

Curriculum Map

Course #: CIS 3108 Subject: Systems Analysis and Design

Week / Unit	Content	Skills / Goals	Assessments	Standards
Unit 1	<i>Introduction to the Systems Analysis and Design course.</i>	<p><i>When successfully completed, the student will be able to:</i></p> <ul style="list-style-type: none"> • <i>Identify the course requirements in the syllabus.</i> • <i>Navigate the Blackboard course site.</i> • <i>Describe the textbook structure and contents.</i> • <i>Identify the weekly course layout.</i> • <i>Post initial and reply discussions to the forums.</i> • <i>Explore the employment possibilities of systems analysis.</i> 	<ul style="list-style-type: none"> - <i>Discussion</i> - <i>In-class Activity</i> 	<p><i>The College's general, and the CIS Department's specific Curriculum Standards</i></p>
Unit 2	<p><i>Systems Analysis and Design</i> – <i>This Unit describes the role of information technology in today's dynamic business environment. This also examines the development of information systems, systems analysis and design concepts, and various systems development methods, as well as reviews the role of the information technology department and its people.</i></p>	<p><i>When successfully completed, the student will be able to:</i></p> <ul style="list-style-type: none"> • <i>Describe the impact of information technology.</i> • <i>Define systems analysis and design and the role of a systems analyst.</i> • <i>Define an information system and describe its components.</i> • <i>Explain how to use business profiles and models.</i> • <i>Explain Internet business strategies and relationships, including B2C and B2B.</i> • <i>Identify various types of information systems and explain who uses them.</i> • <i>Distinguish among structured analysis, object-oriented analysis, and agile methods.</i> • <i>Explain the waterfall model, and how it has evolved.</i> • <i>Discuss the role of the information technology department and the systems analysts who work there.</i> 	<ul style="list-style-type: none"> - <i>Unit Case Study</i> - <i>Discussion</i> - <i>In-class Activity(s)</i> - <i>Quiz</i> 	<p><i>The College's general, and the CIS Department's specific Curriculum Standards</i></p>

<p><i>Unit 3</i></p>	<p>Analyzing Business Case Studies – This Unit explains how to analyze a business case. This Unit also explains why it is important to understand business operations and requirements, how IT projects support a company's overall strategic plan, how systems projects get started, and how systems analysts conduct a preliminary investigation and feasibility study.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Explain the concept of a business case and how a business case affects an IT project. • Describe the strategic planning process and why it is important to the IT team. • Explain the purpose of a mission statement. • Conduct a SWOT analysis and describe the four factors involved. • Explain how the SDLC serves as a framework for systems development. • List reasons for systems projects and factors that affect such projects. • Describe systems requirements and the role of the systems review committee. • Define operations, technical, economic, and schedule feasibility. • Describe the steps and the end product of a preliminary investigation. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz 	<p>The College's general, and the CIS Department's specific Curriculum Standards</p>
<p><i>Unit 4</i></p>	<p>Managing Systems Projects – This Unit explores the systems planning phase of the SDLC. This Unit also describes project management and explains how to plan, schedule, monitor, and report on IT projects.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Explain project planning, scheduling, monitoring, and reporting. • Draw a project triangle that shows the relationship among project cost, scope, and time. • Describe work breakdown structures, task patterns, and critical path analysis. • Explain techniques for estimating task completion times and costs. • Describe various scheduling tools, including Gantt charts and PERT/CPM charts. • Analyze task dependencies, durations, start dates, and end dates. • Describe project management software and how it can assist you. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz 	<p>The College's general, and the CIS Department's specific Curriculum Standards</p>

		<ul style="list-style-type: none"> • Discuss the importance of managing project risks. • Understand why projects sometimes fail. 		
Unit 5	<p>CASE Tools – This Unit explores CASE tools that can be used to design, construct, and document an information system.</p> <p>Computer-aided systems engineering (CASE), also called computer-aided software engineering, is a technique that uses powerful software, called CASE tools, to help system developers design and construct information systems. In this part of the Systems Analyst's Toolkit, students will learn about the history, characteristics, and features of CASE tools. You will see specific examples of CASE tools and how they are used in various development tasks. In addition, you will learn about integrated soft- ware development environments and application life cycle management.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Explain CASE tools and the concept of a CASE environment. • Trace the history of CASE tools and their role in a fourth-generation environment. • Define CASE terms and concepts, including a repository, modeling tools, documentation tools, engineering tools, and construction tools. • Explain an integrated development environment (IDE) and application life cycle management (ALM) solutions. • Provide examples of CASE tool features. • Describe CASE tool trends, and how they relate to object-oriented analysis and agile methods. • Use a Work Breakdown Structure to create Pert and Gantt charts. • Use CASE tools to create Pert and Gantt charts. • Calculate the Critical Path of tasks of a project. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz - Create a Gantt Chart in Excel - Create a Pert CPM Chart in Excel 	The College's general, and the CIS Department's specific Curriculum Standards
Unit 6	<p>Requirements Modeling – The Systems Development Life Cycle (SDLC) consists of five phases: Systems planning, systems analysis, systems design, systems implementation, and systems support and security.</p> <p>In this Unit the systems analysis phase is started. This Unit describes the process of gathering facts about a systems project, preparing documentation, and creating models that will be used to design and develop the system.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Describe systems analysis phase activities. • Explain joint application development (JAD), rapid application development (RAD), and agile methods. • Use a functional decomposition diagram (FDD) to model business functions and processes. • Describe the Unified Modeling Language (UML) and examples of UML diagrams. 	<ul style="list-style-type: none"> - Unit Case Study - Research Paper - In-class Activity(s) - Quiz 	The College's general, and the CIS Department's specific Curriculum Standards

		<ul style="list-style-type: none"> • List and describe system requirements, including outputs, inputs, processes, performance, and controls. • Explain the concept of scalability. • Use fact-finding techniques, including interviews, documentation review, observation, questionnaires, sampling, and research. • Define total cost of ownership (TCO). • Conduct a successful interview. • Develop effective documentation methods to use during systems development. 		
Unit 7	<p>Data and Process Modeling – This Unit continues with the systems analysis phase of the Systems Development Life Cycle. This Unit discusses data and process modeling techniques that analysts use to show how the system transforms data into useful information. The deliverable, or end product, of data and process modeling is a logical model that will support business operations and meet user needs.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Describe data and process modeling concepts and tools, including data flow diagrams, a data dictionary, and process descriptions. • Describe the symbols used in data flow diagrams and explain the rules for their use. • Draw data flow diagrams in a sequence, from general to specific. • Explain how to level and balance a set of data flow diagrams. • Describe how a data dictionary is used and what it contains. • Use process description tools, including structured English, decision tables, and decision trees. • Describe the relationship between logical and physical models. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz - In-class Presentations 	<p>The College's general, and the CIS Department's specific Curriculum Standards</p>
Unit 8	<p>Object Modeling – This Unit continues with the systems analysis phase of the SDLC. This Unit discusses object modeling techniques that analysts use to create a logical model. In addition to structured analysis, object-oriented analysis is another way to represent and design an information system.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Explain how object-oriented analysis can be used to describe an information system. • Define object modeling terms and concepts, including objects, attributes, methods, messages, classes, and instances. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Mid-Term Exam 	<p>The College's general, and the CIS Department's specific Curriculum Standards</p>

		<ul style="list-style-type: none"> • Explain relationships among objects and the concept of inheritance. • Draw an object relationship diagram. • Describe Unified Modeling Language (UML) tools and techniques, including use cases, use case diagrams, class diagrams, sequence diagrams, state transition diagrams, and activity diagrams. • Explain the advantages of using CASE tools in developing the object model • Explain how to organize an object model. 	<ul style="list-style-type: none"> - Create Case Diagrams, Class Diagrams, Sequence Diagrams & Transition Diagrams 	
Unit 9	<p>Development Strategies – This is the final Unit of the systems analysis phase of the SDLC. This Unit describes software trends, acquisition and development strategies, traditional versus Web-based development, outsourcing versus in-house development, the system requirements document, prototyping, and preparing for the transition to the next SDLC phase - systems design.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Describe the concept of Software as a Service. • Define Web 2.0 and cloud computing. • Explain software acquisition alternatives, including traditional and Web-based software development strategies. • Describe software outsourcing options, including offshore outsourcing and the role of service providers. • Explain advantages and disadvantages of in-house software development. • Discuss cost-benefit analysis and financial analysis tools. • Describe a request for proposal (RFP) and a request for quotation (RFQ). • Describe the system requirements document. • Explain the transition from systems analysis to systems design. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz 	<p>The College’s general, and the CIS Department’s specific Curriculum Standards</p>
Unit 10	<p>User Interface Design – This Unit discusses the systems design phase of the System Development Life Cycle.</p> <p>This Unit explains how to design an effective user interface, and how to handle data security and control issues.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Explain the concept of user interface design and human-computer interaction, including basic principles of user-centered design. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz 	<p>The College’s general, and the CIS Department’s specific Curriculum Standards</p>

	<p><i>This Unit stresses the importance of user feedback and involvement in all design decisions.</i></p>	<ul style="list-style-type: none"> • <i>Explain how experienced interface designers perform their tasks.</i> • <i>Describe rules for successful interface design.</i> • <i>Discuss input and output technology issues.</i> • <i>Design effective source documents and forms.</i> • <i>Explain printed output guidelines.</i> • <i>Describe output and input controls and security.</i> • <i>Explain modular design and prototyping techniques.</i> 	<p><i>- Create a mock-up of a User Interface.</i></p>	
<p><i>Unit 11</i></p>	<p>System Architecture – <i>This Unit concludes the discussion of the systems design phase of the System Development Life Cycle with this Unit. This Unit describes system architecture, which translates the logical design of an information system into a physical blueprint. As you plan the system architecture, you will learn about servers, clients, processing methods, networks, and related issues.</i></p>	<p><i>When successfully completed, the student will be able to:</i></p> <ul style="list-style-type: none"> • <i>Provide a checklist of issues to consider when selecting a system architecture.</i> • <i>Trace the evolution of system architecture from mainframes to current designs.</i> • <i>Explain client/server architecture, including tiers, cost-benefit issues, and performance.</i> • <i>Compare in-house e-commerce development with packaged solutions and service providers.</i> • <i>Discuss the impact of cloud computing and Web 2.0.</i> • <i>Define network topology, including hierarchical, bus, ring, star, and mesh models.</i> • <i>Describe wireless networking, including wireless standards, topologies, and trends.</i> • <i>Describe the system design specification.</i> 	<p><i>- Unit Case Study</i> <i>- Discussion</i> <i>- In-class Activity(s)</i> <i>- Quiz</i></p>	<p><i>The College's general, and the CIS Department's specific Curriculum Standards</i></p>
<p><i>Unit 12</i></p>	<p>Systems Implementation – <i>This Unit starts the systems implementation phase of the System Development Life Cycle. This Unit describes the systems implementation phase and describes application development, installation, and evaluation.</i></p>	<p><i>When successfully completed, the student will be able to:</i></p> <ul style="list-style-type: none"> • <i>Explain the importance of software quality assurance and software engineering.</i> 	<p><i>- Unit Case Study</i> <i>- Discussion</i> <i>- In-class Activity(s)</i> <i>- Quiz</i></p>	<p><i>The College's general, and the CIS Department's specific</i></p>

		<ul style="list-style-type: none"> • Describe application development using structured, object-oriented, and agile methods. • Draw a structure chart showing top-down design, modular design, cohesion, and coupling. • Explain the coding process. • Explain Unit, integration, and system testing. • Differentiate between program, system, operations, and user documentation. • List the main steps in system installation and evaluation. • Develop training plans for various user groups, compare in-house and vendor training options, and describe effective training techniques. • Describe data conversion and changeover methods. • Explain post-implementation evaluation and the final report to management. 		Curriculum Standards
Unit 13	<p>Managing Systems Support and Security – This unit describes systems support and security tasks that continue throughout the useful life of the system. In addition to user support, this unit discusses maintenance, security, backup and disaster recovery, performance measurement, and system obsolescence.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Explain the systems support and security phase • Describe user support activities, including user training and service desks. • Define the four types of maintenance. • Explain various techniques for managing systems maintenance and support. • Describe techniques for measuring, managing, and planning system performance. • Explain risk management concepts. • Assess system security at six levels: Physical security, network security, application security, file security, user security, and procedural security. • Describe backup and disaster recovery. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz 	The College's general, and the CIS Department's specific Curriculum Standards

		<ul style="list-style-type: none"> • List factors indicating that a system has reached the end of its useful life. • Assess future challenges and opportunities for IT professionals. • Develop a strategic plan for career advancement and strong IT credentials. 		
Unit 14	<p>Internet Resource Tools – This Unit covers Internet resource tools that can help you perform your duties and achieve your personal and professional goals.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • Describe the characteristics of the Internet and the World Wide Web. • Plan an Internet search strategy, review your information requirements, use the proper search tools and techniques, evaluate the results, and consider copyright and data integrity issues. • Use search engines, subject directories, and the invisible Web to locate the information you require. • Demonstrate advanced search techniques, including Boolean logic and Venn diagrams. • Describe Internet communication channels, including social networking, forums, newsletters, blogs, podcasts, RSS feeds, Webinars, mailing lists, Web-based discussion groups, chat rooms, instant messaging, and text messaging. • Provide examples of IT community resources of value to a systems analyst. • Explain the benefits and disadvantages of online learning opportunities. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz - Rough Draft of End of the Semester Project Presentation 	<p>The College's general, and the CIS Department's specific Curriculum Standards</p>
Unit 15	<p>Communication Tools – This Unit covers written and oral communication skills that you will need to use as a systems analyst.</p>	<p>When successfully completed, the student will be able to:</p> <ul style="list-style-type: none"> • List overall guidelines for successful communications. • Write effective letters, memos, and e-mail messages. • Measure the readability of written material. 	<ul style="list-style-type: none"> - Unit Case Study - Discussion - In-class Activity(s) - Quiz - Final Draft of End of the 	<p>The College's general, and the CIS Department's specific Curriculum Standards</p>

		<ul style="list-style-type: none"> • <i>Organize and prepare written reports that are required during systems development.</i> • <i>Follow guidelines for effective oral communication.</i> • <i>Plan, develop, and deliver a successful presentation.</i> • <i>Use effective speaking techniques to achieve your objectives.</i> • <i>Manage and strengthen your communication skills.</i> 	<i>Semester Presentations</i>	
<i>End of the Semester CIS Student Show Case – Students Present Final Projects</i>				