GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

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

Units	Number of Weeks	Type	Contact Hours/Week	Total Contact Hours
3	18	Lecture:	3	54
		Lab:	0	0
		Other:	0	0
		Total:	3	54

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

72 - Dist. Ed Internet Delayed

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

GE-LO:

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:
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:

Ramez Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Pearson, 2016. Or other appropriate college level text.

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:

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