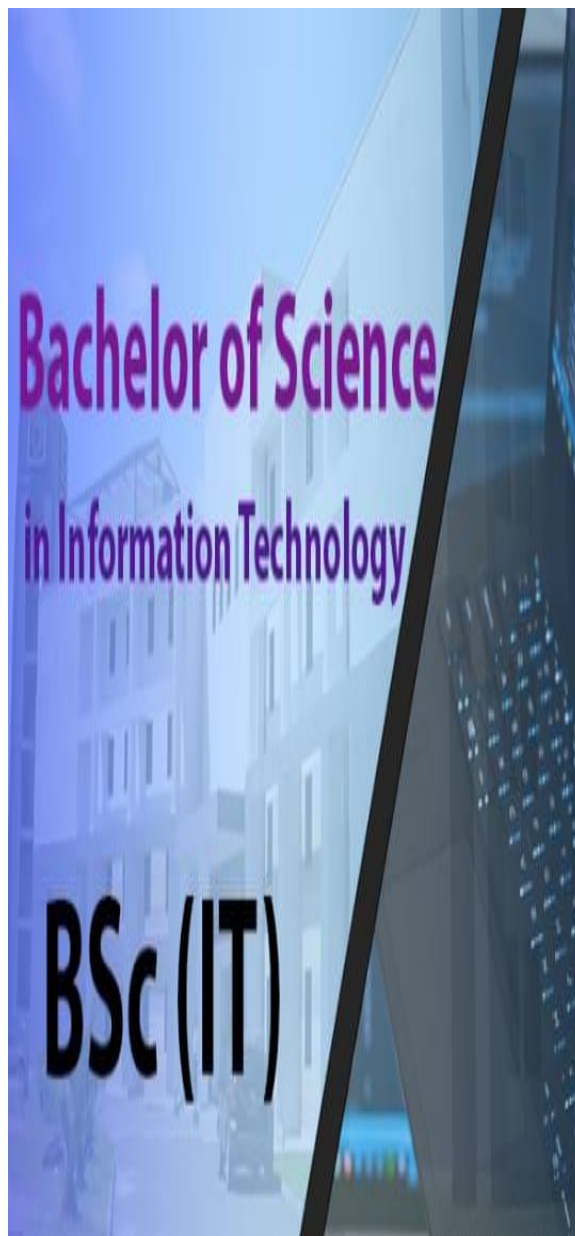
# Guardian Degree College of Arts, Commerce & Science

2023-2024

Affiliated to Mumbai University

## Overview

A Bachelor of Science in Information Technology (BSc IT) is an undergraduate degree program that focuses on the study of information technology, computer science, and related fields. It is designed to provide students with a strong foundation in IT concepts and skills, enabling them to pursue careers in various technology-related industries. In this information age, technology play a vital role. IT subjects can connect the various disciplines and provide information pertaining to diversified sectors. The unique feature of our IT department is that we focus more on real time projects, case studies based on practical sessions. Our laboratory is fully enhanced with latest software as per the syllabus requirement. Other than the assigned projects by UOM, we also encourage students to undertake additional projects to equip them with practical aspects in their subject. In addition to this department is motivating the students to develop the technological skills through real time projects. The club 'Tech-know' is organising various activities to enhance the technical skills. The department has signed MOU with the industry to provide IT solutions.



## Programme Outcome

- ✦ Develop the learner's analytical and technical knowledge and prepares them for higher studies.
- ✦ Enhance the learners Research and Development skills.

## Program Specific Outcome:

- ✦ Focus on the mathematical and theoretical foundations of computing, rather than teaching specific technologies that may quickly become out-dated.. ✦ Develop analytical skills in order to achieve research oriented goals.
- ✦ Enrich knowledge for developing and maintaining various software applications
- ✦ Enhances learners' skills for pursuing higher education.
- ✦ Identify employable opportunities in various MNCs as developers and testers.

## Course Outcome

FY BSc IT -Semester I	
Imperative Programming	Knowledge about imperical language. Illustrate the flowchart and design an algorithm for a given problem and develop C programs. Develop conditional and iterative statements to write C program. Exercise user defined functions to solve real time problems.
Digital Electronics	Knowledge about digital system and its compatible number system Implementing logic with the help of different techniques of Boolean algebra in devices such as such as gates, flip-flops, counter, adders and subtractors. Hands on over designing and development of logic circuits with digital components and integrated circuits.
Operating Systems	Develop the concept of how computer platform works. Identify various computer tasks. Develop strong basic thinking about computer behaviour.
Discrete Mathematics	Impart analytical and critical thinking Develop logical thinking and its application in various fields Inculcate the problem solving abilities
Communication Skills	Understanding role and importance of communication in business world. Getting acquainted with different forms of communication in business world. Understanding process of interaction, perception and response in global scenario.

## FY B Sc IT –Semester II

Object oriented Programming 2	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	<p>Knowledge about 8085, sap, its architecture and programming.  Knowledge of assembly language programming with 8085 kits and instructions.  Overview about advance Pentium architecture.</p>
Web Programming	<p>Knowledge of HTML, JavaScript, PHP and MySQL.  Knowledge of CSS, user define functions and construction of dynamic webpages  Base for website development and software project with the help of PHP MySQL connectivity.</p>
Numerical and Statistical Methods	<p>Impart analytical and critical thinking  Develop logical thinking and its application in various fields  Inculcate the problem solving abilities</p>
Green Computing	<p>Educate about various international organizations for environment protection and e-waste management.  What are the policies adopted for using renewable sources of energy.  How to create economically, environmentally stable office work culture.</p>

	<b>SY B Sc IT -Semester III</b>
Python Programming	<p>Enhances the programming skills of the learners.  Provides a base for programming deep learning, machine learning and artificial intelligence.  Storage and retrieval of data in the back end</p>
Data Structures	<p>Develop the understanding of using data structure and algorithm for programming  Design the algorithms for various problem solving  Enhance the ability of students to understand analyze algorithm and its correctness.  Summarizing the sorting and searching techniques.</p>
Computer Networks	<p>Developed deep understanding about how computer works in networking.  Various aspects to develop communication among different networking devices.  What is protocol and how they are making network to work and it's implementation.</p>
Database Management Systems	<p>Describe the fundamental elements of relational database management systems  Explain the basic concepts of relational data model, entityrelationship model, relational database design, relational algebra and SQL.  Design ER-models to represent simple database application scenarios  Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.  Improve the database design by normalization.  Use of PLSQL.</p>
Applied Mathematics	<p>Impart analytical and critical thinking  Develop logical thinking and it's application in various fields  Inculcate the problem solving abilities</p>

	<b>SY B Sc IT -Semester IV</b>
Core Java	Develop the understanding of using java basics for programming Writing java code for problem solving and application development
Introduction to Embedded Systems	Knowledge about embedded system, its components, designing, development. Programming $\mu$ c for application specific requirements. Nontechnical requirements while designing and developing embedded projects.
Computer Oriented Statistical Techniques	Impart analytical and critical thinking. Develop logical thinking and its application in various fields. Inculcate the problem solving abilities.
Software Engineering	Understand various types of software development models Hands on practical on star UML software to develop various diagram. Understanding the concept of project management, roles of project manager. Clear understanding of how to estimate the cost of project, various techniques for the same. Understanding of how to implement various strategies to handle and improve the complete development of project.
Computer Graphics and Animation	Apply different line drawing algorithms Apply 2D and 3D transformations Learn about computer animation and image manipulation Understand different algorithms for surface visibility determination.

	<b>TY B Sc IT-Semester V</b>
Software Project Management	Manage the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders. Align the project to the organization's strategic plans and business justification throughout its lifecycle. Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements in
	consultation with stakeholders. Implement project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success.
Internet of Things	Knowledge about the structure ,components ,designing and development of Internet of Things Gain the knowledge about prototyping at various levels such as electronics, software and physical designing Able to implement IOT system in practical by hands on for Raspberry Pi boards, sensors and actuators.

Advanced Web Programming	<p>Understand Object-oriented concepts/techniques in Web programming</p> <p>Understand Three-tier architecture in Web programming</p> <p>Understand Session management</p> <p>Implement Advanced CSS concepts and techniques</p> <p>Implement Advanced database interactions</p> <p>Implement Data validation techniques</p> <p>Create Authentication and security in Web pages</p> <p>Create rich interactive web applications using XML and Ajax toolkit.</p>
Artificial Intelligence(Electives)	<p>Introduces to various algorithms and analytical techniques of AI.</p> <p>Explains various scenarios and problems solved using AI.</p> <p>Creates interest to the learners in the developing field of AI.</p> <p>Explains how AI can be combined with Internet of Things.</p>
Linux System Administration	<p>Understand the basic set of commands and editors in Linux operating system</p>
Enterprise Java(Electives)	<p>Develop the understanding of using advanced java technical features for programming to develop enterprise application</p> <p>Writing java code for problem solving and application development</p>
Next Generation Technologies	<p>Develop understanding of how big database is different from relational databases.</p> <p>Behaviour of unstructured database and execution of query.</p> <p>How to connect unstructured database to various softwares.</p> <p>How memory less database works.</p>

	<b>TY B Sc IT-Semester VI</b>
Software Quality Assurance	<p>Understand quality management processes</p> <p>Distinguish between the various activities of quality assurance, quality planning and quality control.</p> <p>Understand the importance of standards in the quality management process and their impact on the final product.</p>
Security in Computing	<p>Ability to understand the necessity of data security.</p> <p>Educates about the various threats, risks that affect our data.</p> <p>Understand the latest technologies and protocols available to protect our data.</p>

Business Intelligence	<p>The ability to understand the role of technology in conducting Business efficiently and effectively</p> <p>The ability to implement modern techniques in data analytics and its implementations in business intelligence.</p> <p>The ability to use various numerical and mathematical models to classify the data from the business perspective. The ability to use DSS , AI , Expert Systems and KMS for enhancing the business.</p>
Principles of Geographic Information <b>(Electives)</b> Systems	<p>Comprehend fundamental concepts of Geographic Information Systems (GIS) and advances in Geospatial Information. Apply basic graphic and data visualization concepts such as colour theory, symbolization. Use file and database management.</p> <p>Working with Projections and WMS Data</p> <p>Work Nearest Neighbour Analysis, Sampling Raster Data using</p>
	Points or Polygons, Interpolating Point Data Validating Map data
Enterprise Networking	<p>Develop the concept of how from networking, Enterprise networking is different, the wide and scalable behavior of Enterprise Networking.</p> <p>How various networking devices works closely and follows various communication and security protocol.</p> <p>How communication between various LAN, WAN established.</p> <p>Practical implementation of virtualization in LAN.</p>
IT Service Management	<p>Develop management skills that how to gather requirements from clients</p> <p>Understand how to design different strategies of IT services</p> <p>Understand how to transit IT services to the customer</p> <p>Understand how to implement and Estimate the project cost efficiently.</p>
Cyber Laws	<p>Understand different laws and IT acts related to cyber-crimes and justice for the same.</p> <p>Understand different status of network based contracts related to various acts.</p> <p>Understand the concept of copyright protection and battle of cyber squatters as well as concept of e-commerce taxations, digital signatures and certifying authorities.</p>

*Sobha*



Dr. Sobhana Nair

Principal

Guardian Degree college of Arts Science and commerce