

Department of Computer Science

Programme Outcome An ability to apply knowledge of computing and mathematics appropriate to the program’s student outcomes and to the discipline. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs. An ability to function effectively on teams to accomplish a common goal. An understanding of professional, ethical, legal, security and social issues and responsibilities. An ability to communicate effectively with a wide range of audiences. An ability to analyze the local and global impact of computing on individuals, organizations, and society. Recognition of the need for and an ability to engage in continuing professional development. An ability to use current techniques, skills, and tools necessary for computing practice. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. An ability to apply design and development principles in the construction of software systems of varying complexity.

Programme Specific Outcome Ability to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all computer science courses in particular to identify, formulate and solve real life complex engineering problems faced in industries and/or during research work with due consideration for the public health and safety, in the context of cultural, societal, and environmental situations. Ability to provide socially acceptable technical solutions to complex computer science engineering problems with the application of modern and appropriate techniques for sustainable development relevant to professional engineering practice. Ability to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team. Ability to comprehend and write effective project reports in multidisciplinary environment in the context of changing technologies.

Course Outcomes

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Programming Fundamentals using C/C++	On successful completion of this course the students will have the programming ability in C and C++ languages. Have clear understanding of object oriented programming concepts, Inheritance, Polymorphism and Exception Handling in C++.
Computer System Architecture	Student will have clear understanding of the concepts: Data representation and basic computer arithmetic; Basic computer organization and design; Central processing unit; Memory and input-output Organization.
Programming in Java	Student will have the ability to programe in Java and will have clear understanding of the concepts in Java such as: Oop, Inheritance, Interfaces, Packages, Enumeration, Autoboxing and Metadata, Exception handling, Threading, Networking, Database connectivity, Applets and Event Handling.
Discrete Structures	Student will have clear understanding of the topics: Functions, relations, counting, principle of inclusion and exclusion; Growth of functions;

	Recurrence; Graph theory; Propositional logic.
Data Structures	Student will have clear understanding of how data is stored using: Arrays, Stacks, Linked lists, Queues, Recursion, Trees, and Hashing. Also will study various searching and sorting techniques to handle the data. Programming languages C++ and Java are used.
Operating Systems	Student will acquire knowledge of: Operating system organization; Process management; Memory management; File and I/O management; Protection and security.
Computer Networks	To acquire knowledge of: Data communication fundamentals and techniques; Network switching techniques and access mechanisms; Data link layer functions and protocol; Multiple access protocol and networks; Network layer functions and protocols; Transport layer functions and protocol; overview of application layer protocol.
Design and Analysis of Algorithms	Student will have a clear understanding of the concepts: Algorithm design techniques; Sorting and searching techniques; Lower bounding techniques; Balanced trees; Advanced analysis technique; Graphs; String processing.
Software Engineering	Student will acquire knowledge of the concepts: Software requirement analysis; Software project management; Risk management; Quality management; Design engineering; Testing strategies & tactics.
Database Management Systems	Student will acquire a clear understanding of: Entity relation (ER) modelling; Relation data model; Database design; Transaction processing; File structure and indexing. MySQL and Oracle databases, and C++ and Java programming languages are used.
Programming in Python	Student will be able to: Plan a computer program; Acquire techniques of problem solving; write programs in Python.
Internet Technologies	Student will acquire a thorough knowledge of the Internet technologies such as: Java, Javascript, JDBC, JSP, Java Beans
Theory of Computation	Topics covered: Basic operations on language; Finite automata and regular languages; Context free languages; Turing machines and models of computations.
Microprocessor	Student will acquire clear understanding of the concepts: Microprocessor architecture; Microprocessor programming; Interfacing
Numerical Methods	Student will be acquire a sound knowlegde of the variios Numerical methods such as: Bisection method, Secant method, Regula-Falsi method for finding root of function; Newton-Raphson method for solving nonlinear systems; Iterative methods; Finite difference operators; Numerical integration; Extropolation methods; Finite difference methods for ordinary differential equations.
Cloud Computing	To acquire in deapth knowledge of cloud computing; its architecture; case studies; service management in cloud computing; cloud security.
Artificial Intelligence	To acquire a knowledge of the concepts involved in artificial intelligence: Problem solving and searching techniques; Knowledge representation; Dealing with uncertainty ad inconsistencies; Understanding natural languages.
Computer Graphics	To inculcate knowledge in Computer graphics by understanding the topics:

	Graphics hardware; Fundamental techniques in Graphics; Geometric modelling; Visible surface determination; Surface rendering.
Machine Learning	To acquire a sound knowledge of machine learning by understanding the topics: Software for machine learning and linear algebra overview; Linear regression; Logistic regression; Regularization; Neural networks.
Data Mining	To acquire knowledge of data mining concepts.
Dissertation or Project work	The aim of the Dissertation / project work is to apply all the programming concepts studied in a real world problem.