SHREE SADGURU VAMANBABA MAHARAJ SHIKSHAN PRASAPAK MANDAL's
EKNATH B. MADHAVI SENIOR COLLEGE OF ARTS, COMMERCE AND SCIENCE.
(Affiliated to University of Mumbai)
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Bachelor of Science (Information Technology) (B.Sc(I.T)

Course Outcome

Sr.No	Subject	Course Outcome
1	**Fundamentals Database Management System** (FYIT SEM I)	1. Explain the features of database management systems and Relational database. 2. Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra. 3. Create and populate a RDBMS for a real life application, with constraints and keys, using SQL. 4. Retrieve any type of information from a data base by formulating complex queries in SQL. 5. Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
1	***Operating Systems*** *(FYIT SEM I)*	*1. Describe the important computer system resources and the role of operating system in their management policies and algorithms.* *2. Understand the process management policies and scheduling of processes by CPU* *3. Evaluate the requirement for process synchronization and coordination handled by operating system* *4. Describe and analyze the memory management and its allocation policies.* *5. Identify use and evaluate the storage management policies with respect to different storage management technologies.* *6. Identify the need to create the special purpose operating system.*
2	**Web Application Development / Web Programming** (FYIT SEM II)	1. Implement interactive web page(s) using HTML, CSS and JavaScript. 2. Design a responsive web site using HTML5 and CSS3. 3. Demonstrate Rich Internet Application. 4. Build Dynamic web site using server side PHP Programming and Database connectivity. 5. Describe and differentiate different Web Extensions and Web Services.

3	**Principles of Programming in C/ Imperative Programming** FYIT SEM I)	After studying this course the students would gain enough knowledge 1. Write simple programs using conditional and iterative statements. 2. Classify the array. 3. Developing mini applications.
4	**OOPS / Object Oriented Programming With C++** (FYIT SEM II)	Students will be able to: 1. Understand the basic concepts of Object Orientation necessary to efficiently and accurately use in technology. Create real applications using Object Orientation Concepts.
5	**Digital Logic & Applications / Digital Electronics** (FYIT SEM I)	After studying this course the students would gain enough knowledge 1. Have a thorough understanding of the fundamental concepts and techniques used in digital electronics. 2. To understand and examine the structure of various number systems and its application in digital design. 3. The ability to understand, analyze and design various combinational and sequential circuits.
6	**TCS / CS** (FYIT SEM I)	The study of this paper can enhance the following abilities of students : 1. Effective Communication in the professional fields 2. Appropriate use of different constructions 3. Better understanding of syntax 4. Presentation Skills 5. Team work
7	**Discrete Mathematics** (FYIT SEM I)	Students will be able to: 1. Write an argument using logical notation and determine if the argument is or is not valid. 2. Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described. 3. Understand the basic principles of sets and operations in sets. 4. Prove basic set equalities. 5. Apply counting principles to determine probabilities. 6. Demonstrate an understanding of relations and functions and be able to determine their properties. 7. Determine when a function is 1-1 and "onto".

		8. Demonstrate different traversal methods for trees and graphs.
8	**Numerical and Statistical Methods** (FYIT SEM II)	The student will develop a working knowledge of several numerical methods and their analytical basis. 1. Ability to flowchart logic for problem solving 2. Solve root finding problems using several methods 3. Solve systems of linear algebraic equations using Gauss elimination 4. Perform regression and interpolation on datasets 5. Numerically differentiate and integrate
9	**Microprocessor Architecture** (FYIT SEM II)	1. To introduce students with the architecture and operation of typical microprocessors. 2. To familiarize the studentswith the programming and interfacing of microprocessors . 3. To provide strong foundation for designing real world applications using microprocessors and microcontrollers.
10	**Green computing / Green IT** (FYIT SEM II)	1. Describe awareness among stakeholders and promote green agenda and green initiatives in their working environments leading to green movement 2. Identify IT Infrastructure Management and Green Data Centre Metrics for software development 3. Recognize Objectives of Green Network Protocols for Data communication. 4. Use Green IT Strategies and metrics for ICT development 5. Illustrate various green IT services and its roles. 6. Use new career opportunities available in IT profession, audits and others with special skills such as energy efficiency, ethical IT assets disposal, carbon footprint estimation, reporting and development of green

		products, applications and services.
11	PYTHON PROGRAMMING SYIT SEM III)	1.Create a GUI application using the Python programming language. 2.Problem solving and programming capability. 3.Install and run the Python interpreter 4.Student will able to Understand the concepts of file I/O
12	COMPUTER GRAPHICS & ANIMATION SYIT SEM IV)	Students will able to: 1. To list the basic Virtual Reality of the components of a graphics system and become familiar with building approach of graphics system components and algorithms related with them. 2. 2.D dimensional computer graphics 3. 3- D dimensional computer graphics. 4. Provide an understanding of how to scan convert the basic geometrical primitives, how totransform the shapes to fit them as per the picture definition 5. Provide an understanding of mapping from a world coordinates to device coordinates,clipping, and projections. 6. To implement various algorithms to scan, convert the basic geometrical primitives,transformations, Area filling, clipping. 7. . To describe the importance of viewing and projections. 8. Apply critical thinking skills and provide artistic decisions to computer graphics related problems 9. Demonstrate proficiency of specific theoretical, practical and critical skills within computergraphics and animation

13	EMBEDDED SYSTEMS SYIT SEM IV)	Students will able to: 1. Embedded system concepts and architecture of embedded systems 2. Describe the architecture of 8051 microcontroller and write embedded program for 8051 microcontroller. 3. Design the interfacing for 8051 microcontroller. 4. Understand the concepts of ARM architecture. 5. Demonstrate the open source RTOS and solve the design issues for the same. 6. Select elements for an embedded systems tool.
14	**COMPUTER NETWORKS** SYIT SEM IV)	1. Describe the functions of each layer in OSI and TCP/IP model. 2. Explain the functions of Application layer and Presentation layer paradigms and Protocols. 3. Describe the Session layer design issues and Transport layer services. 4. Classify the routing protocols and analyze how to assign the IP addresses for the given network. 5. Describe the functions of data link layer and explain the protocols. 6. Explain the types of transmission media with real time applications
15	**Applied Mathematics** (SYIT SEM III)	The student after undergoing this course will be able to 1. Solve problems in domain related to Linear Algebra using Matrices. 2. Able to solve qualitative problems based on vector analysis and 3. matrix analysis such as linear independence and dependence of Vectors, rank etc. 4. Students learn about the how to solve mathematical problem with Laplace Transform and error functions and their applications. 5. Able to solve problems using Complex Numbers. 6. Come to know the applications of double and triple integration in finding the area and volume 7. Come to know about the ordinary differential equations 8. Clarification of numerical solutions of ordinary and partial Differential equations. 9. Come to know about the Differentiation Under Integral Sign 10. Come to know about the Beta, Gamma Function

16	**Computer Oriented Statistical Techniques** (SYIT SEM IV)	After learning the contents of this paper the student must be able to 1) Apply the concepts of probability and distributions 2) Correlate the material of one unit to the material in other units 3) Compute solution of algebraic and transcendental equation bynumerical methods 4) Apply method of interpolation and extrapolation for prediction 5) Recognize elements and variable in statistics and summarize Qualitative and quantitative data. 6) Calculate mean, median and mode for individual series 7) Outline properties of correlation and compute Karl-Pearson's coefficient of correlation.
17	**Core Java** (SYIT SEM IV)	After studying this course the students would gain enough knowledge 1. Design applications using abstract class and interface. 2. Implement file handling concepts. 3. Handle dynamic exceptions using exception handling. 4. Design windows based applications using AWT.
18	SOFTWARE ENGINEERING (SYIT SEM IV)	1. Define various software application domains and rememberdifferent process model used in software development. 2. Explain needs for software specifications also they can classifydifferent types of software requirements and their gathering techniques. 3. Convert the requirements model into the design model and demonstrate use of software and user interface design principles. 4. Distinguish among SCM and SQA and can classify different testingstrategies and tactics and compare them. 5. Justify role of SDLC in Software Project Development and they canevaluate importance of Software Engineering in PLC. 6. Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organizedifferent activities of project as per Risk impact factor.

19	Database Managem ent System (SYIT SEM III)	6. Explain the features of database management systems and Relational database. 7. Design conceptual models of a database using ER modeling for reallife applications and also construct queries in Relational Algebra. 8. Create and populate a RDBMS for a real life application, with constraints and keys, using SQL. 9. Retrieve any type of information from a data base by formulating complex queries in SQL. 10. Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.

20	**Data Structures** (SYIT SEM III)	Students will be able to: 1. Apply the concepts of data structures using any programming such as C, Python or C++. 2.Write code to implements different operations of data structures.3.Write code to implement different searching and sorting types. 4.Implement the execution of mathematical polynomial expression, hashing techniques anddifferent types of expressions such as infix, prefix, postfix. 5.Implement shortest path selection using graph techniques like BFS and DFS.
21	SOFTWARE QUALITY ASSURANCE (TYIT SEM VI)	1. To understand the nature of software development and software life cycle process models,agile software development, SCRUM and other agile practices. 2. To Explain methods of capturing, specifying, visualizing and analyzing softwarerequirements. 3. To understand concepts of software cost estimation 4. To know basics of testing and understanding concept of software quality assurance andsoftware configuration management process. 5. To understand need of quality management and project management life cycle. 6. To understand managing teams n working in teams.
22	Internet Of Things(TYIT SEM VI)	1. Apply the concepts of IOT. 2. Identify the different technology. 3. Apply IOT to different applications. 4. Analysis and evaluate protocols used in IOT. 5. Analysis and evaluate the data received through sensors in IOT.
23	Advanced Web programming g TYIT (SEM V)	1. To understand the concept of .Net. 2. To make student families to visual studio environment and therecontrols. 3. It help in learning new programming language like C#,AJAX,XML. 4. It also help students to develop there project and learn haw to makereal time projects.
24	Linux System Administration (TYIT SEM V)	1. Identify the basic Linux general purpose commands. 2. Apply and change the ownership and file permissions using advance Linux commands. 3. Use the awk, grep, perl scripts. 4. Implement shell scripts and sed. 5. Apply basic of administrative task. 6. Apply networking Linux commands.

25	Business Intelligence (TYIT SEM VI)	1. Identify sources of Data for mining and perform data Exploration 2. Organize and prepare the data needed for data mining algorithms in terms of attributes and class inputs, training, validating, and testing files. 3. Implement the appropriate data mining methods like classification, clustering or association mining on large data sets using open source tools like WEKA. 4. Implement various data mining algorithms from scratch using languages like Python/ Java etc. 5. Evaluate and compare performance of some available BI packages 6. Apply BI to solve practical problems Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.

26	SOFTWARE PROJECT MANAGEMENT (TYIT SEM V)	1. Define various software application domains and remember different process model used in software development. 2. Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques. 3. Convert the requirements model into the design model and demonstrate use of software and user interface design principles. 4. Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them. 5. Justify role of SDLC in Software Project Development and they can evaluate importance of Software .
27	**Enterprise Java** (TYIT SEM V)	Upon successful completion of this course the student will have reliably demonstrated the ability to: 1) Apply Enterprise architecture concepts, MVC architecture and advanced database techniques in web applications. 2) Use different web technologies 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. 6) Build a framework using Hibernate.
28	**Information Technology Service Management** (TYIT SEM VI)	Upon successful completion of this course the student will have reliably demonstrated the ability to: 1) How IT Service Management works. 2) Design and operate many applications related to IT Service Management.
29	Security in computing (TYIT SEM VI)	After successful completion of course the students should be able to 1. Formulate information security governance, and related legal and regulatory issues. 2. Devices how threats to an organization are discovered, analyzed, and dealt with. 3. Evaluate network security threats and countermeasures. 4. Construct network security designs using available secure solutions (such as PGP, SSL, IPSec, etc) 5. Acquire the knowledge of advanced security issues and technologies (such as DDoS attack detection and

		containment, and anonymous communications)

30	Geographic Information on Systems (TYIT SEM VI)	After completing this course the student will have acquired the ability on the following. 1. Understand the concepts of Photogrametry and compute the heights of objects 2. Understand the principles of aerial and satellite remote sensing, Able to comprehend the energy interactions with earth surface features, spectral properties of water bodies . 3.Understand the basic concept of GIS and its applications, know different types of data representation in GIS 4.Understand and Develop models for GIS spatial Analysis and will be able to know what the questions that GIS can answer are 5. Apply knowledge of GIS software and able to work with GIS software in various application fields 6. Illustrate spatial and non spatial data features in GIS and understand the map projections and coordinates systems 7. Apply knowledge of GIS and understand the integration of Remote Sensing and GIS