

System Analysis and Design (ITSE 1350)



Credit: 3 semester credit hours (2 hours lecture, 4 hours lab)

Course Description

Introduction to the planning, design, and construction of computer information systems using the systems development life cycle and other appropriate design tools.

Required Textbook and Materials

1. *Mindtap: System Analysis and Design* by Scott Tilley, 12th Edition. Cengage Learning.
 - a. ISBN number is 9780357117835

Course Objectives

Upon completion of this course, the student will be able to:

1. Use system design tools
2. Identify phases of the system design life cycle
3. Develop a prototype
4. Compare project management tools
5. Develop documentation for the system life cycle

Course Outline

1. Introduction to Systems Analysis and Design
 - a. Information Technology
 - b. Information Systems
 - c. Internet Business Strategies
 - d. Modeling Business Operations
 - e. Business Information Systems
 - f. Organizational Information Models
 - g. Systems Development
 - h. The Information Technology Department
 - i. The Systems Analyst
2. Analyzing the Business Case
 - a. Strategic Planning
 - b. Strategic Planning Tools
 - c. The Business Case
 - d. Systems Requests
 - e. Stronger Controls
 - f. Factors Affecting Systems Projects
 - g. Processing Systems Requests
 - h. Assessing Request Feasibility
 - i. Setting Priorities
 - j. The Preliminary Investigation
3. Managing Systems Projects
 - a. Overview of Project Management
 - b. Gantt Charts
 - c. Task Patterns
 - d. The Critical Path
 - e. Project Monitoring and Control
 - f. Reporting
 - g. Project Management Software
 - h. Risk Management
 - i. Managing for Success
4. Requirements Engineering
 - a. System Requirements
 - b. Team-Based Techniques
 - c. Gathering Requirements
 - d. Gathering Requirements through Interviews
 - e. Gathering Requirements Using Other Techniques
 - f. Gathering Requirements in Agile Projects
 - g. Representing Requirements
 - h. Validating and Verifying Requirements
5. Chapter 5. Data and Process Modeling
 - a. Logical versus Physical Models
 - b. Data Flow Diagrams

ITSE 1350
Course Syllabus

- c. Data Flow Diagram Symbols
 - d. Drawing Data Flow Diagrams
 - e. Drawing a Context Diagram
 - f. Drawing a Diagram 0 DFD
 - g. Drawing Lower-Level DFDs
 - h. Data Dictionary
 - i. Process Description Tools in Modular Design
6. Object Modeling
- a. Object-Oriented Analysis
 - b. Objects
 - c. Attributes
 - d. Methods
 - e. Messages
 - f. Classes
 - g. Relationships Among Objects and Classes
 - h. The Unified Modeling Language (UML)
 - i. Tools
7. Development Strategies
- a. Traditional Versus Web-Based Systems Development
 - b. Evolving Trends
 - c. In-House Software Development Options
 - d. Outsourcing
 - e. Offshoring
 - f. Software as a Service
 - g. Selecting a Development Strategy
 - h. The Software Acquisition Process
 - i. Completion of Systems Analysis Tasks
8. Chapter 8. User Interface Design
- a. User Interfaces
 - b. Human-Computer Interaction
 - c. Seven Habits of Successful Interface Designers
 - d. Guidelines for User Interface Design
 - e. Source Document and Form Design
 - f. Printed Output
 - g. Technology Issues
 - h. Security and Control Issues
 - i. Emerging Trends
9. Data Design
- a. Data Design Concepts
 - b. DBMS Components
 - c. Web-Based Design
 - d. Data Design Terms
 - e. Entity-Relationship Diagrams
 - f. Data Normalization
 - g. Codes
 - h. Data Storage and Access
 - i. Data Control
10. System Architecture
- a. Architecture Checklist
 - b. The Evolution of System Architecture
 - c. Client/Server Architecture
 - d. The Impact of the Internet
 - e. E-Commerce Architecture
 - f. Processing Methods
 - g. Network Models
 - h. Wireless Networks
 - i. Systems Design Completion
11. Managing Systems Implementation
- a. Quality Assurance
 - b. Application Development
 - c. Structured Development
 - d. Object-Oriented Development
 - e. Agile Development
 - f. Coding
 - g. Testing
 - h. Documentation
 - i. Installation
12. Managing Systems Support and Security
- a. User Support
 - b. Maintenance Tasks
 - c. Maintenance Management
 - d. System Performance Management
 - e. System Security
 - f. Security Levels
 - g. Backup and Recovery
 - h. System Retirement
 - i. Future Challenges and Opportunities

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

1. Assignments	30%
2. Discussions	20%
3. Quiz	30%
4. Finals	20%

Course Policies

1. You must log onto Blackboard and access this course a minimum of three times per week.
2. Cheating of any kind will not be tolerated.
3. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an ‘F’ in the course.
4. Internet Usage – Students are expected to use proper net etiquette while participating in course emails, assignment submissions, and online discussions.

Technical Requirements

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support/Browser_Checker

A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

Disabilities Statement

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles’ Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology

ITSE 1350

Course Syllabus

community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)839-2018. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](http://Special Populations - Lamar Institute of Technology (lit.edu)).

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office.

Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.



Certification Requirement

CIS majors are required to earn certification in one of the following areas prior to graduation.

- CompTIA ITF+ Certification
- CompTIA Security+ Certification
- CompTIA Linux+ Certification
- Oracle Java Foundations Certification
- Certified Associate in Python Programming