



I. GENERAL COURSE INFORMATION

Subject and Number: Computer Information Systems 18
Descriptive Title: Systems Analysis and Design
Course Disciplines: Computer Information Systems
Division: Business

Catalog Description:

In this course the student will study systems analysis and design concepts as they are applied in business environments. Topics emphasize methodologies used by the analyst throughout the systems development life cycle to analyze business problems or opportunities, address user needs, perform feasibility studies, specify business requirements through process, data and logic modeling, consideration of development alternatives, and implementation and maintenance of systems.

Conditions of Enrollment:

Recommended Preparation: Computer Information Systems 13 or equivalent experience

Course Length:	<input checked="" type="checkbox"/> Full Term	Other (Specify number of weeks):
Hours Lecture:	2.00 hours per week	TBA
Hours Laboratory:	3.00 hours per week	TBA
Course Units:	3.00	

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: Effective Date: Prior to July 1992
Transfer UC: No

General Education:
El Camino College:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. SLO #1 Interview Techniques

Use effective interview techniques to gain an understanding of the company computer system's current data inputs, outputs, and processes.

2. SLO #2 Graphical Models

Understand how 1) data flow diagrams visually illustrate the way data moves through a company's information system, and 2) entity-relationship diagrams serve as a graphical model that depict the relationships among the entities of a company's information system.

3. SLO #3 Logical Design Documents Prepare logical design documentation for a company's new or modified computer system that includes a systems requirements document and a systems design specification.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Articulate the types of business needs that can be addressed using information technology-based solutions.

- Objective Exams

2. Initiate, specify, and prioritize information systems projects and determine the operational, technical, economic and schedule feasibilities of these projects.

- Objective Exams

3. Clearly define problems, opportunities, or mandates that initiate projects.

- Term or other papers

4. Analyze a business problem or opportunity using either the "structured" systems analysis and design method or "agile" methods.

- Term or other papers

5. Communicate effectively with various organizational stakeholders to collect information using a variety of techniques to clearly define system requirements.

- Term or other papers

6. Write clear and concise process, logic and data models that will define current business operations as well as the proposed system that provides a productive change in the way the business is conducted.

- Term or other papers

7. Manage information systems projects using formal project management methods.

- Term or other papers

8. Compare and contrast various systems acquisition and conversion alternatives.
 - Objective Exams
9. Incorporate principles leading to high levels of security and user experience from the beginning of the systems development process.
 - Objective Exams
10. Apply prototyping methods to input and output design.
 - Term or other papers
11. Compare the advantages and disadvantages of different database models.
 - Objective Exams
12. Apply normalization rules to database tables.
 - Term or other papers
13. Evaluate different network topology methods.
 - Objective Exams
14. Differentiate between corrective, adaptive, perfective and preventive maintenance.
 - Objective Exams
15. Analyze and articulate ethical, cultural, and legal issues and their feasibilities among alternative solutions.
 - Objective Exams

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	6	I	I. Introduction (6 hours, lecture) A. The impact of information technology B. Causes of systems development projects C. Information systems components D. Systems development tools E. Systems development methods
Lecture	4	II	II. Strategic Planning for Systems Development (4 hours, lecture) A. Preliminary investigation B. Identification of opportunities for Information Technology enabled organizational change C. Operational, technical, economic, and schedule feasibility
Lecture	3	III	III. Requirements Modeling (3 hours, lecture) A. Joint and rapid application development B. CASE (Computer Aided Software Engineering) tools C. Fact-finding
Lecture	1.5	IV	IV. Enterprise Modeling (1.5 hours, lecture)

			<ul style="list-style-type: none"> A. Data flow diagrams B. Data dictionaries C. Logic description using structured English, decision tables, and decision trees
Lecture	4	V	V. Software Development Strategies (4 hours, lecture) <ul style="list-style-type: none"> A. Outsourcing vs. in-house development B. Web based software trends C. Prototyping
Lecture	1.5	VI	VI. Data Design (1.5 hours, lecture) <ul style="list-style-type: none"> A. Entity-relationship diagrams B. Normalization C. Database models
Lecture	1	VII	VII. Interface, Input, and Output Design (1 hour, lecture) <ul style="list-style-type: none"> A. Menu screens B. Data entry screens C. Data display screens D. Reports
Lecture	4	VIII	VIII. System Architecture (4 hours, lecture) <ul style="list-style-type: none"> A. Web integration B. Client/server design C. Network models
Lecture	6	IX	IX. Systems Implementation (6 hours, lecture) <ul style="list-style-type: none"> A. Coding B. Data conversion C. System changeover options
Lecture	5	X	X. Systems Operation and Support (5 hours, lecture) <ul style="list-style-type: none"> A. Corrective, adaptive, perfective and preventive maintenance B. System obsolescence
Lab	5.5	XI	XI. Feasibility Study (5.5 hours, lab) <ul style="list-style-type: none"> A. Operational feasibility B. Technical feasibility C. Economic feasibility D. Schedule feasibility
Lab	8.25	XII	XII. Fact Finding and Documentation (8.25 hours, lab) <ul style="list-style-type: none"> A. Identifying systemic problems B. Determining user requirements C. Systems requirements document <ul style="list-style-type: none"> I. Documenting findings/problems II. Recommendations
Lab	9.75	XIII	XIII. Process Modeling (9.75 hours, lab) <ul style="list-style-type: none"> A. Context diagram B. Level zero data flow diagram C. Functional primitives
Lab	4.5	XIV	XIV. Software Development (4.5 hours, lab) <ul style="list-style-type: none"> A. In-house B. Outsourcing

			C. Pre-packaged D. Cloud (Web) based
Lab	9.75	XV	XV. Data Modeling (9.75 hours, lab) A. Entity relationship diagram B. Normalization C. Physical development/implementation
Lab	8	XVI	XVI. User Interfaces (8 hours, lab) A. Navigational menu interfaces B. Data entry and display screens C. Reports
Lab	4.5	XVII	XVII. System Architecture (4.5 hours, lab) A. Client-server B. Peer to peer
Lab	3.75	XVIII	XVIII. System Implementation and Changeover (3.75 hours, lab) A. Direct cutover B. Parallel operation C. Pilot operation D. Phased operation
Total Lecture Hours		36	
Total Laboratory Hours		54	
Total Hours		90	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

You have received a systems request from the management of the Acme Corporation to automate their inventory control process. For each type of feasibility, prepare at least two questions that will help you evaluate the feasibility of the request.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. Analyze the current inventory control processes at the Acme Corporation. Construct a series of data flow diagrams of those processes until they are decomposed into functional primitives.
2. Examine the data attribute needs of the inventory control workers at the Acme Corporation. Design a fully normalized entity-relationship diagram that exhibits only controlled data redundancies.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Multiple Choice

True/False

Other (specify):

Process, data, and logic models

Term or other paper/project

V. INSTRUCTIONAL METHODS

- Laboratory
- Lecture
- Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

- Study
- Problem solving activities
- Written work

Estimated Independent Study Hours per Week: 4

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Scott Tillet. Systems Analysis and Design. 12thed. Cengage, 2018

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
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B. Requisite Skills

Requisite Skills

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Course Recommended Preparation or Computer Information Systems-13	
Non-Course Recommended Preparation equivalent experience	Successful completion of this course requires a fundamental knowledge of the development and use of various information systems, and the ability to use application software.

D. Recommended Skills

Recommended Skills
Demonstrate an understanding of the development and use of information systems in business. CIS 13 - Explain the development and use of information systems in business.
Solve common business problems using appropriate information technology applications and systems. CIS 13 - Solve common business problems using appropriate information technology applications and systems.
Identify the impact of the expanding scope of digital technology including career opportunities, privacy, security, ethics, global relationships, and perceptions of reality. CIS 13 - Summarize the impact of the expanding scope of digital technology including career opportunities, privacy, security, ethics, global relationships, and perceptions of reality.
Identify and analyze existing and emerging technologies and their impact on organizations and society including computer, communication and information systems, privacy, security, crime, ethics, global relationships, and career opportunities. CIS 13 - Identify and analyze existing and emerging technologies and their impact on organizations and society including computer, communication and information systems, privacy, security, crime, ethics, global relationships, and career opportunities.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Pat Vacca on 04/01/1988.

BOARD APPROVAL DATE:

LAST BOARD APPROVAL DATE: 03/23/2020

Last Reviewed and/or Revised by: Randy Harris
20381

Date: 10/21/2019