Title: Systems Analysis & Design

Catalog Description

This course introduces systems analysis and design methods, techniques and tools that organizations use to assess how computer-based technologies can most effectively add value to the enterprise. The course covers a systematic methodology for analyzing an organizational problem or opportunity, determining what role, if any, computer-based technologies can play in addressing the needs, articulating organizational requirements for the technology solution, specifying alternative approaches to acquiring the technology capabilities needed to address the organizational requirements, and articulating the specifications for the information systems solution. The course is built on the assumption that in many cases technology capabilities are purchased from outside the organization either through the use of packaged systems or consulting resources.

Learning Objectives

Students will be able to:

- Understand the types of organizational needs that can be addressed using information technology-based solutions.
- Initiate, specify, and prioritize information systems projects and to determine various aspects of feasibility of these projects.
- Use at least one specific methodology for analyzing an organizational situation (a problem or opportunity), modeling it using a formal technique, and specifying requirements for a system that enables a productive change in a way the organization operates. Within the context of this methodology, students will learn to write clear and concise requirements documents and convert them into technical specifications.
- Communicate effectively with various organizational stakeholders to collect information using a variety of techniques and to convey proposed solution characteristics to them.
- Manage information systems projects using formal project management methods.
- Articulate various systems acquisition alternatives, including the use of packaged systems (such as ERP, CRM, SCM, etc.) and outsourced design and development resources.
- Compare various acquisition alternatives systematically
- Incorporate principles of security and user experience from the beginning of the systems development process.
- Design high-level logical system characteristics (user interface design, design of data and information requirements)

Topics:

- Identification of opportunities for IT-enabled organizational change
- Business process management
- Analysis of business requirements
    - Process modeling
    - Information requirements
- Structuring of IT-based opportunities into projects
- Project planning and specification

- Project prioritization
- Analysis of project feasibility
- Fundamentals of IS project management in the global context
- Using globally distributed communication and collaboration platforms
- Analysis and specification of system requirements
    - Data collection methods
    - Methods for structuring and communicating requirements
    - Factors affecting user experience
    - User interface design
    - System data requirements
    - Factors affecting security
    - Ethical considerations in requirements specification
- Different approaches to implementing information systems to support organizational requirements
    - Packaged systems; enterprise systems
    - Outsourced development
    - In-house development
- Specifying implementation alternatives for a specific system
- Impact of implementation alternatives on system requirements specification
- Methods for comparing systems implementation approaches
- Organizational implementation of a new information system
- Different approaches to systems analysis & design: structured SDLC, unified process/UML, agile methods

Discussion

- The core course in systems analysis & design is primarily focused on analyzing and documenting organizational requirements as well as converting these requirements into detailed systems requirements and high-level design specifications (e.g., mock-ups of forms, reports, and other user interface components), not on internal design or system implementation. The course content is built on the assumption that most organizational systems are based on various types of packaged systems, system components, or implemented by using outsourced development capabilities (whether on- or off-shore). The course will teach the student methods that allow them to specify requirements precisely and communicate effectively with both stakeholders and developers, but it will not include material related to the design or implementation of the technical structure of the system.
- The course specification intentionally leaves discussion regarding specific methods and approaches unanswered. Institutions have to make these decisions regarding the capabilities of their faculty and the needs of the companies hiring the students. It is, however, important that the course will provide some exposure to the structured SDLC, object-oriented analysis and design (some Unified Process variant using UML as a grammar) and agile methods.
- Using a course project is highly recommended.
- The course specifically emphasizes the importance of incorporating security issues and user experience from the earliest stages of the process.

- The course includes the first exposure to project management concepts and practice. The importance of this element will depend on the extent to which project management is covered elsewhere in the curriculum.

