

Decision Support System and Expert System

Course Title: Decision Support System and Expert System

Course No: CSC469

Nature of the Course: Theory + Lab

Semester: VIII

Full Marks: 60+ 20+20

Pass Marks: 24+8+8

Credit Hrs: 3

Course Description:

This course is a study uses of artificial intelligence in business decision making. Emphasis will be given in business decision making process, design and development of decision support systems and expert systems.

Course Objectives:

- Introduce intelligent business decision making
- Discuss design, development and evaluation of DSS Systems
- Discuss various models of building DSS systems
- Explain Concept behind expert systems

Course Contents:

Unit 1: Business Decision Making (10 Hrs.)

- 1.1. Supporting Business Decision Making: Introduction, History, Conceptual Perspective, Decision Support vs. Transaction Processing System, Categories of DSS Applications and Products, DSS Framework, Building Decision Support Systems
- 1.2. Gaining Competitive Advantage with Decision Support Systems: Introduction, Technology Trends, Gaining Competitive Advantage, Examples of Strategic DSS, Opportunities and IS Planning, DSS Benefits, Limitations, and Risks, Resistances to Using DSS
- 1.3. Business Decision Making Process: Introduction, Managerial Decisions, Decision Making Context, Decision Making Process, Good Decision Making, Redesigning Decision Making Process

Unit 2: Designing, Developing, and Evaluating DSS Systems (10 Hrs.)

- 2.1. Designing and Evaluating DSS Systems: Introduction, Design and Development Issues, Decision Oriented Diagnosis, Prepare a Feasibility Study, Choose a Development Approach, DSS Project Management and Participants.
- 2.2. Designing and Evaluating DSS User Interfaces: Introduction, Overview of User Interface, User Interface Styles, ROMC Design Approach, Building DSS User Interface, Comments on Design Elements, Guidelines of Dialog and UI Design, Factors of UI Design Success.
- 2.3. DSS Architecture, Networking, and Security Issues: Introduction, DSS Architecture and IT Infrastructure, Networking Issues, Improving Security for Decision Support Systems.

Unit 3: Building DSS Systems (10 Hrs.)

- 3.1. Implementing Communication-Driven and Group Decision Support Systems, Building Data and Document Driven Decision Support Systems, Building Knowledge Driven Decision Support Systems, Building Model Driven Decision Support Systems, Building Web Based and Interorganizational Decision Support Systems, Evaluating DSS Projects

Unit 4: Expert Systems (8 Hrs.)

- 4.1. Definition and Features of Expert Systems, Architecture and Components of Expert Systems, Persons Who Interact with Expert Systems, Advantages and Disadvantages of Expert Systems, Expert Systems Development Life Cycle, Error Sources on Expert System Development

Unit 5: Fuzzy Expert Systems (7 Hrs.)

- 5.1. Fuzzy Rule, Fuzzy Reasoning, Need of Fuzzy Expert Systems, Operations on Fuzzy Expert Systems, Fuzzy Inference Systems, Fuzzy Inference Process, Types of Fuzzy Expert Systems, Fuzzy Controller.

Laboratory Work: Student should study some widely used decision support systems and expert systems. Besides, student need to develop decision support systems or expert systems as a mini-project.

Text Books:

1. Daniel J. Power, Decision Support Systems: Concepts and Resources for Managers, Illustrated Edition, Praeger.
2. I. Gupta and G. Nagpal, Artificial Intelligence and Expert Systems, Mercury Learning & Information, 2020