Cerro Coso College

Course Outline of Record Report

10/12/2021

ITC270 : Introduction to Database Design/Management

General Information

Author:	• Matthew Hightower • Karnes, Valerie
Course Code (CB01) :	ITC270
Course Title (CB02) :	Introduction to Database Design/Management
Department:	Business Information Technolog
Proposal Start:	Spring 2019
TOP Code (CB03) :	(0702.00) Computer Information Systems
SAM Code (CB09) :	Advanced Occupational
Distance Education Approved:	Yes
Course Control Number (CB00) :	CCC000451716
Curriculum Committee Approval Date:	03/16/2018
Board of Trustees Approval Date:	06/14/2018
External Review Approval Date:	Pending
Course 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 their structural characteristics with normalization techniques, and implementing and utilizing a relational database using an industrial-strength database management system. The course also covers basic database administration tasks and key concepts of data quality and data security. 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 an understanding of the transactional database, the course provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella. Note: This course was formerly CSCI C270.
Submission Type:	Improvement to Program of Study Per program review, change CSCI to IT designation for program clarification and SLO data assessment.
Author:	No value

Faculty Minimum Qualifications

Master Discipline Preferred:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications)
Alternate Master Discipline Preferred:	• Computer Science
Bachelors or Associates Discipline Preferred:	• Computer Information Systems (Computer network installation, microcomputer technology, computer applications)
Additional Bachelors or Associates Discipline Preferred:	No value

Course Development Options

Basic Skills Status (CB08)

Course is not a basic skills course.

Course Special Class Status (CB13)

Course is not a special class.

Grade Options

- Letter Grade Methods
- Pass/No Pass

☐ Allow Students to Gain Credit by Exam/Challenge

Allowed Number of Retakes

0

Course Prior To College Level (CB21)

Not applicable.

Rationale For Credit By Exam/Challenge

No value

Retake Policy Description

Type:|Non-Repeatable Credit

☑ Allow Students To Audit Course

Course Support Course Status (CB26)

No value

Associated Programs

☑ Course is part of a program (CB24)

Associated Program	Award Type	Active
CC Computer Information Systems-	Certificate of Achievement	Spring 2018 to Summer 2019
CC Computer Information Systems	A.S. Degree Major	Spring 2018 to Summer 2019
CC Information Technology	Certificate of Achievement	Summer 2019
CC Information Technology	A.S. Degree Major	Summer 2019

Transferability & Gen. Ed. Options

Course General Education Status (CB25)

No value

Transferability

Transferable to CSU only

Transferability Status

Approved

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	90
Total Course Out-of-Class Hours	72
Total Student Learning Hours	162
Faculty Load	0

Credit / Non-Credit Options

Course Credit Status (CB04)

Credit - Degree Applicable

Course Non Credit Category (CB22)

Credit Course.

Non-Credit Characteristic

No Value

Course Classification Status (CB11)

Credit Course.

☐ Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

Weekly Student Hours

	In Class	Out of Classs
Lecture Hours	2	4
Laboratory Hours	3	0
Activity Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	36
Laboratory	54
Activity	0
Total	90
Course Out-of-Class Hours	
Lecture	72
Laboratory	0
Activity	0
Total	72

Time Commitment Notes for Students

No value

Faculty Load

Extra Duties: 0

Faculty Load: 0

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

ENGLC070 - Introductory Composition

ENGL C070
Students are expected to identify central points, both explicit and implied, of business and information systems cases, journal and periodical articles, and college-level textbooks. In addition, students have to outline and summarize complex and technical business and information technology readings and interpret difficult and figurative language including academic discourse and business terminology. Students are also expected to write business and information technology case reports in an accepted format and answer essay questions in clear and error free prose based on readings from texts, business journals, and periodicals.

AND

Prerequisite

ITC101 - Introduction to Computer Information Systems

IT C101 as Prerequisite for CSCI C270
Students are expected to have a working knowledge of applications programs and file management. In addition, students should have an introductory knowledge of how computers and information systems are used in business and how computers are programmed.

Entrance Skills

Entrance Skills	Description
No value	No value

Limitations on Enrollment

Limitations on Enrollment	Description
No value	No value

Specifications

Methods of Instruction

Methods of Instruction	Audiovisual
Rationale	No value
Methods of Instruction	Outside reading
Rationale	No value
Methods of Instruction	Problem Solving
Rationale	No value
Methods of Instruction	Skills Development and Performance
Rationale	No value
Methods of Instruction	Written work
Rationale	No value
Methods of Instruction	Instruction through examination or quizzing
Rationale	No value
Methods of Instruction	Laboratory
Rationale	No value
Methods of Instruction	Lecture
Rationale	No value
Methods of Instruction	Case Study
Rationale	No value
Methods of Instruction	Demonstration

Rationale	No value

Methods of Instruction	Discussion
Rationale	No value

Assignments

A. Chapter reading - Reading the assigned chapters from the textbook based on the topics for the week.
B. Case studies - Written case study responses based on the topics in the textbook.
C. Database management assignments - Completion of project assignments using Microsoft Access and other database management systems and related software.

Methods of Evaluation	Rationale
Tests	Example: Multiple choice and essay exam covering all concepts of the course. Midterm Exam demonstrating mastery of material in the first half of instruction
Other	Example: Hands-on relational database management design model creation.
Participation	Weekly discussion participation demonstrating understanding of database management concepts Example: Discussion regarding SQL queries.
Final Exam	D. Final Exam demonstrating comprehensive mastery of material presented Example: Multiple choice and essay question exam covering database management principles.
Homework	Weekly hands-on lab assignments demonstrating mastery of new material

Equipment

Students need to use Microsoft Access and MySQL. Both are available to students for free. Access runs on the Windows operating system only. Students will need to run a Windows emulator to run on a Mac or Linux computer.

Textbooks

Author	Title	Publisher	Date	ISBN
Kroenke, D. M., Auer, D. J., Vandenberg, S. L., & Yoder, R. C.	Database Concepts (8th ed.)	Pearson	2017	978-0-13-460153-3

Other Instructional Materials

Description	Students need to use Microsoft Access and MySQL. Both are available to students for free. Access runs on the Windows operating system only. Students will need to run a Windows emulator to run on a Mac or Linux computer.
Author	No value
Citation	No value

Materials Fee

No

Learning Outcomes and Objectives

Course Objectives

Define the role of databases and database management systems in managing organizational data and information.

Understand the fundamentals of the basic file organization techniques.

Design a relational database so that it is at least in 3rd Normal Form.

Implement a relational database design using an industrial-strength database management system, including the principles of data type selection and indexing.

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.

Describe the role of databases and database management systems in the context of enterprise systems.

Describe the key principles of data security and identify data security risk and violations in data management system design.

Compare the difference between on-line transaction processing (OLTP) and online analytic processing (OLAP), and the relationship between these concepts and business intelligence, data warehousing and data mining.

CSLOs

Design and implement a relational database in 3rd Normal Form using an industrial-strength database management system.
Expected SLO Performance: 70.0

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.
Expected SLO Performance: 70.0

Compare the difference between on-line transaction processing (OLTP) and online analytic processing (OLAP), and the relationship between these concepts and business intelligence, data warehousing and data mining.
Expected SLO Performance: 70.0

Outline

Course Outline

1. Database approach

    1. Types of database management systems
    2. Basic file processing concepts
    3. Physical data storage concepts
    4. File organizations techniques
2. Conceptual data model
    1. Entity-relationship model
    2. Object-oriented data model
    3. Specific modeling grammars
3. Logical data model
    1. Hierarchical data model
    2. Network data model
    3. Relational data model
        1. Relations and relational structures
        2. Relational database design
4. Mapping conceptual schema to a relational schema
    1. Normalization
5. Physical data model
    1. Indexing
    2. Data types
6. Database languages
    1. SQL, Data Definition Language (DDL)
    2. Data Manipulation Language (DML)
    3. Data Control Language (DCL)
7. Data and database administration
    1. Concurrency control
    2. Backup and recovery
8. Database processing
    1. Transaction processing
    2. Web-based processing
    3. Using a database management system from an application development environment
    4. Use of database management systems in an enterprise system context
    5. Data / information architecture
9. Data security management
    1. Basic data security principles
    2. Data security implementation
10. Data quality management
    1. Data quality principles
    2. Data quality audits
    3. Data quality improvement
11. Business intelligence
    1. On-line analytic processing
    2. Data warehousing
    3. Data mining
    4. Enterprise search

Lab Outline

1. Relational database model
    1. Normalization
    2. Entity relationship diagrams
    3. Database implementation
2. Database management with MS Access
    1. Database creation
    2. Database maintenance
    3. Reports
    4. Forms
3. Structured Query Language
    1. Data definition
    2. Relational queries
    3. Database modifications
4. Web-based databases
    1. Creation
    2. Maintenance

3. Reporting

Delivery Methods and Distance Education

Delivery Method: Please list all that apply -Face to face -Online (purely online no face-to-face contact) -Online with some required face-to-face meetings (“Hybrid”) -Online course with on ground testing -iTV – Interactive video = Face to face course with significant required activities in a distance modality -Other

Face 2 Face
Online
Hybrid
Interactive

Rigor Statement: Assignments and evaluations should be of the same rigor as those used in the on-ground course. If they are not the same as those noted in the COR on the Methods of Evaluation and out-of-class assignments pages, indicate what the differences are and why they are being used. For instance, if labs, field trips, or site visits are required in the face to face section of this course, how will these requirements be met with the same rigor in the Distance Education section?

All assignments in distance education courses (online, hybrid and iTV) of IT C270 are of the same rigor as those in the on-ground course, except that students in purely online sections will submit all of their assignments virtually. Instructor evaluation of student work in distance education courses is the same as in the on-ground course, except that evaluation of student work in online is presented virtually. Instead of onsite lectures, hybrid and online courses use a variety of methods including, but not limited to videos, and written lecture notes. The lab component is guided through a step-by-step process using screen captures, test, emails, discussions, and chat feedback as appropriate.

Effective Student-Instructor Contact: Good practice requires both asynchronous and synchronous contact for effective contact. List the methods expected of all instructors teaching the course. -Learning Management System -Discussion Forums -Moodle Message -Other Contact -Chat/Instant Messaging -E-mail -Face-to-face meeting(s) -Newsgroup/Discussion Board -Proctored Exam -Telephone -iTV -Interactive Video -Other (specify)

Learning Management System
Discussion Forums
Canvas Inbox

Software and Equipment: What additional software or hardware, if any, is required for this course purely because of its delivery mode? How is technical support to be provided?

No Value

Accessibility: Section 508 of the Rehabilitation Act requires access to the Federal government's electronic and information technology. The law covers all types of electronic and information technology in the Federal sector and is not limited to assistive technologies used by people with disabilities. It applies to all Federal agencies when they develop, procure, maintain, or use such technology. Federal agencies must ensure that this technology is accessible to employees and the public to the extent it does not pose an "undue burden". I am using -iTV—Interactive Video only -Learning management system -Publisher course with learning management system interface.

s508_itv
s508_moodle
s508_publisher

Class Size: Good practice is that section size should be no greater in distance ed modes than in regular face-to-face versions of the course. Will the recommended section size be lower than in on-ground sections? If so, explain why.

Preferred maximum enrollment for iTV courses is 20 students at each site, 45 total.