

CSC 103 : INTRODUCTION TO EXPERT SYSTEM
(First Semester 2024/2025 Academic Year)
Engr. Dr. Ugorji C C

Course Outline: Expert Systems

Module 1: Introduction to Expert Systems

Week 1: Components of Expert Systems

- i. Overview of expert systems
- ii. components (knowledge base, inference engine, user interface etc.)
- iii. Development process of an expert system

Week 2: The Need for Expert Systems and Applications

- i. Reasons for the development of expert systems
- ii. Applications in various fields (healthcare, finance, engineering, etc.)

Module 2: Knowledge Representation in Expert Systems

Week 3: Knowledge Representation Methods

- i. Different methods of knowledge representation (rules, frames, etc.)
- ii. Importance of effective knowledge organization

Week 4: Classes of Expert Systems

- i. Overview of different classes of expert systems:
 - Rule-based expert systems
 - Frame-based expert systems
 - Fuzzy logic-based expert systems
 - Neural network-based expert systems

Module 3: Characteristics and Applications of Expert Systems

Week 5: Characteristics of Expert Systems

- i. Key features and characteristics of expert systems
- ii. Evaluation of system performance and reliability

Week 6: Applications of Expert Systems

- i. Practical applications and case studies of expert systems in various industries

Module 4: User Interaction and Development Tools

Week 7: Natural Language Interface for Expert Systems

- i. Designing user-friendly interfaces
- ii. Importance of natural language processing in expert systems

Week 8: Programming Languages and Development Tools

- i. Overview of programming languages for expert system development (Prolog, LISP, Python)
- ii. Introduction to expert system shells
- iii. Blackboard Expert System – HEARSAY
- iv. Selecting Expert Systems-Based Tool (ESBT) for use in an organization

Module Objectives:

- i. Understand the basic concepts and components of expert systems.
- ii. Recognize the need for expert systems and their diverse applications.
- iii. Learn about knowledge representation and its significance in expert systems.
- iv. Explore different classes of expert systems and their unique features.
- v. Gain insights into user interaction design and programming languages used for development.