MAT5024	Decision Support Systems	L	T	P	J	C
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Pre-requisite	**NIL**	**Syllabus version**				
		1.0				

Course Objectives:

1. To review and clarify the fundamental terms, concepts and theories associated with Decision Support Systems, computerized decision aids, expert systems, group support systems and executive information systems.
2. To discuss and develop skills in the analysis, design and implementation of computerized Decision Support Systems.
3. To discuss organizational and social implications of Decision Support Systems.

Expected Course Outcome:

1. Explain the nature of modelling and how real-world systems may be represented in mathematical form and realised on a computer.
2. Determine when a realistic problem is in non-standard form and represent it quantitatively using a computer.
3. To examine examples and case studies documenting computer support for organizational decision making, and various planning, analysis and control tasks.
4. Distinguish among data processing systems, management information systems, and decision support/expert systems.
5. Analyze how information is used to solve problems.

Student Learning Outcomes (SLO):	**1,2,7,9,14**

Module:1	**Introduction to Systems Principles**	**4 hours**

The Characteristics and elements of systems, General systems model, Explore communication systems, Differentiate between data processing systems, management information systems, and decision support systems

Module:2	**Methods of Decision Making and Problem Solving**	**2 hours**

Elements of problem solving process - Problems versus systems - Structured, unstructured, and semi-structured problems - The systems approach and its relationship to the scientific approach.

Module:3	**Decision Support Systems (DSS)**	**5 hours**

Development of DSS - Relationship to data processing and database systems - DSS development and implementation - DSS features and capabilities - DSS in the information center.

Module:4	**Expert Systems Overview**	**5 hours**

Expert behavior in decision-making situations - Knowledge capture - Expert systems development process - Build a minimal expert system - Apply and modify the system - Multiple levels of knowledge representation - Multiple levels of control and search procedures.

Module:5	**Spreadsheet Facilities**	**4 hours**

Modeling with a spreadsheet - Hands-on use of a spreadsheet for business decision-making - Spreadsheet in the information center.

Module:6	**Manipulation of Models as a decision making procedure**	**5 hours**

Effects of data manipulation to support decisions in pricing, production, cash flow, and new

product evaluation models - Proficiency in utilizing expert system, spreadsheet, database, graphic and statistical software for "what if" analyses.		
Module:7	**Building Management Models**	**3 hours**
Picking a model type - Validation of models - Management models and expert systems in the information center.		
Module:8	**Contemporary issues:**	**2 hours**
Industry expert lecture		
	Total Lecture hours:	**30 hours**

Text Book(s)	
1.	Bennett, John L (1983). Building Decision Support Systems. Reading, MA: Addison Wesley,
2.	S. Christian Albright (2016) VBA for Modelers: Developing Decision Support Systems with Microsoft Office Excel (5th Edition) Cengage Learning.
Reference Books	
1.	Leigh, William E. & Michael E. Doherty (1986). Decision Support and Expert Systems. Cincinnati: South Western Publishing.
2.	Sprague, Ralph H., Jr., & Hugh J. Watson (1986), Decision Support Systems. Englewood Cliffs, NJ: Prentice-Hall.
3.	Turban, Efraim. Decision Support and Expert System(1988), Managerial Perspectives. New York: Macmillan.
4.	Young, Lawrence F.(1989), Decision Support and Idea Processing Systems, Dubuque, IA: Wm. C. Brown Publishers.

Mode of Evaluation: CAT / Assignment / Quiz / FAT / Project / Seminar			
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