

ITT Technical Institute
PM3140
Systems Analysis
Onsite Course

SYLLABUS

Credit hours: 4.5

Contact/Instructional hours: 56 (34 Theory Hours, 22 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisite: PT1420 Introduction to Programming or equivalent

Course Description:

This course explores information systems infrastructure at an enterprise level. Topics include identifying business requirements for information systems solutions, evaluating effectiveness of IT processes, design, analysis and implementation issues in information systems, and infrastructure capacity and capability

Change Date	Updated Section	Change Description	Change Rationale	Implementation Quarter
07/7/11	All	New Curriculum	New Curriculum	September 2011

Where Does This Course Belong?

8th QTR

PM3110 Introduction to Project Management

MA3110 Statistics

PM3140 Systems Analysis

9th QTR

PM3220 Project Communication and Documentation

PY3150 Psychology

PM3225 Project Management Tools and Techniques

10th QTR

PM3320 Project Cost and Budget Management

SS3150 Research Methods

PM3325 Project Quality Management

11th QTR

PM3420 Procurement and Contract Management

EN3220 Written Analysis

PM3440 Project Management for Information Technology

12th QTR

PM4540 Managing Software Development Projects

HU4640 Ethics

PM4530 Management of Global Projects

13th QTR

MG4650 Team Leadership

SP3450 Social Psychology

PM4620 Project Risk Management

14th QTR

SC4730 Environmental Science

PM4795 Project Management and Administration - Information Technology Capstone Project

Course Summary

Course Description

This course explores information systems infrastructure at an enterprise level. Topics include identifying business requirements for information systems solutions, evaluating effectiveness of

IT processes, design, analysis and implementation issues in information systems, and infrastructure capacity and capability.

Major Instructional Areas

- *Roles of the System Analyst*
- Project Management
- Requirements Determination
- Use Cases
- Process Modeling
- Data Modeling
- Architecture Design
- User Interface Design
- Program and Data Storage Design
- Implementation Phase
- Object-Oriented Systems

Course Objectives

- Identify the components and functions of an information systems infrastructure from systems as well as business perspectives.
- Define the roles of a systems analyst.
- Analyze the feasibility of a project based on the technical and business parameters.
- Explain the process and methods of requirements gathering and create a requirements definition document.
- Design a data flow diagram based on a description of a project.
- Design an Entity Relationship (ER) diagram for a project.
- Identify the steps necessary for transitioning from the requirements phase to the design phase of a project.
- Analyze the factors that contribute to a good User Interface (UI) design.
- Compare the different data storage formats available for a project.
- Design a migration plan for transitioning to a new system.
- Analyze the benefits of various tools for systems design (such as UML and RUP).

Learning Materials and References

Required Resources

Textbook Package	New to this Course	Carried over from Previous Course(s)	Required for Subsequent Course(s)
Dennis, A., et al. (2009). <i>Systems analysis and design, 4th Edition</i> . Hoboken, NJ: John Wiley and Sons, Inc	■		

Recommended Resources

Internal

- ITT Tech Virtual Library:
<http://myportal.itt-tech.edu/library/Pages/HomePage.aspx>.

External

- Wiley Portal:
 - Wiley Student Companion Site
Wiley offers a Student Companion Site for the course's required text. Students can log on to:
<http://bcs.wiley.com/he-bcs/Books?action=index&itemId=0470228547&bcsId=4649>
- Berk, J. (2009) *Systems failure analysis*. Materials Park, OH: ASM International.
- Bowman, K. (2003). *Systems analysis: A beginners guide*. Hampshire, England: Palgrave Macmillan.
- Dixit, J.B. and Kumar, R. (2008). *Structure system analysis and design*. New Delhi, India: Laxmi Publications
- Hollnagel, E.(Editor); Woods, D. (Editor); and Leveson, N. (Editor). (2006). *Resilience engineering: Concepts and precepts*. Abingdon, Oxon, GBR: Ashgate Publishing Group.
- Lin, Y. (Editor). (2002). *Systems and cybernetics: new theories and applications*. Bradford, GBR: Emerald Group Publishing Ltd.
- Sherwood, D. (2002). *Seeing the forest for the trees : A manager's guide to applying systems thinking*. Yarmouth, ME, USA: Nicholas Brealey Publishing, 2002
- Young, R. (2003). *Requirements engineering handbook*. Norwood, MA: Artech House.

Information Search

Use the following keywords to search for additional online resources that may be used for supporting your work on the course assignments:

- System Analysis
- Systems Development Life Cycle
- Risk Assessment
- Business Process Reengineering
- Use Cases
- Process Modeling
- Data Modeling
- Architecture Design
- User Interface Design
- Data Flow Diagram
- Object-Oriented Systems

NOTE: All links to Web references are subject to change without prior notice.

Course Plan

Instructional Methods

This course is designed to promote learner-centered activities and support the development of cognitive strategies and competencies necessary for effective task performance and critical problem solving. The course utilizes individual and group learning activities, performance-driven assignments, problem-based cases, projects, and discussions. These methods focus on building engaging learning experiences conducive to development of critical knowledge and skills that can be effectively applied in professional contexts.

Suggested Learning Approach

In this course, you will be studying individually and within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.

Use the following advice to receive maximum learning benefits from your participation in this course:

DO	DON'T
<ul style="list-style-type: none"> ▪ Do take a proactive learning approach 	<ul style="list-style-type: none"> ▪ Don't assume there is only one correct

<ul style="list-style-type: none"> ▪ Do share your thoughts on critical issues and potential problem solutions ▪ Do plan your course work in advance ▪ Do explore a variety of learning resources in addition to the textbook ▪ Do offer relevant examples from your experience ▪ Do make an effort to understand different points of view ▪ Do connect concepts explored in this course to real-life professional situations and your own experiences 	<p>answer to a question</p> <ul style="list-style-type: none"> ▪ Don't be afraid to share your perspective on the issues analyzed in the course ▪ Don't be negative about the points of view that are different from yours ▪ Don't underestimate the impact of collaboration on your learning ▪ Don't limit your course experience to reading the textbook ▪ Don't postpone your work on the course deliverables – work on small assignment components every day
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Course Outline

Unit	Reading Assignments	Graded Activities & Deliverables
Unit 1: <i>Roles of the System Analyst</i>	Dennis, Chapter 1, pp. 3–40	<ul style="list-style-type: none"> ▪ Unit 1. Assignment 1. Systems Development Life Cycle ▪ Unit 1. Assignment 2. System Request Document ▪ Unit 1. Exercise 1. Systems Development Life Cycle Application
Unit 2: <i>Introduction to Project Management</i>	Dennis, Chapter 2, pp. 41–94	<ul style="list-style-type: none"> ▪ Unit 2. Assignment 1. Project Methodologies ▪ Unit 2. Assignment 2. Risk Assessment ▪ Unit 2. Exercise 1. Time Estimation
Unit 3: Requirements Determination	Dennis, Chapter 3, pp. 95–142	<ul style="list-style-type: none"> ▪ Unit 3. Assignment 1. Types of Requirements ▪ Unit 3. Assignment 2. Business Process Reengineering ▪ Unit 3. Exercise 1. Requirements Gathering Process
Unit 4: Use Cases and Process Modeling	Dennis, Chapters 4-5, pp. 143–208	<ul style="list-style-type: none"> ▪ Unit 4. Assignment 1. Use Cases for a Project ▪ Unit 4. Assignment 2. Data Flow Diagram ▪ Unit 4. Exercise 1. AREI Use Cases
Unit 5: Data Modeling	Dennis, Chapter 6, pp. 209–244	<ul style="list-style-type: none"> ▪ Unit 5. Assignment 1. Comparing ER Diagram Software ▪ Unit 5. Assignment 2. ER Diagram Creation ▪ Unit 5. Exercise 1. ER Diagram and Normalization
Unit 6: Architecture Design	Dennis, Chapters 7-8, pp. 245–300	<ul style="list-style-type: none"> ▪ Unit 6. Assignment 1. RFP ▪ Unit 6. Assignment 2. Hardware/Software Specification ▪ Unit 6. Exercise 1. Retail Store Design and Specification
Unit 7:	Dennis, Chapter 9, pp.	<ul style="list-style-type: none"> ▪ Unit 7. Assignment 1. Batch Processing

User Interface Design	301–352	vs. Online Processing <ul style="list-style-type: none"> ▪ Unit 7. Assignment 2. Use Scenarios ▪ Unit 7. Exercise 1. User Interface Design
Unit 8: Program and Data Storage Design	Dennis, Chapters 10-11, pp. 353–430	<ul style="list-style-type: none"> ▪ Unit 8. Assignment 1. Structure Charts ▪ Unit 8. Assignment 2. Database Types ▪ Unit 8. Exercise 1. Database Models
Unit 9: Implementation Phase	Dennis, Chapters 12-13, pp. 431–490	<ul style="list-style-type: none"> ▪ Unit 9. Assignment 1. Unit Tests ▪ Unit 9. Assignment 2. Cost-Benefit Analysis ▪ Unit 9. Exercise 1. Migration Plan
Unit 10: Object-Oriented Systems	Dennis, Chapter 14, pp. 491–535	<ul style="list-style-type: none"> ▪ Unit 10. Assignment 1. Use Cases ▪ Unit 10. Assignment 2. Behavioral State Machine Diagram ▪ Unit 10. Exercise 1. Sequence Diagrams
Unit 11: Course Review and Final		<i>Final Exam</i>

Evaluation and Grading

Evaluation Criteria

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
Assignment	40%
Exercise	40%
Exam	20%
TOTAL	100%

Grade Conversion

The final grades will be calculated from the percentages earned in the course, as follows:

Grade	Percentage	Credit
A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

Graded Activities and Deliverables

Grading Category	Category Weight	Graded Deliverable	Weight
Assignment	40%	Unit 1. Assignment 1. Systems Development Life Cycle	2%
		Unit 1. Assignment 2. System Request Document	2%
		Unit 2. Assignment 1. Project Methodologies	2%
		Unit 2. Assignment 2. Risk Assessment	2%
		Unit 3. Assignment 1. Types of Requirements	2%
		Unit 3. Assignment 2. Business Process Reengineering	2%
		Unit 4. Assignment 1. Use Cases for a Project	2%
		Unit 4. Assignment 2. Data Flow Diagram	2%
		Unit 5. Assignment 1. Comparing ER Diagram Software	2%
		Unit 5. Assignment 2. ER Diagram Creation	2%
		Unit 6. Assignment 1. RFP	2%
		Unit 6. Assignment 2. Hardware/Software Specification	2%
		Unit 7. Assignment 1. Batch Processing vs. Online Processing	2%
		Unit 7. Assignment 2. Use Scenarios	2%
		Unit 8. Assignment 1. Structure Charts	2%
		Unit 8. Assignment 2. Database Types	2%
		Unit 9. Assignment 1. Unit Tests	2%
		Unit 9. Assignment 2. Cost-Benefit Analysis	2%
		Unit 10. Assignment 1. Use Cases	2%
		Unit 10. Assignment 2. Behavioral State Machine Diagram	2%
Exercise	40%	Unit 1. Exercise 1. Systems Development Life Cycle Application	4%
		Unit 2. Exercise 1. Time Estimation	4%
		Unit 3. Exercise 1. Requirements Gathering Process	4%
		Unit 4. Exercise 1. AREI Use Cases	4%

Grading Category	Category Weight	Graded Deliverable	Weight
		Unit 5. Exercise 1. ER Diagram and Normalization	4%
		Unit 6. Exercise 1. Retail Store Design and Specification	4%
		Unit 7. Exercise 1. User Interface Design	4%
		Unit 8. Exercise 1. Database Models	4%
		Unit 9. Exercise 1. Migration Plan	4%
		Unit 10. Exercise 1. Sequence Diagrams	4%
Exam	20%	Final Exam Units 1-10	20%

Academic Integrity

All students must comply with the policies that regulate all forms of academic dishonesty, or academic misconduct, including plagiarism, self-plagiarism, fabrication, deception, cheating, and sabotage. For more information on the academic honesty policies, refer to the Student Handbook and the Course Catalog.

(End of Syllabus)