



Dnyan Ganga Education Trust's

DEGREE COLLEGE OF ARTS, COMMERCE & SCIENCE

Opp Unnathi Greens, Near Haware Citi, Kasarvadavali, G.B. Road, Thane – (W) 400615

PROGRAMME OUTCOMES & COURSE OUTCOMES

**BACHELOR OF SCIENCE
(INFORMATION TECHNOLOGY)**



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BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

PROGRAMME OUTCOMES

After completion of the programme, students will be able to.....

PO1: The main objective of the programme to think analytical, logical, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex solutions. And creating real life applications.

PO2: Statistical theory and techniques to analyse and model different real life data sets.

PO3: Student can make carrier in different fields as, banks, multinational companies, insurance companies, pharmaceutical companies, business analytics etc. as well as government services as, UPSC, MPSC, RBI, ISS etc. by using different programming language.

PO4: This course helps a student to apply their knowledge and skills to be employed and excel in IT professional careers and to continue their education in IT and related postgraduate programmes.

COURSE OUTCOMES

F.Y.BSC.IT Semester - I

1. Technical Communication Skills

CO1: Students will learn to recognize the importance of various types of communication in a technical set up.

CO2: Students understand the dynamics of different types of formal communication.

CO3: Students will acquire the skill of about active listening and the art of giving presentations and interviews

CO4: Students will learn the art of business writing and ethics in business communication across functional areas.

CO5: Students will evaluate, analyse and interpret technical data.

2. Computational Logic and Discrete Structure

CO1: Students will learn about topics such as logic and proofs, sets theory and relations functions, probability, recursion, and other important logics concepts

CO2: students learns the binary system in matrix form





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CO3: students will learn applications of a random variable, and probability distribution.

CO4: Students will learn about topics like graph theory, trees. Gaining knowledge on implementation of various methods using SCILAB software

3. Digital Logic and Applications

CO.1: Apply number conversion techniques in real digital systems

CO.2: Solve Boolean algebra expressions

CO.3: Derive and design logic circuits by applying minimization in SOP and POS forms

CO.4: Design and develop Combinational and Sequential circuits

CO.5: Understand and develop digital applications

4. Programming Principles with C

CO1: To develop the logical ability of the student.

CO2: Basic concepts to be cleared using suitable examples.

CO3: Different approach towards the problem.

CO4: To handle the errors and find suitable solutions.

CO5: Debugging the code.

5. Fundamentals of Database Management Systems

CO.1: Define and describe the fundamental elements of relational database management systems.

CO.2: To relate the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

CO.3: Design ER-models to represent simple database application scenarios.

CO.4: Transform the ER-model to relational tables, populate relational databases and formulate SQL queries on data. Improve the database design by normalisation.

CO. 5: Understand basic database storage structures and access techniques: file and page organisation, indexing methods and hashing.

FYBSC - IT - Semester – II

1. Object oriented Programming Practical

CO.1: Understand the concept of OOPs, features of C++ language.

CO.2: Understand and apply various types of Data Types, Operators, Conversions while designing the program.





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CO.3: Understand and apply the concepts of Classes & Objects, friend function, constructors & destructors in program design.

CO.4: Design & implement various forms of inheritance, String class, calling base class constructors.

CO.5: Apply & Analyse operator overloading, runtime polymorphism, Generic Programming. Analyse and explore various Stream classes, I/O operations and exception handling.

2. Microprocessor Architecture

CO.1 To understand the basic concept of Micro Computer Systems

CO.2 To develop background knowledge in 8085 Microprocessor

CO.3 To write Assembly language Programs of 8085

CO.4 To understand the peripheral devices and interfacing to 8051 Microcontroller and design aspects of Micro Controller.

3. Web Programming

CO.1: Understand basic concepts of Internet and World Wide Web.

Comprehend different HTML elements that can be used to develop static web pages.

CO.2: Become familiar with the concept of stylesheets and various CSS effects.

CO.3: Peruse JavaScript as a tool to add dynamism to static HTML pages.

CO.4: Explore how server-side script works on the web.

CO.5: Learn how PHP can be connected to a database to store and retrieve data.

4. Numerical and Statistical Methods

CO1: Students will learn the fundamental principles of numerical and statistical methods.

CO2: To provide various methods of solving algebraic/transcendental equations and systems of simultaneous equations.

CO3: Students will identify the areas applied in numerical interpolation, differentiation, integration, and differential equations and method of finding solutions.

CO4: Students learn the different methods of correlation and regression.

CO5: To have knowledge in probability distributions. Gaining knowledge on implementation of various methods using SCILAB software

5. Green Computing

CO.1: Understand the concept of Green IT and problems related to it.

CO.2: Know different standards for Green IT.





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CO.3: Understand how power usage can be minimised in Technology.

CO.4: Learn about how the way of work is changing.

CO.5: Understand the concept of recycling.

CO. 6: Know how the information system can stay Green Information system.

6. PL SQL

CO.1 Understand the basics of PL/SQL.

CO.2. Use of the control and conditional statement in PL/SQL.

CO.3. Apply sequences and cursor in PL/SQL.

CO.4. Know the concept of stored procedure and functions

CO.5. Create the triggers and packages in PL/SQL.

CO.6. Implement the concept of Exception handling.

S.Y.BSC.IT Semester - III

1. Python Programming

CO.1 Knowledge and understanding of one of the known programming languages i.e. python programming

CO.2. Knowledge of how to do coding in python programming

CO.3. To understand why Python is a useful scripting language for developers.

CO.4. To learn how to design and program Python applications.

CO.5. To learn how to use lists, tuples, and dictionaries in Python programs.

2. Data Structures

CO.1 To understand the concepts of data structure and its significance in programming.

CO.2 Provide a holistic approach to design, use and implements abstract data types.

CO.3 Understand the commonly used data structure and various forms of its implementation.

3. Computer Networks

CO.1. Understand the concepts of Data Communication.

CO.2. Study the functions of OSI Layers. Familiarize with the Transmission Media, Flow Control and Error Detection & Correction.

CO.3. Understand fundamental concepts in Routing, Addressing & working of Transport Protocols.





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CO.4. Gain familiarity with common networking & Application Protocols.

CO.5. Understand Wireless LANs & Wireless Sensor Networks Op.

4. Database Management Systems

CO1: To present an introduction to database management systems, with an emphasis on how to organise, maintain and retrieve - efficiently, and effectively - information from a DBMS.

CO2: Explain the basic concepts of relational data model, entity-relationship model, relational

database design, relational algebra and SQL.

CO3: Design ER-models to represent simple database application scenarios

CO4: Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.

CO5: Improve the database design by normalisation. Familiar with basic database storage structures and access techniques: file and page. organisations, indexing methods including B tree, and hashing.

5. Applied Mathematics

CO1: From this subject, students will learn about topics such as matrices, complex numbers, linear equations, and other important different topics of Applied Mathematics. students will get knowledge of this subject Applied mathematics an overview of matrices and functions of complex variables which helps in solving many problems.

CO2: Application of integration Complex Variable, Laplace Transform These topics involve the study of an analytic function and mapping of complex function,

CO3: Laplace transform, Inverse Laplace transform and application of Laplace transform to solve differential equations.

CO4: Student understand the application of Beta and Gamma-transform

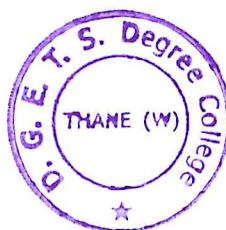
6. Mobile Programming

CO.1 Build enterprise level mobile applications with Kotlin on Android

CO.2 Understand both the basic and advanced concepts of Kotlin

CO.3 Understand why use Kotlin over Java Install and configure Android Studio

CO.4 Explain and use key Android programming concepts





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CO.5 Creating robust mobile applications and learn how to integrate them with other services Creating intuitive, reliable mobile apps using the android services and components

SYBSC - IT - Semester – IV

1. Core Java

CO.1.write simple programs in Java implementing the concepts of loops, conditional statements like if, if...else, operators like addition, subtraction, data types for usage of characters, strings and numbers

CO.2.write programs to implement concepts like constructors, destructors, abstract classes, single level and multiple inheritance, method overriding, importing and creating packages

CO.3.implement vectors, thread lifecycle and multithreading, functions to open a file and read its content, copy contents from one file to another.

CO.4.implement exception handling to handle runtime errors such as ClassNotFoundException, IO Exception, SQL Exception, Remote Exception

CO.5.implement GUI programming by creating AWT applications to perform different tasks.

2. Introduction to Embedded System

CO 1. To understand the concept and facts behind designing the embedded system using simulation.

CO 2. To understand the structure and operation of embedded system through instruction sets.

CO 3. To Introduce Bus Communication in processors, Input/output interfacing

CO 4. To introduce the Building Blocks of Embedded System.

3. Computer Oriented Statistical Techniques

CO1: Students will learn to Calculate mean, median, and mode for individual series. Outline properties of correlation and compute Karl Pearson's efficient of correlation.

CO2: How to apply discrete and continuous probability distributions to various business problems.

CO3: Perform a Test of hypothesis as well as calculate confidence interval for a population parameter for single sample and two sample cases. Understand the concept of p-values.





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CO4: Learn non-parametric tests such as the Chi-Square test for Independence as well as Goodness of Fit.

CO5: Compute and interpret the results of Bivariate and Multivariate Regression and Correlation Analysis, for forecasting. Learning the basic programming concepts and methods of R software. Gaining knowledge on implementation of various statistical techniques using R tool

4. Software Engineering

CO.1. Be successful professionals in the field with solid fundamental knowledge of software engineering

CO.2. Utilize and exhibit strong communication and interpersonal skills, as well as professional and ethical principles when functioning as members and leaders of multi-disciplinary teams

CO.3. Apply their foundations in software engineering to adapt to readily changing environments using the appropriate theory, principles and processes.

CO.4. The object-oriented approach of UML is to analyse and design systems and software solutions. **CO.5.** The objective is to train UML notation to create effective and efficient system designs using UML notation and symbols.

5. Computer Graphics

CO.1 Geometric Transformations in 2-Dimensional and 3-Dimensional perspectives

CO. 2 Object representations

CO. 3 Surface detection procedures

CO.4 Computer Animations

CO.5 Introduction to input output devices, CRT display, LCD ,LED.

T.Y.BSC.IT Semester - V

1. Software Project Management

CO1: How does the project fit into the organisation?

CO2: How will the project evolve over time?

CO3: What skills are required to manage the project successfully?

CO4: Development and Implementation of procedures

CO5: Efficient communication, collaboration, and productive guidelines





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CO6: Achieve project goals within the estimated time with high quality

CO7: Allocate and optimise necessary resources to meet project goals

CO8: Meet the exclusive needs and requirements of the client

2. Internet of Things

CO.1.will be able to: relate to the technology of the Internet of Things, designed principles like small pieces, loosely joined and learn the IP address ports and assignments

CO.2.Analyze and learn physical prototyping and mass personalization, basics of microcontrollers and development using Arduino

CO.3.Learn concepts like laser cutting, CNC milling, 3D printing, creating and implementing API, polling and various protocols like message protocols

CO.4.Explain the types of memories, process of debugging, the business model campus, venture capital and process of funding for an IOT startup

CO.5.Learn how manufacturing of printed circuit boards, etching boards, milling boards is done and how privacy, crowdsourcing and cautious optimism can be maintained.

3. Advanced Web Programming

CO1: Support the development of web pages

CO2: Write scripts using JavaScript in a web page

CO3: Effectively incorporate JavaScript in a web page

CO4: Create forms and check for data accuracy

CO5: Use JavaScript system objects

CO6: Embed objects in a web page

CO7: Effectively use decision and looping statements in JavaScript programs

CO8: Effectively manipulate strings

CO9: Effectively use array processing.

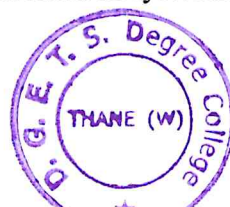
4. Artificial Intelligence

CO1.Knowledge and understanding of one of the known how AI is changing the world

CO.2 Knowledge of how to do coding for solving various gaming problems in AI

CO.3.Knowledge of how to apply the basic principles, models, and algorithms of AI to recognize, model.

CO.4.solve problems in the analysis and design of information systems.





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CO.5.Analyze the structures and algorithms of a selection of techniques related to searching, reasoning, machine learning, and language processing.

5. Enterprise Java

CO.1 Students should be able to access databases through Java programs, using Java Database Connectivity (JDBC).

CO.2 Create dynamic web pages, using Servlets and JSP.

CO.3 Understand the multi-tier architecture of web-based enterprise applications using Enterprise JavaBeans (EJB) and develops Stateful, Stateless and Entity Beans.

6. Project Dissertation

CO1: How does the project fit into the organisation

CO2: How will the project evolve over time?

CO3: What skills are required to manage the project successfully?

CO4: Development and Implementation of procedures

CO5: Efficient communication, collaboration, and productive guidelines

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TYBSC - IT - Semester – VI

1. Software Quality Assurance

CO.1.Students learn to apply software testing knowledge and engineering methods

CO.2.Students understand and identify various software testing problems, and solve these problems by designing and selecting software test models, criteria, strategies, and methods.

CO.3.Students analyse and understand the use of software testing methods and modern software testing tools for their testing projects

CO.4.Students identify defects and manage those defects for improvement in quality for given Software

CO.5.Students learn to design SQA activities, SQA strategy, formal technical review report for software quality control and assurance





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2. Security in Computing

CO.1.Confidentiality, Integrity, Availability, and Nonrepudiation.

CO.2.Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure.

CO.3.Design, develop, test and evaluate secure software.

3. Advanced Mobile Programming

CO.1 Introduction to Basic Android Programming

CO.2 Introduction to concepts like layouts, intents, activities, fragments, dialog

CO.3 Introduction to database, services, broadcast receivers

CO.4 Knowledge of concepts like layouts, intents, activities, fragments, dialog

CO.5 Knowledge of Basic Android Programming.

4. Business Intelligence

CO1: Business intelligence is the process by which enterprises use strategies and technologies for analysing current and historical data, with the objective of improving strategic decision-making and providing a competitive advantage.

CO2: A business intelligence system provides decision makers with information and knowledge extracted from data, through the application of mathematical models and algorithms.

CO3: The goal of cluster analysis is to partition the data into distinct sub-groups or clusters such that observations belonging to the same cluster are very similar or homogeneous and observations belonging to different clusters are different or heterogeneous

CO4: Business intelligence enhances supply chain management by making real-time data analytics accessible. Self-service BI takes this a step further by allowing users to run their own queries and create their own reports, even if they don't have a background in statistical analysis.

5. Cyber Laws

CO1.The primary objectives of the IT Act, 2000 are: Granting legal recognition to all transactions done through electronic data exchange, other means of electronic communication or e-commerce in place of the earlier paper-based communication.

CO2. Cyber laws also prevent copyright infringement and enforce copyright protection. They provide individuals and businesses with the right to protect their creative works and to profit from them.





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CO3. Cyber Laws yields legal recognition to electronic documents and a structure to support e-filing and e-commerce transactions and also provides a legal structure to reduce, check cyber crimes

CO4. Learn the concept regarding E-Commerce Taxation: Real Problems in the Virtual World and Digital Signature, Certifying Authorities and E-Governance.

CO5. Learn the difference between The Indian Evidence Act of 1872 and Information Technology Act, 2000. Protection of Cyber Consumers in India

6. Enterprise Network

CO.1 To understand the concept of Configure, troubleshoot, and manage

CO.2 enterprise wired and wireless networks and implement security principles within an enterprise network.

7. Project Implementation

CO1: How does the project fit into the organisation

CO2: How will the project evolve over time?

CO3: What skills are required to manage the project successfully?

CO4: Development and Implementation of procedures

CO5: Efficient communication, collaboration, and productive guidelines

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I/C PRINCIPAL

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