ST. STEPHEN'S COLLEGE UZHAVOOR

(Affiliated To Mahatma Gandhi University, Kottayam)

PROGRAMME OUTCOMES

UZHAVOOR P. O, KOTTAYAM, KERALA – 686 634

Email:info@ststephens.net.in

Website: www.ststephens.net.in

Postgraduate Programme Outcomes – MSc/MCom

Post Graduate Programmes offered by Mahatma University is Outcome-based, and the expected outcomes are as follows

PO1	Enhancing the horizon of knowledge so as to enable the learners to carry out qualitative research and pursue academic or professional careers.
PO2	Developing problem analysis skills and knowledge and applying the same in real life situation.
PO3	Using research knowledge and aptitude acquired in the course of study for solving socially relevant problems
PO4	Understanding the role and applicability of knowledge acquired in the context of society, environment and sustainable development sticking on to the ethics and values.
PO5	Developing effective communication skills and ability to work in teams by strengthening group dynamics
PO6	Fostering ability to engage in life long learning, demonstrating empathetic social concern, contributing to the development of nation, by making sure of awareness gained on various issues.

ST. STEPHEN'S COLLEGE UZHAVOOR

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PROGRAMME SPECIFIC OUTCOMES
M Sc Computer Science

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Master of Science in Computer Science Programmes offered by Mahatma University is Outcome-based, and the expected PSOs are as follows

PSO1	Create research contributions in the area of Computing/IT and ITES
PSO2	Be prepared for advanced education in computer science and software engineering
PSO3	Development of analytical skills, acquisition of knowledge, and understanding of systems, languages, and tools required for effective computation-based problem-solving.
PSO4	Recognize the importance and possess the skills necessary for life-long learning and students are expected to demonstrate the ability to communicate effectively and to work as a team.
PSO5	Students will gain substantial knowledge of one of the following Computer Science specialties: Database Management, Networking, ArtificialIntelligence, Information Security, Computer Engineering, etc.

Programme : M. Sc Computer Science

COURSE OUTCOMES

SEMESTER 1

CA500101 - Computational Mathematics

- ❖ Develop in students computational skills;
- ❖ To develop problem-solving skills.
- ❖ To study Theory of Automata
- ❖ To understand the basic concepts of statistics and fuzzy logic.
- ❖ To know basics of Correlation& Regression analysis.
- ❖ To apply mathematical thinking to real-world situations.

CA010101   Advanced web Technology

- ❖ Describe fundamentals of web
- ❖ Introduce the creation of static webpage using HTML
- ❖ Describe the importance of CSS in web development
- ❖ Describe the function of JavaScript as a dynamic webpage creating tool
- ❖ Distinguish PHP as a server side programming language
- ❖ Outline the principles behind using MySQL as a backend DBMS with PHP

CA010102-- Operating Systems

- ❖ Student will implement the concepts of Operating Systems
- ❖ To design and understand the following OS components: System calls, Schedulers, Memory management systems, Virtual Memory and Paging systems
- ❖ Understanding process synchronization and dead lock.
- ❖ Describe the important role of Linux operating system

CA500102—Advanced Java Programming

- ❖ Write Java application programs using OOP principles.
- ❖ Develop Java program using packages, inheritance and interface.
- ❖ Create multithreaded programs.
- ❖ Exception handling and develop programs using class.
- ❖ Develop graphical User Interface using Swing Controls.

- ❖ Demonstrate event handling mechanism.
- ❖ Understand File Management and Networking

CA010103 – Lab I Advanced Java Programming& PHP

- ❖ Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
- ❖ Understand the concepts of arrays, strings, packages and multithreading
- ❖ Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.
- ❖ Concepts of inheritance, packages, interfaces and multithreading are introduced
- ❖ Understanding GUI, Database and Networking
- ❖ Practical knowledge about file handling.
- ❖ Creating web pages using PHP and MYSQL.

SEMESTER II

CA500201 - Advanced Data Structures

- ❖ Understand different programming   methodologies&   Complexity of algorithms
- ❖ Understand the concept of Dynamic memory management, data types, algorithms, Big O notation
- ❖ Design and implement Data structures such as linked list, stack, and queue by using java as the programming language and using static or dynamic implementations.
- ❖ Demonstrate different sorting, searching techniques.
- ❖ Implementation of tree and graph data structure and its application
- ❖ Describe the hash function and concepts of collision and its resolution methods

CA010201 - Computer Networks

- ❖ Understand computer network basics, network architecture, TCP/IP and OSI reference models. Identify and understand various techniques and modes of transmission
- ❖ Describe data link protocols, multi-channel access protocols and IEEE 802 standards for LAN Describe routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme
- ❖ Understand multiple access protocols and Ethernet

- ❖ Understand the services of network layer, transport layer and application layer.
- ❖ Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS

CA010202 - Research Methodology and Technical Writing

- ❖ Overview of Research and its Methodologies
- ❖ understand some basic concepts of research and its methodologies
- ❖ identify appropriate research topics
- ❖ select and define appropriate research problem and parameters
- ❖ prepare a project proposal and organize and conduct research
- ❖ Reporting and thesis writing
- ❖ Understanding Ethics in Research

CA500202 - Database Management system and SQL

- ❖ Describe the fundamental elements of relational database management systems
- ❖ Understanding basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
- ❖ Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
- ❖ Improve the database design by normalization.
- ❖ Define database system concepts and apply normalization to the database.
- ❖ To know about Object Oriented Database Management Systems

CA010203 - Lab II [DS using Java, SQL]

- ❖ Array, Stack and various queue implementation
- ❖ Converting INFIX to POSTFIX and INFIX to PREFIX ,POSTFIX evaluation
- ❖ Searching - Linear and Binary search using arrays
- ❖ Sorting – Selection sort, Merge sort, insertion sort, Quick sort, Shell sort, Radix sort
- ❖ Lists implementation - Singly linked list, Circular linked list, Doubly linked list
- ❖ Graphs – Implementation of BFS and DFS
- ❖ Learn and apply structured query language (SQL) for database definition and database manipulation.

SEMESTER III

CA010301 - Digital Image Processing

❖ Review the fundamental concepts of a digital image processing system.

❖ Analyze images in the frequency domain using various transforms.

❖ To Study Image restoration and Compression

❖ Interpret image segmentation and representation techniques

CA800301-Introduction to Cyber Security

❖ Introduction to Computer Security : Study of Values of Assets, Threats, Confidentiality, Integrity

❖ Study of Access Control, Access Policies

❖ To know Security in Operating Systems

❖ Learn Threats to Network Communications Interception

❖ To Study Information Technology Act 2000 and Cyber Crimes

CA010302 - Python Programming

❖ To learn and understand Python programming basics and paradigm.

❖ To learn and understand python looping, control statements and string manipulations.

❖ Students should be made familiar with the concepts of GUI controls and designing GUI applications.

❖ To learn and know the concepts of file handling and exception handling .

❖ Design and implement packages and modules

❖ To Learn Simple Graphics and Image Processing

CA500301 - Software Engineering

❖ Learn basic principles of Software Engineering.

❖ Learn different process models

❖ Understanding UML Modelling and Diagrams

❖ Understand Software requirements and system design

❖ Learn Software Engineering Software testing strategy.

❖ Study of software quality and Risk management

CA010303 - Lab III [DIP using Python]

❖ To be able to introduce core programming basics and program design with functions

using Python programming language.

- ❖ To understand a range of Object-Oriented Programming
- ❖ To acquire programming skills in core Python.
- ❖ To acquire Object Oriented Skills in Python
- ❖ To develop the skill of designing Graphical user Interfaces in Python
- ❖ To develop the skill of designing programs using modules
- ❖ Understand the need for image transforms different types of image transforms and their properties.
- ❖ Program to input gray scale image and color image, convert image to array of numbers and perform rotations on the image.
- ❖ Develop Program to apply basic intensity transformations.

CA010304 - Mini Project using IOT

- ❖ Understand the concept of Internet of Things
- ❖ Implement interfacing of various sensors with Arduino/Raspberry Pi.
- ❖ Demonstrate the ability to work IOT Based system
- ❖ Students will be able design some IOT based Model.

SEMESTER IV

CA010401 - Data Mining

- ❖ To introduce the basic concepts of Data Warehouse and Data Mining techniques.
- ❖ To examine the types of the data to be mined and apply pre-processing methods on raw data.
- ❖ To discover interesting patterns, analyze supervised and unsupervised models and
- ❖ Estimate the accuracy of the algorithms. To understand various tools of Data Mining and their techniques to solve the real time problems.
- ❖ To develop ability to design various algorithms based on data mining tools.
- ❖ Apply the techniques of clustering, classification, association finding, feature selection and visualization to real world data.

CA800402 – Cryptography

- ❖ Analyze and design classical encryption techniques and block ciphers.
- ❖ Understand and analyze data encryption standard.

- ❖ Understand and analyze public-key cryptography, RSA and other public-key cryptosystems
- ❖ Understand key management and distribution schemes and design User Authentication Protocols.
- ❖ Analyze and design hash and MAC algorithms, and digital signatures.
- ❖ To Know Key Management and Distribution

CA800403- Ethical Hacking

- ❖ Outline ethical considerations of hacking and Ethics of Ethical Hacking.
- ❖ To learn about various types of attacks, attackers and security threats and vulnerabilities present in the computer system.
- ❖ To gain knowledge about Ethical hacking and penetration testing.
- ❖ Learn windows hacking and SQL injection attack
- ❖ To learn about Dos attacks and firewall
- ❖ To study Linux Exploits

CA010402 - Main Project

- ❖ Able to implement software engineering process models.
- ❖ Plan, analyze, design and implement a software project
- ❖ Learn about and go through the software development cycle with emphasis on different processes - requirements, design, and implementation phases.
- ❖ Provides technology-oriented students with the knowledge and ability to develop creative solutions.
- ❖ Able to implement solution using programming language
- ❖ On successful completion of the course students will be able to demonstrate a technical knowledge of their selected project topic.

CA010403 - Course Viva

- ❖ Assess themselves regarding knowledge gained during programme.
- ❖ Explore their field of knowledge, which includes a critical awareness of current problems and/or new insights at the forefront of that field.
- ❖ Understand of techniques applicable to their own area of professional practice.