CIS 080: DATABASE MANAGEMENT SYSTEMS

New Course Proposal

Date Submitted:Tue, 04 Sep 2018 22:01:39 GMT

Originator

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Justification / Rationale

C-ID for ITIS 180.
Transfer to CSUSB IST Program

Effective Term

Fall 2019

Credit Status

Credit - Degree Applicable

Subject

CIS - Computer Information Systems

Course Number

080

Full Course Title

Database Management Systems

Short Title

DATABASE MANAGEMENT

Discipline

Disciplines List
Computer Information Systems (Computer network installation, microcomputer technology, computer applications)

Modality

Face-to-Face

Catalog Description

This course provides the students with an introduction to the core concepts in data and information management. It is centered around the core skills of identifying organizational information requirements, modeling them using conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying
its structural characteristics with normalization techniques, and implementing and utilizing a relational database using an industrial-strength database management system. The course will also include coverage of basic database administration tasks and key concepts of data quality and data security. Moreover, students will develop practical skills in the use of SQL for data design, manipulation, interrogation, and application development. In addition to developing database applications, the course helps the students understand how large-scale packaged systems are highly dependent on the use of Database Management Systems (DBMSs). Building on the transactional database understanding, the course provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella.

Schedule Description

This course provides the students with an introduction to: 1) the core concepts in data and information management and 2) the functional use of SQL for database interaction. It is centered around the core skills of identifying organizational information requirements, modeling them using conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques, and implementing and utilizing a relational database using SQL on an industrial-strength database management system.
Prerequisite: CIS 010

Lecture Units

2

Lecture Semester Hours

36

Lab Units
1
Lab Semester Hours
54

In-class Hours
90

Out-of-class Hours
72

Total Course Units
3
Total Semester Hours
162

Prerequisite Course(s)
CIS 010

Required Text and Other Instructional Materials

Resource Type
Book
Open Educational Resource
No

Author
Kroenke, David; Auer, David; Vandenberg, Scott; Yoder, Robert

Title
Database Concepts

Edition
8th

City
Brooklyn

Publisher
Pearson

Year
2017

College Level
Yes

Flesch-Kincaid Level
12

ISBN #
9780134601533

Resource Type
Book
Open Educational Resource
No

Author
Coronel, Carlos and Morris, Steven

Title
Database Systems: Design, Implementation and Management

Edition
13th

Publisher
Course Technology

Year
2018

College Level
Yes

Flesch-Kincaid Level
12

ISBN #
9781337627900

Open Educational Resource
Yes

Title
Database Management OERcommons.org

Publisher
OER Course materials

Year
2018

Class Size Maximum
32

Entrance Skills
Basic understanding of Database Management Systems (DBMS).

Prerequisite Course Objectives
CIS 010-Using computers effectively requires that students can express their instructions in a form that the computer program can understand and execute.
CIS 010-Explain the basic concepts and understand the uses of various categories of productivity software, including word processing, electronic spreadsheets and database management.
CIS 010-Demonstrate ability to design, create, and query a multi-table electronic database.

Course Content
1. Database approach
2. Types of database management systems
3. Basic file processing concepts
4. Physical data storage concepts
5. File organizations techniques
6. Conceptual data model
   a. Entity-relationship model
   b. Object-oriented data model

c. Specific modeling grammars
7. Logical data model
a. Hierarchical data model
b. Network data model
c. Relational data model
i. Relations and relational structures
ii. Relational database design
8. Mapping conceptual schema to a relational schema
9. Normalization
10. Physical data model
a. Indexing
b. Data types
11. Database languages
a. SQL, Data Definition Language (DDL), Data Manipulation Language (DML), and Data Control Language (DCL)
12. Data and database administration
13. Transaction processing
14. Using a database management system from an application development environment
15. Use of database management systems in an enterprise system context
16. Data / information architecture
17. Data security management
a. Basic data security principles
b. Data security implementation
18. Data quality management
a. Data quality principles
b. Data quality audits
c. Data quality improvement
19. Business intelligence
a. Online analytic processing
b. Data warehousing
c. Data mining
d. Enterprise search

Lab Content

There will be assigned projects to be submitted after doing internet research on various assigned topics such as:

1. Oracle DBA resources
2. Internet database consulting services
3. Data mining tools
4. Data quality issues in data warehouses
5. Controlling database deadlocking
6. CASE technologies
7. ANSI/ISO SQL standards
8. The value of ensuring atomicity in database design
9. Indexing

Course Objectives

	Objectives
Objective 1	Define the role of databases and database management systems in managing organizational data and information.
Objective 2	Understand the fundamentals of the basic file organization techniques.
Objective 3	Design a relational database so that it is at least in 3rd Normal Form.
Objective 4	Implement a relational database design using an industrial-strength database management system, including the principles of data type selection and indexing.
Objective 5	Use the data definition, data manipulation, and data control language components of Structured Query Language (SQL) in the context of one widely used implementation of the language.
Objective 6	Describe the role of databases and database management systems in the context of enterprise systems.
Objective 7	Describe the key principles of data security and identify data security risk and violations in data management system design.
Objective 8	Compare the difference between online transaction processing (OLTP) and online analytic processing (OLAP), and the relationship between these concepts and business intelligence, data warehousing and data mining.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Explain the role of databases in the enterprise application context and various business intelligence topics, including enterprise search.
Outcome 2	Design and create working database structures and applications using SQL.
Outcome 3	Develop policies based on key principles of data security, risks, and violations in data management system design.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	Discuss each of the steps in the design process for a database.
Laboratory	Complete lab activity involving the creation of a relational database using the third normal form to stress the importance of a scrubbed database.
Role Playing	Work in a project team and apply appropriate fact-finding techniques to elicit requirements from the client.
Demonstration, Repetition/Practice	Map a conceptual design to a logical/physical design.
Collaborative/Team	Reflect and review intermediate designs, particularly where information complexity is present.
Collaborative/Team	Create a database for the collection of students records.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Computer Laboratory assignments/projects designed to clarify students' individual database implement strengths and areas of improvement related to database implementation skills.	In and Out of Class
Presentations/student demonstration observations	Projects and oral reports combining the use of database design, development and implementation to measure students' critical thinking, comprehension, and organizational skills.	In Class Only
True/false/multiple choice examinations	Quizzes/examinations designed to measure students' degree of mastery of fundamental database concepts and terminology.	In and Out of Class
Group activity participation/observation	Collaborative projects designed to demonstrate successful understanding and application of database concepts and team work skills.	In Class Only
Product/project development evaluation	Exercises/projects designed to demonstrate the acquisition of database concepts and database development skills.	Out of Class Only
Mid-term and final evaluations	Common final examination designed to evaluate students' overall achievement of course objectives in database design and development.	In Class Only

Assignments

Other In-class Assignments

1. Projects in order to facilitate and demonstrate the acquisition of skills required to design and develop a database.
2. Collaborative projects/cooperative learning tasks in order to encourage students to develop and apply database design and development skills.

Other Out-of-class Assignments

1. Students will be assigned readings from the text book, from the Learning Modules on the web site, and chapter based PowerPoint presentations.

2. Answer Review Questions based on the material in the chapters.
3. Analyze a given problem and determine solution which requires creating of a designed database.
4. Analyze various models, normalize files, demonstrate an understanding of the Systems Development Life Cycle, and create a database.
5. Watch online video tutorials from the book's web site.

Grade Methods
Letter Grade Only

Comparable Transfer Course Information

University System
CSU
Campus
CSU San Bernardino

Course Number
IST 274
Course Title
Database Management and Policies

Catalog Year
2018

MIS Course Data

CIP Code
11.0301 - Data Processing and Data Processing Technology/Technician.

TOP Code
070720 - Database Design and Administration

SAM Code
C - Clearly Occupational

Basic Skills Status
Not Basic Skills

Prior College Level
Not applicable

Cooperative Work Experience
Not a Coop Course

Course Classification Status
Credit Course

Approved Special Class
Not special class

Noncredit Category
Not Applicable, Credit Course

Funding Agency Category
Not Applicable

Program Status
Program Applicable

Transfer Status
Transferable to UC & CSU

Allow Audit
No

Repeatability
No

Materials Fee
No

Additional Fees?
No

Approvals

Curriculum Committee Approval Date
11/15/2018

Academic Senate Approval Date
11/29/2018

Board of Trustees Approval Date
12/14/2018

Chancellor's Office Approval Date
1/07/2019

Course Control Number
CCC000599875

Programs referencing this course
Computer Information Systems Associate of Science and Transfer Preparation (http://catalog.collegeofthedesert.eduundefined?key=221)
Computer Information Systems AS Degree for Employment Preparation (http://catalog.collegeofthedesert.eduundefined?key=61)