

ATLANTIC CAPE COMMUNITY COLLEGE

ISAS DEPARTMENT

COURSE SYLLABUS

COURSE TITLE: CISM160 Systems Analysis and Design

**Instructor:** Dr. Otto Hernandez

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**REQUIRED TEXTBOOK AND MATERIALS:** Essentials of Systems Analysis and Design. Author: Valacich; Edition: 6th; ISBN: 9780133546231

**COURSE DESCRIPTION:** Investigation of information systems with respect to their existence and identification and development of needed informational improvements within an organization. Recommended methods and procedures considering computer involvement are reviewed, designed and implemented using the case-study approach

**PRE-REQUISITE:** one of the following: CISM135, CISM154 or CISM174

**ADA STATEMENT:** As per the Americans with Disabilities Act (ADA), reasonable accommodations can be provided to students who present current documentation (within five years) of a disability to Atlantic Cape Community College's Center for Accessibility, located on the first floor of "J" Building in the Counseling and Support Services department (Mays Landing campus). Reasonable accommodations cannot be provided for a course until the student registers with the Center for Accessibility. For more information, please contact the Center for Accessibility via email at [cfa@atlantic.edu](mailto:cfa@atlantic.edu) or call [609-343-5680](tel:609-343-5680).

**LEARNING GOALS & OBJECTIVES:**

A) Understanding the Systems Development Environment

1. Define information systems analysis and design.
2. Define and discuss the modern approach to systems analysis and design.
3. Illustrate how systems development extends to different types of information systems and not just transaction processing systems.
4. Introduce the traditional information systems development life cycle, which serves as the basis for the organization of the material in this book.
5. Show that the life cycle is a flexible basis for systems analysis and design and that it can support many different tools and techniques, such as prototyping and JAD.
6. Discuss the importance and role of CASE in systems development.

7. Discuss information systems development options, including IT services firms, packaged software producers, enterprise-wide solutions, open-source software, and in-house developers.
8. Discuss the different approaches to systems development, including prototyping, CASE tools, joint application development, rapid application development, participatory design, and Agile Methodologies.

#### B) Define Software Sources

1. Identify and discuss information systems development options, including IT services firms, packaged software producers, enterprise-wide solutions, application service providers, open-source software, and in-house developers.
2. Define and understand outsourcing and its implications.
3. Discuss choosing off-the-shelf software.
4. Make comparisons between off-the-shelf solutions and in-house solutions and validate purchased software.
5. Understand how and why reusing software can be a useful option.

#### C) Understand how to manage the information systems project

1. Explain the process of managing an information systems project.
2. Describe the skills required to be an effective project manager.
3. List and describe the skills and activities of a project manager during project initiation, project planning, project execution, and project close down.
4. Explain what is meant by critical path scheduling and describe the process of creating Gantt charts and Network diagrams.
5. Explain how commercial project management software packages can be used to assist in representing and managing project schedules.

#### D) Understand Systems Planning and Selection

1. Illustrate the project identification and selection process.
2. Illustrate the steps in the project initiation and planning process.
3. Explain the need for and describe the contents of a Project Charter and Baseline Project Plan.
4. Provide a comprehensive overview of the various methods for assessing project feasibility.
5. Explain the differences between tangible and intangible benefits and costs and between one-time and recurring benefits and costs.
6. Illustrate how to perform cost-benefit analysis and describe what is meant by the time value of money, present value, discount rate, net present value, return on investment, and break-even analysis.
7. Describe how to evaluate the technical risks associated with a systems development project.
8. Explain the activities and participant roles within a structured walkthrough.
9. Prepare your students to develop a plan for conducting a term project involving several phases of systems development using the SDLC or other methodologies.

10. Describe the systems planning and selection process for an Internet electronic commerce application.

E) Define Determining Systems Requirements

1. Provide insight into using interviewing to determine system requirements, including the preparation of an interview plan.
2. Discuss the system requirements determination process for Internet-based electronic commerce applications.
3. Discuss the advantages and pitfalls of observing workers to determine system requirements.
4. Demonstrate how the analysis of business documents provides system requirements information.
5. Illustrate how Joint Application Design promotes efficient and quick system requirements determination.
6. Show how prototyping can be used for requirements determination.
7. Show that BPR involves more than just tweaking or automating processes.
8. Illustrate how disruptive technologies enable the breaking of long-held business rules.

F) Understanding Structuring Systems Requirements Process Modeling

1. Show how data-flow diagrams can logically model processes.
2. Use data-flow diagram symbols and the mechanical rules necessary for them to create accurate and well-structured process models.
3. Decompose data-flow diagrams into lower-level diagrams.
4. Illustrate the concept of balanced DFDs.
5. Explain and demonstrate the differences among the four types of DFDs: current physical, current logical, new physical, and new logical.
6. Illustrate how data-flow diagrams can be used as tools to support systems analysis.
7. Show how Structured English can be used to model process logic.
8. Demonstrate how decision tables can be used to represent the logic of choice in conditional statements.
9. Explain that process modeling for Internet-based electronic commerce applications is no different than the process used for other applications.

G) Define Conceptual Data Modeling

1. Emphasize the importance of understanding organizational data and represent the data requirements of an application unambiguously in logical terms.
2. Present the E-R model as a conceptual data model that can be used to capture the structure and much (although not all) of the semantics (or meaning) of data in several front-end stages of the systems development process.
3. Distinguish how data, process, and logic models all represent data requirements, but that conceptual data models (such as E-R diagrams (ERD)) provide a more thorough and stable representation of data than do other types of system structures.
4. Identify processes to match data requirements from data and process system models. This example emphasizes the differences between data stores and data entities, yet shows how to reconcile process and data models to be sure each model covers all data requirements.

5. Identify that conceptual data modeling for an Internet-based electronic commerce application is no different than the processes followed for other applications.

#### H) Understand Designing the Human Interface

1. Illustrate the process of designing forms and reports, and the deliverables for their creation.
2. Describe how to apply the general guidelines for formatting forms and reports.
3. Illustrate how color can be used to improve the usability of information.
4. Illustrate how to format text, tables, and lists effectively.
5. Explain how the formatting of information can bias users' understanding.
6. Describe how to assess usability and illustrate how variations in users, tasks, technology, and environmental characteristics influence the usability of forms and reports.
7. Explain the process of designing interfaces and dialogues and the deliverables for their creation.
8. Illustrate how to apply the general guidelines for designing interfaces and specific guidelines for layout design, structuring data entry fields, providing feedback, and system help.
9. Illustrate how to design human-computer dialogues, including the use of dialogue diagramming.
10. Discuss the importance of human interface design as it relates to Internet-based electronic commerce applications.

#### I) Understand the Design of Databases

1. Show the relationship between systems analysis and design and logical database design. .
2. Present the relational data model as a logical data model that can be used to capture the structure of data in a very fundamental, stable form and that suggests some ways to organize data during physical database design that will result in desirable data maintenance properties (which avoid certain data anomalies).
3. Show how a conceptual data model can obscure some of the details about data requirements that must be better understood to do physical database design.
4. Show how how to translate a conceptual data model into a logical data model and how to incorporate the data requirements of specific system outputs into the process of forming a logical data model.

#### J) Understand Systems Implementation

1. Discuss the subprocesses that make up system implementation.
2. Discuss the many different types of testing that occur in implementation and when each one is appropriate.
3. Show how to prepare a test plan for an information system.
4. Distinguish among four installation strategies: direct, parallel, single location, and phased installation and know when to use each one.
5. Explain the difference between system and user documentation, emphasizing that system documentation has been occurring throughout the SDLC.

6. Demonstrate the many different modes available for training users, including tutorials, courses, self-training, electronic performance support systems, and other types of embedded training.
7. Show how to prepare a training plan for an information system.
8. Explain the issues associated with user support, whether internal or external to the organization.
9. Explain and contrast four types of maintenance.
10. Describe several factors that influence the cost of maintaining an information system and apply these factors to the design of maintainable systems.
11. Illustrate the role of CASE when maintaining information systems.

Week	Readings
1. 9/5	Chapter 1 - The Development Process
2. 9/12	Chapter 6 - Modeling
3. 9/19	Chapter 2 - Sources of Software
4. 9/26	Test 1: Chapt 1,2, & 6
5. 10/3	Chapter 3 - Project Management
6. 10/10	Chapter 4 - Systems Planning and Selection
7. 10/17	Chapter 5 - Determining Systems Requirements
8. 10/24	Chapter 7 - Structuring Systems Requirements
9. 10/31	Test 2: Chapt 3-5 & 7
10. 11/7	Chapter 8 - Designing the Human Interface
11. 11/14	Chapter 9 - Designing Databases
12. 11/21	Chapter 10 - Systems Implementation
13. 11/28	Test 3: Chapt 8-10
14. 12/5	Project Presentations
15. 12/12	Project Presentations
16. 12/19	Project Reviews

**ASSESSMENT STRATEGIES:**

Tests (3) 100 points each	300 points
Final Project	100 points
Homework (10) 5 points each	50 points
Quizzes (10) 5 points each	50 points
Total points	500 points

GRADE	POINTS	GRADE POINT VALUE

A	460-500	4.0
A-	450-459	3.7
B+	435-450	3.3
B	410-434	3.0
B-	400-409	2.7
C+	385-409	2.3
C	350-384	2.0
D	325-349	1.0
F	0-324	0.0

### **Class policies**

1. Class will begin promptly at scheduled time.
2. A short quiz will be given at the start time. Quiz will reflect prior week's class. You must be present to take the quiz; there are no makeups for missed quizzes.
3. Each student will turn assignments in on or before assigned date. Assignments will be accepted late regardless of the reason. They will be marked down 10%/day regardless of the reason.
4. Each student will be present for a test. Tests WILL NOT be made up unless adequate notification is given prior to test day and time.
5. Each student will do his/her own work. Plagiarism in any form will result in a failing grade for all concerned. See Academic Honesty Policy in the next section.
6. Each student will be courteous and respectful to classmates and instructor. Rude or immature behavior will result in dismissal from the course.

### **ISAS Department's Academic Honesty Policy**

Because academic honesty is essential to the trust that is fundamental to an educational experience, academically dishonest behaviors will not be tolerated. Examples include, but are not limited to, software piracy, computer vandalism, cheating, fabrication, plagiarism, copying, and facilitating academic dishonesty. Any academic dishonesty will be reported to the chairperson of the ISAS department, Associate Dean of Technology Studies, Dean of Instruction, and Dean of Students. Penalties may result in "F" or "0" for the assignment or "F" for the course. Two such offenses will be grounds for academic dismissal. See Student Handbook for more information.

### **WRITTEN WORK GRADING RUBRIC**

  3   1. Content (3 pts)

2   2. Using textbook or other material to support your content (2 pts)

  2   3. Clarity (standard English grammar, correct spelling, complete sentences) (3 pts)

  2   4. Response to another's post (1 pt for each response to another's post)

  1   2. APA Citation guideline usage (1 pts)

10 points total