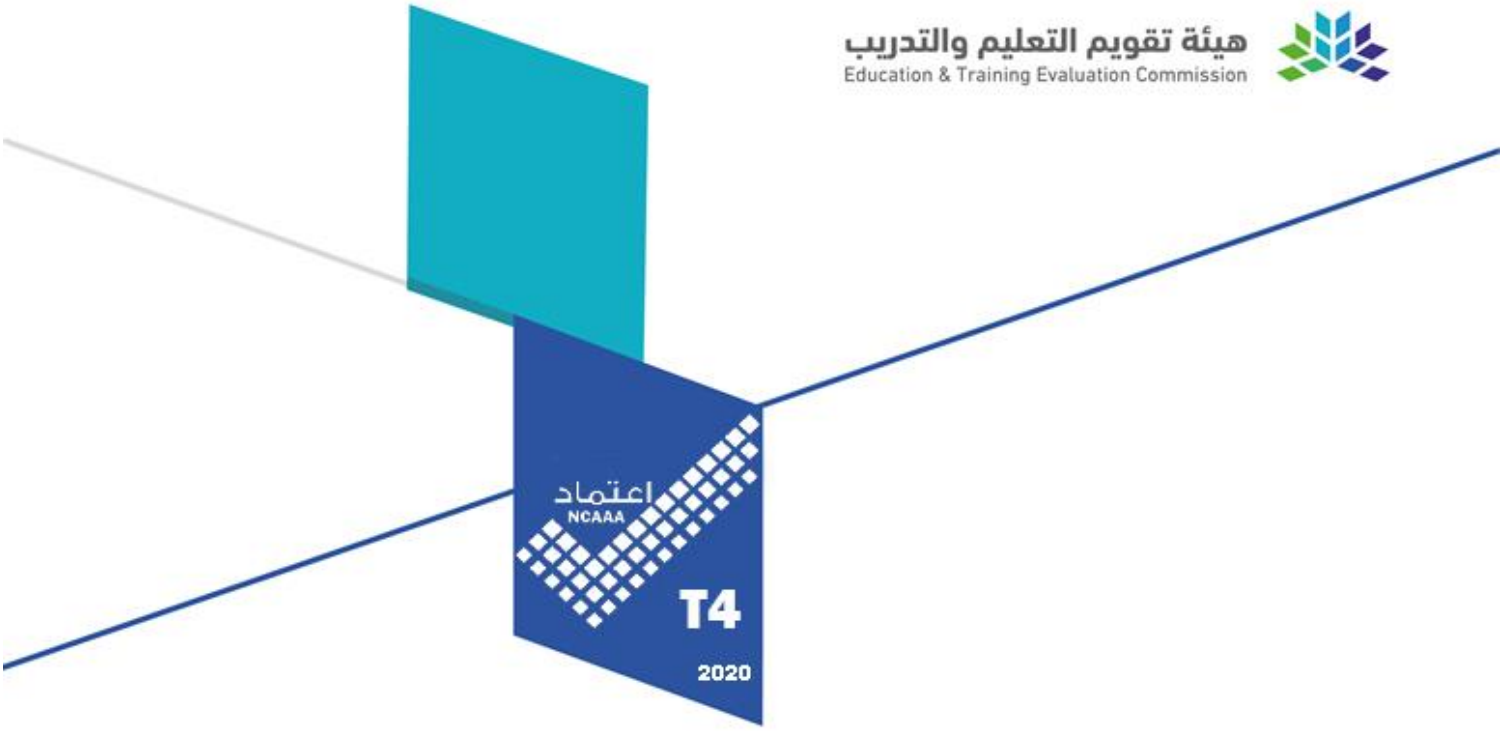
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission




# Course Specifications

| | |
|---|---|
| **Course Title:** | Data Mining for Knowledge Management |
| **Course Code:** | MIS 441 |
| **Program:** | Management Information Systems |
| **Department:** | Management Information Systems |
| **College:** | Business Administration-Al Kharj |
| **Institution:** | Prince Sattam Bin Abdulaziz University |

## Table of Contents

## A. Course Identification

| |
|---|
| **1. Credit hours: 5** |
| **2. Course type**<br>**a.** University ☐ College ☐ Department ☑ Others ☐<br>**b.** Required √ Elective ☐ |
| **3. Level/year at which this course is offered: Level 12 / Fourth year** |
| **4. Pre-requisites for this course** (if any)**:**<br><br>MIS301: Database Management Systems |
| **5. Co-requisites for this course** (if any)**:**<br><br>**None** |

**6. Mode of Instruction** (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| 1 | **Traditional classroom** | 60 | 100% |
| 2 | **Blended** | | |
| 3 | **E-learning** | | |
| 4 | **Distance learning** | | |
| 5 | **Other** | | |

**7. Contact Hours** (based on academic semester)

| No | Activity | Contact Hours |
|---|---|---|
| 1 | **Lecture** | 48 |
| 2 | **Laboratory/Studio** | 12 |
| 3 | **Tutorial** | |
| 4 | **Others** (specify)Case study | |
| | **Total** | 60 |

## B. Course Objectives and Learning Outcomes

**1. Course Description**

This course provides an awareness of the importance of data mining, web mining, and text mining in the current Knowledge Management (KM) systems. It teaches the student how to use these mining techniques in discovering new knowledge. It also presents theories and foundation of knowledge management concepts and process and describes some KM applications.

**2. Course Main Objective**

- Describe knowledge management (KM) foundations and solutions.
- Illustrate KM applications.
- Contrast data mining, text mining, and web mining.
- Explain Hunt's Classification algorithm.
- Explain the A-priori association algorithm.
- Explain the K-means clustering algorithm.

- Explain the PageRank Algorithm.
- Illustrate how data and web mining are used to improve business.
- Experiment with some data mining techniques in Weka.

### 3. Course Learning Outcomes

| | CLOs | Aligned PLOs |
|---|---|---|
| 1 | **Knowledge and Understanding** | |
| 1.1 | Describe critical issues related to Knowledge Management (KM) and the importance of KM in the modern organizations | PLO1.1 |
| 1.2 | Understand KM solutions, foundations and the different KM systems and subsystems that constitute a Knowledge Management System. | PLO1.2 , PLO1.3, PLO1.4 |
| 1.3 | Explain the different patterns that data mining discovers | PLO1.1 |
| **2** | **Skills :** | |
| 2.1 | Demonstrate effective use of the relevant tools to implement the data mining algorithms in order to extract relevant knowledge from the data. | PLO2.4 |
| 2.2 | Appraise how data mining and web mining techniques allow the creation of new knowledge by combining existing knowledge and capturing tacit knowledge. | PLO2.1 |
| 2.3 | Gain problem solving skills in the knowledge management area especially from a technical point of view | PLO2.3 |
| 2.4 | Evaluate the impact of Knowledge Management Systems on businesses performance. | PLO2.1 |
| **3** | **Values:** | |
| 3.1 | Demonstrate the capability to relate to, and collaborate effectively with peer groups and show effective interpersonal skills in listening, negotiation, persuasion and presentation. | PLO3.1 & PLO3.2 |

## C. Course Content

| No | List of Topics | Contact Hours |
|---|---|---|
| 1 | Introduction to Knowledge Management | 8 |
| 2 | Data Mining (Knowledge Discovery). | 9 |
| 3 | The Use of Weka Machine Learning Software for data mining | 9 |
| 4 | Text Mining. | 8 |
| 5 | Web Mining. | 9 |
| 6 | Knowledge Management Foundations: Infrastructures, Mechanisms, and Technologies. | 9 |
| 7 | Knowledge Management Solutions: Processes and Systems. | 8 |
| **Total** | | 60 |

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|---|---|---|---|

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|---|---|---|---|
| **1.0** | **Knowledge and Understanding** | | |
| 1.1 | Describe critical issues related to Knowledge Management and the importance of KM in the modern organizations. | • Lectures<br>• Discussion-Based Teaching | • Assignments,<br>• Short MCQS,<br>• Mid Terms<br>• Final Exam<br>• Discussions |
| 1.2 | Understand KM solutions, foundations and the different KM systems and subsystems that constitute a Knowledge Management System. | • Lectures<br>• Case studies<br>• Discussion-Based Teaching | • Assignments,<br>• Short MCQS,<br>• Mid Terms<br>• Final Exam<br>• Discussions |
| 1.3 | Recognize the impact of Knowledge Management Systems on businesses performance. | • Lectures<br>• Class discussion<br>• Problem solving cases | • Independent Study<br>• Mid Terms<br>• Final Exam<br>• Discussions<br>• Projects evaluation |
| 1.4 | Explain the different patterns that data mining discovers | • Lectures<br>• Case studies | • Assignments,<br>• Short MCQS,<br>• Mid Terms<br>• Final Exam<br>• Discussions |
| **2.0** | **Skills** | | |
| 2.1 | Demonstrate effective use of the relevant tools to implement the data mining algorithms in order to extract relevant knowledge from the data. | • Practical work<br>• Problem solving<br>• Independent study | • Exams<br>• Assignments<br>• Projects evaluation |
| 2.2 | Appraise how data mining and web mining techniques allow the creation of new knowledge by combining existing knowledge and capturing tacit knowledge. | • Lectures<br>• Problem solving cases<br>• Class discussions<br>• Independent study (project) | • Exams<br>• Assignments<br>• Projects evaluation |
| 2.3 | Gain problem solving skills in the knowledge management area especially from a technical point of view | • Problem solving cases<br>• Group Work<br>• Projects | • Projects evaluation<br>• Discussions |
| 2.4 | Evaluate the impact of Knowledge Management Systems on businesses performance | • Group Work<br>• Projects | • Projects evaluation<br>• Discussions |
| **3.0** | **Values** | | |
| 3.3 | Demonstrate the capability to relate to, and collaborate effectively with peer groups and show effective | • Problem solving cases<br>• Group Work | • Projects evaluation<br>• Presentations |

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|---|---|---|---|
| | interpersonal skills in listening, negotiation, persuasion and presentation. | • Projects | evaluation |

**2. Assessment Tasks for Students**

| # | Assessment task* | Week Due | Percentage of Total Assessment Score |
|---|---|---|---|
| **1** | Midterm exam1 | 5th | 15% |
| **2** | Midterm exam 2 | 10th | 15% |
| **3** | Quizzes | 4th, 8th, and 10th | 10% |
| **4** | Assignments | 4th, 7th, and 9th | 10% |
| **5** | Mini Projects | 11th | 10% |
| **6** | Final Examination | | 40% |

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**
include amount of time teaching staff are expected to be available each week
Office hours : 6 hrs/ Week
Using social media (Whatsapp)

## F. Learning Resources and Facilities

**1.Learning Resources**

| | |
|---|---|
| **Required Textbooks** | 1. Irma Becerra-Fernandez, Rajiv Sabherwal, Knowledge Management: Systems and Processes, 2 edition (December 17, 2014), ISBN-13: 978-0765639158, ISBN-10: 0765639157.<br>2. Mohammed J. Zaki, Wagner Meira Jr. Data Mining and Analysis: Fundamental Concepts and Algorithms. Paperback edition 2016, 1st Edition. |
| **Essential References Materials** | 1. Todd R. Groff and Thomas P. Jones (2003), Introduction to Knowledge Management; Eighth Edition, Butterworth Heinemann<br>2. Charu C. Aggarwal, Data Mining, The Textbook ,Springer Cham Heidelberg New York Dordrecht London 2015. ISBN: 978-3-319-14141-1.<br>3. Ashok Jashapara, Knowledge Management, An Integrated Approach, 2nd Edition (Dec 2010), Paperback, 376 pages, ISBN: 9780273726852<br>4. Elias M Awad and Hassan M. Ghaziri (2004), Knowledge Management; Third Edition, Prentice-Hall, Inc<br>5. Irma Becerra- Fernandez, Avelino Gonzalez and Rajiv Sabherwal (2004), Knowledge Management challenges, solutions and technologies; Second Edition Prentice-Hall, Inc<br>6. I.B. Fernandez (2004), Knowledge Management, Solutions, Technology; Prentice-Hall, Inc.<br>7. Yogesh Malhotra(2001), Knowledge Management and |

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| | Businesses Model Innovation; Idea Group Publishing .<br>8. Kimiz Dalkir, Jay Liebowitz (foreword), Knowledge Management in Theory and Practice (2011)<br>Derrick Kourie, Retha Snyman, and Antonie Botha , Coping With Continuous Change in the Business Environment: Knowledge Management and Knowledge Management Technology (2008) |
| **Electronic Materials** | https://www.weka.de/<br>http://www.knowledge-management-tools.net/<br>Elsevier Journal, Journal of Management Information Systems. |
| **Other Learning Materials** | Blackboard, Microsoft Excel, Weka software related materials |

### 2. Facilities Required

| Item | Resources |
|---|---|
| **Accommodation**<br>(Classrooms, laboratories, demonstration rooms/labs, etc.) | • Lecture room that can accommodate at least 30 students for lectures and discussions.<br>• Laboratory for practical work |
| **Technology Resources**<br>(AV, data show, Smart Board, software, etc.) | • Smart Board<br>• Blackboard<br>• Microsoft Excel<br>• Weka Software |
| **Other Resources**<br>(Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | A computer lab for 3 practical sessions. |

## G. Course Quality Evaluation

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|---|---|---|
| Effectiveness of teaching and assessment | Students | Direct through conducting a survey |
| Quality of learning resources | Students | Direct through conducting a survey |
| Self-Assessment | Instructor | Preparing the course report |
| Verifying Standards of Student Achievement | External Expert | The department randomly selects samples of students' work (Exam answer sheets, home assignments etc.) from the faculty course portfolio and send it to the external evaluators already identified by each department |
| Periodically reviewing course effectiveness and planning for improvement. | Departmental council | The course materials and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental |

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|---|---|---|
| | | and higher councils. |

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

| | |
|---|---|
| **Council / Committee** | Department Council |
| **Reference No.** | 2 |
| **Date** | SEP 2022 |