THE MOGAVEERA VYAVASTHAPAKA MANDALI
MVM Educational Campus
"Creating Quality...Delivering Excellence"
M V Mandali's Colleges of Commerce & Science
NAAC ACCREDITED
(Affiliated to University of Mumbai)
(Permanently Unaided Linguistic Minority Institution)
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PROGRAMME OUTCOMES

The College is affiliated to the University of Mumbai. Thus, the college follows the guidelines and syllabus prescribed by the Affiliated University.

PROGRAMME: BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY(B.Sc.IT)

Programme Outcomes

On completion of the B.Sc. (Information Technology) degree the graduates will be able to:

PO1 - Apply the knowledge of mathematics, science and computing in the core information technologies.

PO2 - Identify, design, and analyse complex computer systems and implement and interpret the results from those systems.

PO3 - Select and apply current techniques, skills, and tools necessary for computing practice and integrate IT-based solutions into the user environment effectively.

PO4 - Apply ethical principles and responsibilities during professional practice.

PO5 - Communicate effectively with a range of audiences using a range of modalities including written, oral and graphical.

PO6 - Apply the knowledge of engineering and management principles to manage projects effectively in diverse environments as a member or a leader in the team.

Programme Specific Outcomes

PSO1 - Learner will develop ability to understand, analyse and develop computer programs.

PSO2 - Learner will acquire ability to serve as Programmers or the Software Engineers with a sound knowledge of practical and theoretical concepts for developing software.

PSO3 - Learner will acquire ability to serve as System Administrators.

PSO4 – Leaner will acquire professional & communication skills and ability to give Technical Support for various systems

Semester wise Course Outcomes

- **Semester I**

Sr No	Subject Name	Learning Outcome
1	Imperative Programming	• Learn the statements of a C Language • Develop small application program in C Language.
2	Digital Electronics	• Learners would understand and examine the structure of various number systems and its application in digital design. • Develop the basic knowledge of digital logic and application of knowledge to understand digital electronics circuits. • Develop an ability to analyse and design various digital electronic circuits.
3	Operating Systems	• To understand design issues related to process management and various related algorithms • To understand design issues related to memory management and various related algorithms • To understand design issues related to file management and various related algorithms.
4	Discrete Mathematics	• Learners will be able to apply mathematical and computing theoretical concepts in solution of common computing applications.
5	Communication Skills	• Learners will be able to communicate in written and oral forms in such a way as to demonstrate their ability to present information clearly, logically, and critically.

- **Semester II**

Sr No	Subject Name	Learning Outcome
1	Object oriented Programming	• To identify the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects. • To apply dynamic memory management techniques using pointers, constructors, destructors, etc. • Utilize the concept of function overloading, operator overloading, virtual functions and polymorphism
2	Microprocessor Architecture	• Understand the full internal workings of a typical simple CPU including the utilization of the various hardware resources during the execution of instructions. • Introduce the design of basic I/O hardware and microprocessor interfacing: memory chip selection, memory expansion, I/O interfacing. • Interface input and output devices like LCD, LED, Keyboards ADC, DAC and stepper motor to microprocessors. • 4. Design the home appliances and toys using Microprocessor chips.
3	Web Programming	• Understand best technologies for solving web client/server problems • Analyse and design real time web applications • Use Java script for dynamic effects and to validate form input entry • Analyse to Use appropriate client-side or Server-side applications.
4	Numerical and Statistical Methods	• Learners will be able to apply mathematical and computing theoretical concepts in solution of common computing applications.
5	Green Computing	• Understand the concept of green IT and relate it to sustainable development and apply the green computing practices to save energy and develop special skills such as energy efficiency, ethical IT assets disposal, carbon footprint estimation, reporting and development of green products, applications and services.

- **Semester III**

Sr No	Subject Name	Learning Outcome
1	Python Programming	• Interpret the fundamental Python Syntax and Semantics. • Express Proficiency in the handling of Strings and Function. • Determine the method to create and manipulate python program by utilizing the data structure. • To create python program using object and class • To explore the mechanism of modular programming using modules and package.
2	Data Structures	• Learners will be able to understand the representation and use of primitive data types, built in data structures and allocation used in memory • Understand the concept of stack, queue, link list, tree, graph, memory allocation, garbage collection and applications of Data Structures.
3	Computer Networks	• Understand different types of networks, various topologies and application of networks. • Understand types of addresses, data communication. • Understand the concept of networking models, protocols, functionality of each layer and Basic networking concepts.
4	Database Management Systems	• Appreciate the need for DB approach and understand the components and roles of DBMS • Write SQL queries for the given problem statement • Apply DB system development life cycle to business problems • Develop ER diagram for representing conceptual data model • Convert ER diagram into a set of relations representing logical data model.
5	Applied Mathematics	• Learners will be able to apply mathematical and computing theoretical concepts in solution of common computing applications. • Understand concepts of Laplace and inverse

		Laplace transform and solve differential equations by using Laplace and inverse Laplace transform. • 3. Solve multiple integral and find area and volume of regions by using multiple integration.

- **Semester IV**

Sr No	Subject Name	Learning Outcome
1	Core Java	• To learn Object Oriented Programming language. • To handle abnormal termination of a program using exception Handling.
2	Introduction to Embedded Systems	• Embedded systems including its generic architecture, design and classifications, Embedded processors and microcontrollers. • Student shall be able to design, fabricate, test and run the programs.
3	Computer Oriented Statistical Techniques	• Ability to distinguish between random and non-random experiments, • Knowledge to conceptualise the probabilities of events. Simultaneously, they will learn the notion of conditional probability including the concept of Bayes' Theorem.
4	Software Engineering	• Design and develop real-time software projects with effective cost estimation and plan • Make feasibility study of a project • Specify the design and architectural style of the software products. • Propose testing strategy for a given software
5	Computer Graphics and Animation	• Be familiarized with contemporary graphics hardware, the actual methodology and techniques to draw computer graphics, animations etc. for the real world presentation and how it is implemented in Computer graphics software • Develop new kinds of graphics and animations.

- **Semester V**

Sr No	Subject Name	Learning Outcome
1	Software Project Management	• To identify project planning and evaluation techniques. • To identify appropriate project approach and choosing technologies. • To explain the concept of estimation. • To determine an appropriate network planning models and identifying critical activities.
2	Internet of Things	• Learners will be able to learn different applications in IOT • Learners will be able to understand and implement Data and Knowledge Management and use of Devices in IOT Technology.
3	Advanced Web Programming	• Learners will be able to access and display dynamic data from data sources using ADO.NET model and data binding in web application. • Use of ADO.NET in a web application to read, insert, and update data in a database.
4	Linux System Administration	• To provide introduction to LINUX operating system and its File System. • To provide a comprehensive introduction to Shell Programming.
5	Next Generation Technologies	• Introduction about Big data. • Master the basics of SQL efficiently and apply object-oriented features for developing database applications. • Compare and Contrast NoSQL databases with each other and Relational Database Systems. • Compute the field, projection queries and apply the aggregation operators. • Demonstrate the knowledge of Key-Value databases, MongoDB and Relationships. • Demonstrate competency in selecting a particular NoSQL database for specific use cases.

- **Semester VI**

Sr No	Subject Name	Learning Outcome
1	Software Quality Assurance	• Learners will be able to investigate the reason for bugs and analyse the principles in software testing to prevent and remove bugs. • Implement various test processes for quality improvement, Design test planning and manage the test process
2	Security in Computing	• Learners will be able identify information security goals, classical encryption and decryption techniques and acquire fundamental knowledge related to confidentiality, authentication and integrity of data. • Learners will be able apply network security basics, analyse different attacks on networks and evaluate the performance of firewalls and various security protocols.
3	Business Intelligence	• Demonstrate knowledge of building blocks of AI as presented in terms of intelligent agents • Analyse and formulize the problem as a state space, graph and game based techniques to solve them • Critique intelligent algorithms for constrain satisfaction problems and also design intelligent systems for game playing
4	Principles of Geographic Information Systems	• Learners will be able to understand basic principles of GIS, techniques and real world applications. • Learners will be able to gain knowledge of basic concepts of geography that are used efficiently and accurately in GIS technology.
5	Cyber Laws	• To get knowledge about IT Act 2000 • To know all legal issues related to use of inter-networked information technology.