Course Outline

COURSE: CSIS 162  DIVISION: 50  ALSO LISTED AS: 

TERM EFFECTIVE: Spring 2017  CURRICULUM APPROVAL DATE: 05/09/2016

SHORT TITLE: DATABASE SYSTEMS

LONG TITLE: Introduction to Database Systems

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>18</td>
<td>Lecture: 3</td>
<td>54</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Lab: 0</td>
<td>0</td>
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<td></td>
<td>Other: 0</td>
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<td></td>
<td></td>
<td>Total: 3</td>
<td>54</td>
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</table>

COURSE DESCRIPTION:

An introduction to database systems, including the design, use and administration of databases. This course has the option of a standard letter grade or pass/no pass. PREREQUISITE: CSIS 45, CSIS 5, or CSIS 24.

PREREQUISITES:

Completion of CSIS 45, as UG, with a grade of C or better.
OR
Completion of CSIS 5, as UG, with a grade of C or better.
OR
Completion of CSIS 24, as UG, with a grade of C or better.

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade
P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion
05 - Hybrid

6/20/2016
STUDENT LEARNING OUTCOMES:
1. Design conceptual databases using Entity-Relationship mode
   Measure: exams, discussions
   PLO:
   ILO: 7   GE-LO:
   Anticipated Year of Assessment: 2017
2. The student will explain the concept of normalization of a database.
   Measure: exams, discussions
   PLO:
   ILO: 7, 2, 1, 4
   Anticipated Year of Assessment: 2017
3. The student will write SQL queries and write programs that access a database.
   Measure: hands-on projects, problem-solving assignments
   PLO:
   ILO: 7, 3, 2
   GE-LO:
   Anticipated Year of Assessment: 2017
4. The student will implement a relational database design.
   Measure: hands-on projects, problem-solving assignments
   PLO:
   ILO: 7, 2
   GE-LO:
   Anticipated Year of Assessment: 2017
5. Student will describe the algorithms and data structures used in query evaluation and transaction processing.
   Measure: exams, discussions
   PLO:
   ILO: 7, 2, 1, 4
   GE-LO:

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Curriculum Approval Date: 05/09/2016
6 Hours
Content: Introduction to Databases
Databases and Database Users
Database Systems Concepts and Architecture
Conceptual Data Modeling and Database Design
Data Modeling Using the Entity Relationship (ER) Model
The Enhanced Entity Relationship (EER) Model
Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
6 Hours
Content: The Relational Data Model and SQL
The Relational Data Model and Relational Database Constraints
Basic SQL
Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
6 Hours
Content: More SQL: Complex Queries, Triggers, Views, and Schema Modification
The Relational Algebra and Relational Calculus
Relational Database Design by ER- and EER-to-Relational Mapping

Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
6 Hours
Content: Database Programming Techniques
Introduction to SQL Programming Techniques
Web Database Programming Using PHP

Student Performance Objectives (SPO):
Out-of-Class Assignments:
6 Hours
Content: Database Design Theory and Normalization
Basics of Functional Dependencies and Normalization for Relational Databases
Relational Database Design Algorithms and Further Dependencies

Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
6 Hours
Content: File Structures, Hashing, Indexing, and Physical Database Design
Disc Storage, Basic File Structures, Hashing, and Modern Storage Architectures
Indexing Structures for Files and Physical Database Design

Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
6 Hours
Content: Query Processing and Optimization
Strategies for Query Processing
Query Optimization

Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
6 Hours
Content: Transaction Processing, Concurrency Control, and Recovering
Introduction to Transaction Processing Concepts and Theory

Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
4 Hours
Content: Concurrency Control Techniques
Database Recovery Techniques

Student Performance Objectives (SPO):
Out-of-Class Assignments: Read text. Do assigned exercises.
2 Hours

METHODS OF INSTRUCTION:
lecture, hands-on projects and exercises, homework, quizzes, exams, discussion

METHODS OF EVALUATION:
Category 1 - The types of writing assignments required:
Percent range of total grade: 0 % to %
If this is a degree applicable course, but substantial writing assignments are NOT appropriate, indicate reason:
Course is primarily computational
Course primarily involves skill demonstration or problem solving
Category 2 - The problem-solving assignments required:
Percent range of total grade: 30 % to 80 %
Homework Problems
Lab Reports
Quizzes
Exams
Other:
Category 3 - The types of skill demonstrations required:
Percent range of total grade: 20 % to 40 %
Performance Exams
Category 4 - The types of objective examinations used in the course:
Percent range of total grade: 10 % to 20 %
Multiple Choice
True/False
Matching Items
Completion

REPRESENTATIVE TEXTBOOKS:
Required:
Reading level of text, Grade: 12+ Verified by: ev
Other textbooks or materials to be purchased by the student: none

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
  Transferable CSU, effective 201730
UC TRANSFER:
  Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education:
Program Status: 2 Stand-alone
Special Class Status: N
CAN:
CAN Sequence: 6/20/2016
CSU Crosswalk Course Department:
CSU Crosswalk Course Number:
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours: 3
Minimum Hours: 3
Course Control Number:
Sports/Physical Education Course: N
Taxonomy of Program: 070720