Course Title and Code	IT 424 Knowledge-Based Systems Applications

I. Course Identification and General Information:

Course Title	Knowledge-Based Systems Applications	Course Code	IT 424	Pre-requisite	IT 251
Department	Information Technology	Course Level	6	Credit Hours	3(3+0)

II. Course Description/Topics: The following course topics will be covered.

Fundamentals of knowledge representations. Review of propositional logic, first-order logic and predicate calculus. Architecture of a knowledge based system. Fundamentals of knowledge search. Reasoning with uncertainty, probabilistic reason and basics of an Expert System.

III. Course Outcomes: Summary of the main learning outcomes for students enrolled in the course.

- When asked, in writing, students will be able to describe how to represent knowledge.
- When asked, in writing, students will be able to demonstrate how to reason with knowledge.
- When asked, in writing, students will be able to explain different expert systems
- When asked, in writing, students will be able to demonstrate knowledge (acquisition) and to specify it clearly.
- When asked, in writing, students will be able to design a knowledge structure integrated with production, planning, quality control and other subsystems of an industrial organization.
- When asked, in writing, students will be able to choose a feasible expert system.
- When asked, in writing, students will be able to use various knowledge representation methods.
- When asked, in writing, students will be able to illustrate the Bayesian decision theory.
- When asked, in writing, students will be able to use the computer language for knowledge representation.
- When asked, in writing, students will be able to perform search in the available knowledge pool.

IV. Required Text:

- Artificial Intelligence: A Modern Approach (3rd Edition). Stuart Russell and Peter Norvig, Prentice Hall, 2010, ISBN-10: 0136042597

V. References:

- Engineering of Knowledge-Based Systems. Avelino J. Gonzalez, Douglas D. Dankel, Prentice Hall, ISBN-10: 0130189731.
- Knowledge-Based Systems. Rajendra Akerkar , Priti Sajja, 2009, ISBN 10: 0763776475.
- Introduction to Knowledge Based Systems, Richard A. Frost, Macmillan Publishing.