MINS/CITA 430

Data and Knowledge Management

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Revised by: Eric Cheng

CANINO SCHOOL OF ENGINEERING TECHNOLOGY
DEPARTMENT OF COMPUTER INFORMATION SYSTEMS
May 2015

A. **TITLE:** Data and Knowledge Management

B. **COURSE NUMBER:** MINS/CITA 430
C. **CREDIT HOURS:** 3 credit hours

D. **WRITING INTENSIVE COURSE (OPTIONAL):** N/A

E. **COURSE LENGTH:** 15 weeks

F. **SEMESTER(S) OFFERED:** Fall/Spring

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   3-hour lectures per week

H. **CATALOGUE DESCRIPTION:**
   This course focuses on the development of a knowledge-management system using an organization’s tacit and explicit knowledge to execute its strategy. The course explores practices entailed in developing a knowledge infrastructure, managing the interaction of people and technology, valuing knowledge assets, leveraging teams, and transferring knowledge across organizations.

I. **PRE-REQUISITES/CO-COURSES:**
   MINS 300 — Management Information Systems or permission of the instructor

J. **GOALS (STUDENT LEARNING OUTCOMES):**

   By the end of this course, the student will be able to:

<table>
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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tr>
<td>a. Interpret the concepts of knowledge management</td>
<td>2. Crit. Thinking</td>
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<td>b. Analyze knowledge processes within an organization</td>
<td>2. Crit. Thinking</td>
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<td>c. Evaluate approaches that organizations may take to make a significant contribution to an organization’s knowledge processes, and analyze the issues involved</td>
<td>2. Crit. Thinking</td>
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<td>d. Apply knowledge management technologies to make intellectual capital decisions in knowledge intensive organization</td>
<td>2. Crit. Thinking</td>
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<td>e. Analyze the underlying impact of macro-economic industry and organizational effects issues on human capital metrics</td>
<td>2. Crit. Thinking</td>
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<tr>
<td>f. Analyze practical situations, preparing, and proposing recommendations for enhancement of knowledge management within an organization</td>
<td>2. Crit. Thinking</td>
</tr>
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K. **TEXTS:**


L. **REFERENCES:**


Irma Becerra-Fernandez, Dorothy Leidner (Editor), Knowledge Management: An Evolutionary View, Publisher: M E Sharpe Inc (2008)


M. **EQUIPMENT:** Technology Enhanced Classroom

N. **GRADING METHOD:** Standard A-F grading

O. **MEASUREMENT CRITERIA/METHODS:**

Essays, quizzes, exams.

P. **DETAILED TOPICAL OUTLINE:** See attached sheet
Q. LABORATORY OUTLINE: N/A
DETAILED TOPIC OUTLINE

MINS 430 Data and Knowledge Management

TOPICS

I. Principles of Knowledge Management

A. Overview of Knowledge Management
   1. What is Knowledge Management
   2. Knowledge Management Systems

B. The Nature of Knowledge
   1. Alternative Views of Knowledge
   2. Different Types of Knowledge
   3. Locations of Knowledge

C. Knowledge Management Solutions
   1. Knowledge Management Processes
   2. Knowledge Management Systems
   3. Knowledge Management Infrastructure

D. Organizational Impacts of Knowledge Management
   1. Impact on People
   2. Impact on Processes
   3. Impact on Products
   4. Impact on Organizational Performance

E. Factors Influencing Knowledge Management
   1. Effects of Task Characteristics
   2. Effects of Knowledge Characteristics
   3. Effects of Organizational and Environmental Characteristics

F. Knowledge Management Assessment of an Organization
   1. Types of KM Assessment
   2. Assessment of Knowledge Management Solutions
   3. Assessment of Knowledge
   4. Assessment of Impacts

II. Knowledge Management Technologies

A. Technologies to Manage Knowledge
   1. Artificial Intelligence
   2. Digital Libraries,
   3. Repositories
B. Preserving and Applying Human Expertise: Knowledge-Based Systems
   1. Representing Knowledge
   2. Automated Reasoning Process
   3. Developing Knowledge-Based Systems
   4. Knowledge-Based System Tools

C. Using Past History Explicitly as Knowledge: Case-Based Systems
   1. Weaknesses of Rule-Based Systems
   2. Basic Concepts in Case-Based Reasoning
   3. Indexing and Case Library Organization
   4. Matching and Retrieval
   5. Evaluation and Adaptation

D. Knowledge Elicitation: Converting Tacit Knowledge to Explicit
   1. Manual Knowledge Elicitation
   2. Facilitating the Knowledge Elicitation Process
   3. Automating the Knowledge Capture Process

E. The Computer as a Medium for Sharing Knowledge
   1. World Wide Web
   2. WEB Search Engines
   3. Network Security
   4. Workflow Systems
   5. Document Management via the Web

F. Discovering New Knowledge:
   1. Symbolic Approach
   2. Artificial Neural Networks
   2. Statistical Methods

III. Knowledge Management Systems

A. Knowledge Discovery: Systems that Create Knowledge
   1. Designing the Knowledge Discovery Systems
   2. Discovering Knowledge on the Web
   3. Data Mining and Customer Relationship Management
   4. Barriers to the Use of Knowledge Discovery Systems

B. Knowledge Capture Systems: Systems that Preserve and Formalize Knowledge;
   1. Concept Maps
   2. Context Based Reasoning
   3. Barriers to the Use of Knowledge Capture Systems

C. Knowledge Sharing Systems: Systems that Organize and Distribute Knowledge
   1. Designing the Knowledge Sharing Systems
   2. Lessons Learned Systems
3. Barriers to the Use of Knowledge Sharing Systems

D. Knowledge Application Systems: Systems that Utilize Knowledge
   1. Technologies for Knowledge Application Systems
   2. Developing Knowledge Application Systems
   3. Types of Knowledge Application Systems
   4. Limitations of Knowledge Application Systems

IV. The Future of knowledge management
   A. Protecting Intellectual Property
   B. Knowledge Management: A New Paradigm for Decision Making
   C. Looking at the Future