

Module Title:	System Analysis & Design
Module ID:	CAP 252
Prerequisite:	CAP 250
Level:	4
Credit Hours:	3 (3+0+1)

Module Description:

This course is concerned with the fundamental knowledge, methods and skills needed to analyze and design computer-based systems. It addresses the role of the systems analyst, the techniques employed and relationships that need to be maintained. Utilizing the structured software development life cycle approach, the development phases are comprehensively discussed and reviewed. Process modeling, information modeling, system architecture modeling; Object-Oriented modeling using UML. A project is given that covers analysis and design phases of a relatively data-oriented business case with emphasis on data modeling (ER diagrams), process modeling (DFDs), and architectural system design issues (DD, HIPO,IPO).

Module Aims:

The course introduces the principles of software engineering and detailed study of topics such as software development lifecycle, requirements gathering, program specification, design techniques, implementation guidelines, validation and verification. Software tools, team-oriented processes. Different software process approaches to development, including waterfall model, prototyping, formal modeling, and spiral model. Software engineering economics..

Learning Outcomes:

- Explain the principles of software engineering and why it is important
- Understand the activities that are involved in the systems engineering process

- Discuss the concept of software processes and software process models
- Understand the principal requirements of engineering activities and their relationships
- Apply the concepts of behavioral modeling, data modeling and object modeling in real life situation
- Understand the decisions that have to be made about the system architecture during the architectural design process
- Employ the Unified Modeling Language (UML) in real-life software projects

Textbook:

J.A. Hoffer; Modern System Analysis and Design, 2013; Prentice Hall.

Joseph S. Valacich , Joey F. George , Jeffrey A. Hoffer , Essentials of System Analysis and Design , Prentic Hall 2011