

**Southeast Missouri State University**

Department of Management

Course No. MG430

Title of Course: Knowledge-based Decision Support Systems for Management

Spring 2000

I. Catalog Description and Credit Hours of Course:

Use of information systems technologies to support decision making. Topics include decision support systems, expert systems, and executive support systems. (3)

II. Prerequisite(s): MG375 Management Information Systems with a minimum grade of "C"

III. Purposes or Objectives of the Course: Upon completion of this courses the student should be able to:

- A. Understand the concepts, tools, and techniques for effective decision making.
- B. Understand the decision making needs of managers and how it can be enhanced by mathematical models and artificial intelligent based other techniques.
- C. Understand the development process of decision support systems (DSS) and expert systems (ES).
- D. Develop prototype Decision support systems and Expert systems.
- E. Understand the integration of decision support systems, expert systems, and executive information systems into other computer-based information systems.

IV. Expectation of Students:

- A. Students are expected to be fully participate in class discussions involving assigned readings, lectures and other activities such as individual and team projects and other class assignments.
- B. Students are expected to behave in an academically honest manner to preserve the integrity of the classroom and the learning environment.
- C. Students are expected to be familiar with the contents of the class outline and other instructions provided by the instructor.

V. Course Content or Outline:

- A. Decision Making and Knowledge (3)
  - 1. The importance of knowledge-based decision making
  - 2. Decision makers and decision processes

- B. Computer-based Problem Solving (3)
    - 1. Defining and articulating problems of unstructured or semistructured nature
    - 2. Modeling using quantitative tools as well as qualitative (artificial intelligence) tools
  - C. Case Studies of ES, DSS, and EIS Applications (3)
  - D. Foundations of Knowledge-based Decision Support Systems (6)
    - 1. Definitions, concepts, and taxonomy
    - 2. Knowledge-based DSS architecture
    - 3. Building DSS
  - E. Advanced Topics in Microsoft EXCEL (3)
  - F. Review of LEVEL 5 (ES Shell Program) (3)
  - G. Construction of Prototype Specific DSS and ES (6)
  - H. Application of Quantitative Models in DSS (3)
  - I. Group DSS and Multiparticipant DSS (6)
  - J. Organizational Decision Support Systems (3)
  - K. Global and International Decision Support Systems (3)
  - L. Recent Developments in DSS (3)
    - 1. Data mining
    - 2. Data warehousing
    - 3. On-line analytical processing
    - 4. World Wide Web-based DSS
    - 5. DSS for managing global corporations
- VI. Textbook(s) and/or Other Required Materials or Equipment:
- A. Textbook: Clyde W. Holsapple and Andrew B. Whinston, *Decision Support Systems: A Knowledge-Based Approach*, West Publishing Company, Minneapolis St. Paul, 1996.
  - B. Other Textbooks
    - 1. S. L. Alter, *Decision Support Systems: Current Practice and Continuing Challenges*, Addison-Wesley, Reading, MA, 1980.
    - 2. J. L. Bennett. (ed.), *Building Decision Support Systems*, Addison-Wesley, Reading, MA, 1983.
    - 3. R. H. Bonczek, C. W. Holsapple, and A. B. Whinston, *Foundations of Decision Support Systems*, Academic Press, New York, 1981.
    - 4. P. G. W. Keen and M. S. Scott-Morton, *Decision Support Systems: An Organizational Perspective*, Addison-Wesley, Reading, MA, 1978.
    - 5. R. H. Sprague and E. D. Carlson, *Building Effective Decision Support Systems*, Prentice-Hall, Englewood Cliffs, NJ, 1982.

- C. Periodicals
  - 1. *Decision Support Systems*
  - 2. *Interfaces*
  - 3. *Information & Management*
  - 4. *MIS Quarterly*
  - 5. *Journal of MIS*
  - 6. *Decision Sciences*
  - 7. *European Journal of Operational Research*
  - 8. *Data Base*
  - 9. *Omega*
  - 10. *Communications of the ACM*
  - 11. *Information Systems Research*
  - 12. *Journal of Systems Management*

VII. Basis for Student Evaluation:

- A. Quality of participation in class
- B. Performance on examinations, pop quizzes, in-class assignments
- C. The quality of a research paper/project and its presentation in class
- D. The quality of homework, computer lab assignment