VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)
ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING

B.Tech. I Year I Sem.   L T P C
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Course Objective: To provide an overview of the subjects of computer science and engineering.

UNIT – I
Basics of a Computer – Hardware, Software, Generations of computers. Hardware - functional units, Components of CPU, Memory – hierarchy, types of memory, Input and output devices. Software – systems software, application software, packages, frameworks, IDEs.

UNIT – II
Software development – waterfall model, Agile, Types of computer languages – Programming, markup, scripting Program Development – steps in program development, flowcharts, algorithms, datastructures – definition, types of data structures

UNIT – III
Operating systems: Functions of operating systems, types of operating systems, Device & Resourcemanagement
Database Management Systems: Data models, RDBMS, SQL, Database Transactions, data centers,cloud services

UNIT – IV
Computer Networks: Advantages of computer networks, LAN, WAN, MAN, internet, WiFi, sensornetworks, vehicular networks, 5G communication.
World Wide Web – Basics, role of HTML, CSS, XML, Tools for web designing, Social media, Onlinesocial networks.
Security – information security, cyber security, cyber laws

UNIT – V
Autonomous Systems: IoT, Robotics, Drones, Artificial Intelligence – Learning, Game Development, natural language processing, image and video processing. Cloud Basics

Course Outcomes:
    CO-1:   Know the working principles of functional units of a basic Computer
    CO-2:   Understand program development, the use of data structures and algorithms in
              problem solving.
    CO-3:   Know the need and types of operating system, database systems.
    CO-4:   Understand the significance of networks, internet, WWW and cyber security.
    CO-5:   Understand Autonomous systems, the application of artificial intelligence.

TEXT BOOK:
    1. Invitation to Computer Science, G. Michael Schneider, Macalester College, Judith L.
        GerstingUniversity of Hawaii, Hilo, Contributing author: Keith Miller University of
        Illinois, Springfield.

REFERENCE BOOKS:

1. Fundamentals of Computers, Reema Thareja, Oxford Higher Education, Oxford University Press.
2. Introduction to computers, Peter Norton, 8th Edition, Tata McGraw Hill.
3. Computer Fundamentals, Anita Goel, Pearson Education India, 2010.
4. Elements of computer science, Cengage.