Department of Mathematics, Computer Science and Information Systems

A. Protocol

Course Name: Systems Analysis I  
Course Number: CIS299  
Credits: 3  
Prerequisites: BUS 100 Introduction to Business with a C- or better or permission of instructor, for non-CIS majors,  
CIS 110 Introduction to Information Systems with a C- or better and  
CIS 120 Application Programming I with a C- or better  
Prerequisite/Co-requisite: ENG 217 Science and Technical Writing or HON 250 Honors Composition II or permission of instructor, for non-CIS majors

Maximum Class Size (face-to-face): 35  
Maximum Class Size (online): 35  
*Justification for online class size is due to the highly-technical nature of the course.

B. Objectives of the Course:

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

1. Compare and contrast the traditional SDLC waterfall model with modern tools that assist in this process
2. Perform a preliminary investigation in any business. This includes study of the organization combined with inquiry of all levels of employees to:
   a. Determine the entity’s business mission, goals, vision, core values, and the same for the department/process identified for redesign,
   b. Determine the organizational and reporting structure at the high level and to the finest level of detail in the department/process for redesign,
   c. Identify the stakeholders in the redesign,
   d. Perform a document collection of the current system, including screen shots, database descriptions and reports,
   e. Complete a S.W.O.T. analysis and constraint matrix for a proposed new system,
   f. Analyze and document the current information and business process flow, as identified in a project request, using standardized techniques,
   g. Identify areas for the reengineering of said business processes,
   h. Determine proposed system requirements based on items ‘a’ through ‘g’.
3. Produce a corporate proposal to top management of the client company detailing the proposed/modified business information system. This should include:
   a. The design of alternative processes to generate the necessary information and disseminate it to the proper decision makers within the necessary time frame,
   b. Alternative organizational and reporting structures that would better support the redesigned processes,
   c. Alternative mechanisms for the collection of external information (competitive, economic, governmental) and its integration into strategic processes that position the organization more competitively in the market yet remain within the constraints of the entity’s mission/vision,
   d. A modest-scale feasibility analysis to determine time, equipment, and staffing resources necessary for the proposed reengineered system,
   e. Narrative and graphical models of the proposed system elements, which include:
      1. Table/database structures and their interrelatedness,
2. data flow and process flow diagrams showing the overall system functionality,
3. processing schemas describing how the optimized processes will generate the necessary information and disseminate it to the proper decision makers.
4. Work both independently and in small groups. Independent work is stressed in this course to prepare the student for real-world assignments where the expectation is to produce creative and professional work with minimal direction.
5. Demonstrate the ability to write a comprehensive paper.

C. Catalog Description:
This project course introduces the students to “systems thinking” and experientially introduces the student to some of the basic concepts and tools of systems analysis, within the context of a real-life business problem. The traditional SDLC waterfall approach to systems analysis and design is stressed in order to prepare students for any business type or size (some of which may not have modern analysis and design tools). Students entering into this course must have a basic understanding of business and the idea of using programs that are integrated into systems to solve business problems. This requisite knowledge is built upon in teaching students how to analyze a business's current information system, how to extrapolate user needs and the business's additional processing requirements and then how to design a system that not only meets the stipulated requirements while remaining within the project’s constraints, but remains in line with the entity’s mission/vision and optimizes business processes to position the entity more competitively in the market. Prerequisites: BUS 100 Introduction to Business with a C- or better or permission of instructor, for non-CIS majors, CIS 110 Introduction to Information Systems with a C- or better and CIS 120 Application Programming I with a C- or better. Prerequisite/Co-requisite: ENG 217 Science and Technical Writing or HON 250 Honors Composition II or permission of instructor, for non-CIS majors. Three credits.

D. Outline of the Course:
1. Introduction to Systems Thinking
   a. System components and types of systems
   b. Organizational knowledge
   c. Problem identification, analyzing and solving

2. Skills of the Systems Analyst
   a. Analytical, Critical and Logical
   b. Technical
   c. Managerial – Project Management
   d. Interpersonal – User interview, survey

3. Methodologies, Models, Tools and Techniques: All are compared and contrasted with Traditional SDLC Waterfall model
   a. Traditional SDLC Waterfall model
   b. JAD – Joint Application Development
   c. RAD – Rapid Application Development (includes Prototyping)
   d. Agile Development
   e. Object Oriented Systems Analysis with UML (Unified Modeling Language)
   f. CASE Driven Analysis and Design

4. Analysis of an Existing Information System
   a. Preliminary Investigation - Tools and Procedures for organizational study and employee inquiry to:
      1). determine the entity’s business mission, goals, vision, core values, and the same for the department/process identified for redesign,
      2). determine the organizational and reporting structure at the high level and to the finest level of detail in the department/process for redesign,
3). identify the stakeholders in the redesign,
4). perform a document collection of the current system, including screen
   shots, database descriptions and reports,
5). complete a S.W.O.T. analysis and constraint matrix for a proposed
   new system,
6). analyze and document the current information and business process
   flow, as identified in a project request, using standardized techniques,

5. Design/Redesign of an Existing Information System
   a. Requirements Identification and Documentation
      1). identify areas for the reengineering of said business processes,
      2). determine proposed system requirements based on preliminary
         investigation, observation of business processes and user inquiries
      3). document the results by producing a corporate proposal to top
         management of the client company detailing the proposed/modified
         business information system. This should include:
         a). the design of alternative processes to generate the necessary
             information and disseminate it to the proper decision makers
             within the necessary time frame,
         b). alternative organizational and reporting structures that would
             better support the redesigned processes,
         c). alternative mechanisms for the collection of external
             information (competitive, economic, governmental) and its
             integration into strategic processes that position the
             organization more competitively in the market yet remain
             within the constraints off the entity’s mission/vision,
         d). a modest-scale feasibility analysis to determine time,
             equipment, and staffing resources necessary for the
             proposed reengineereed system,
         e). narrative and graphical models of the proposed system
             elements, which include:
             (1). ERD diagrams to show table/database structures
                 and their interrelatedness,
             (2). data flow and process flow diagrams showing the
                 overall system functionality,
             (3). processing schemas describing how the optimized
                 processes will generate the necessary information and
                 disseminate it to the proper decision makers.

E. Teaching Methodology:

1) Traditional Classroom Methodology

   This course will be taught using the lecture/discussion method and cooperative group
   method during appropriate sections of the course.

2) Online Methodology

   This course will be taught using a variety of methods including lecture videos, activities,
   group collaborative learning, and discussion boards.
   Quality Matters™ Statement – The online course follows the standards of the Quality
   Matters™ rubric. An online homework system is required in this course.

F. Text
A vast array of texts from a variety of publishers is available to teach this course. Some of these include:


G. Assessment Activities:

1) Traditional Classroom Assessment

Various assessment methods are used, at the discretion of the instructor, and can include exams, quizzes, tutorials, homework assignments, programs/projects/labs. An online homework submission system is used in this course.

2) Online Assessment

Various assessment methods are used, at the discretion of the instructor, and can include exams, quizzes, homework assignments, wikis, online journals and projects. An online homework system is required in this course.

H. Accommodations for Students with Disabilities:

OSD
Revised December 2012

STUDENTS WITH DISABILITIES

Students with disabilities:

• Reserve the right to decide when to self-identify and when to request accommodations.

• Will register with the Office for Students with Disabilities (OSD) each semester to receive accommodations.

• Might be required to communicate with faculty for accommodations, which specifically involve the faculty.

• Will present the OSD Accommodation Approval Notice to faculty when requesting accommodations that involve the faculty.

Office for Students with Disabilities

Requests for approval for reasonable accommodations should be directed to the Office for Students with Disabilities (OSD). Approved accommodations will be recorded on the OSD Accommodation Approval notice and provided to the student. Students are expected to adhere to OSD procedures for self-identifying, providing documentation and requesting accommodations in a timely manner.

Contact Information:

• Location: Azorsky Building – Room 105
• Phone: (724) 938-5781
• Fax: (724) 938-4599
• Email: osdmail@calu.edu
• Web Site: www.calu.edu (search “disability”)

I. Supportive Instructional Materials, e.g. library materials, web sites, etc.
Library Materials:

Books located in the PILOT catalog, library databases (Ebscohost, CIOS, Proquest, Lexis-Nexis), which include books, journals, magazines, and newspapers.


Of particular use to this course, for current events and developments, are the following areas:

News and Current Events  http://www.library.cup.edu/ref-news.html

General (news)  http://voyager.ship.edu/remote/validate.cgi?db=LEXIS

Copyright and Fair Use  http://www.library.cup.edu/copyright.html
Additional Information for Course Proposals

J. Proposed Instructors: Dr. Gina Boff, Dr. Gary DeLorenzo, Dr. Lisa Kovalchick or any other tenure-track CIS faculty from the Department of Mathematics, Computer Science and Information Systems.

K. Rationale for Course: Course already exists and being updated for Global Online delivery.

L. Specialized Equipment or Supplies Needed: None

M. Answer the following questions using complete sentences:
   1. Does the course require additional human resources? No, the course is already being taught.
   2. Does the course require additional physical resources? No. The current physical resources on campus can accommodate the teaching of this course.
   3. Does the course change the requirements in any particular major? No.
   4. Does the course replace an existing course? No, this course does not replace any existing courses.
   5. How often will the course be taught? This course will be taught once every year.
   6. Does the course duplicate an existing course in another Department or College? No.
   7. What is the recommended maximum class size for this course? Recommended class size for this course is 35 for online sections, due to the highly-technical nature of the course.

N. If the proposed course includes substantial material that is traditionally taught in another discipline, you must request a statement of support from the department chair that houses that discipline. This course does not include substantial material from another discipline.

O. Please identify if you are proposing to have this course considered as a menu course for General Education. If yes, justify and demonstrate the reasons based on the categories for General Education. The General Education Committee must consider and approve the course proposal before consideration by the UCC. No; this course will not be offered on the GenEd menu.