Course Title: **System Analysis and Design (3 Cr.)**
Course Code: **CACS203**
Year/Semester: **II/III**
Class Load: **4 Hrs. / Week (Theory: 3 Hrs, Tutorial: 1 Hr.)**

Course Description

This course mainly focuses on different aspect of system analysis and design such as foundation, planning, analysis, design, implementation and maintenance.

Course Objectives

The general objective of this course is to provide concepts related to information systems development in a systematic approach including foundations, planning, analysis, design, implementation and maintenance.

Course Contents

Unit 1 System Development Fundamentals   9 Hrs.

a. The Systems Development Environment

Introduction, Modern Approach of System Analysis and Design, Information System and its Type, Developing Information Systems and the Systems Development Life Cycle, The Heart of the Systems Development Process, The Traditional Waterfall SDLC, Approaches for Improving Development, CASE Tools, Rapid Application Development, Service-Oriented Architecture, Agile Methodologies, eXtreme Programming, Object- Oriented Analysis and Design

b. The Origins of Software

Introduction, System Acquisition, Reuse

c. Managing the Information Systems Project

Introduction, Managing Information Systems Project, Representing and Scheduling Project Plans, Using Project Management Software

Unit 2 Planning   7 Hrs.

a. System Development Projects: Identification and Selection

Introduction, Identifying and Selecting Systems Development Projects, Corporate and Information Systems Planning

b. System Development Projects: Initiation and Planning

Introduction, Initiating and Planning Systems Development Projects, Process of Initiating and Planning IS Development Projects, Assessing Project Feasibility, Building and Reviewing the Baseline Project Plan

Unit 3 Analysis   13 Hrs.

a. System Requirements

Introduction, Performing Requirements Determination, Traditional Methods for Determining Requirements, Contemporary Methods for Determining System Requirements, Radical Methods for Determining System Requirements,

Requirements Management Tools, Requirements Determination Using Agile Methodologies

b. System Process Requirements

Introduction, Process Modeling, Data Flow Diagramming Mechanics, Using Data Flow Diagramming in the Analysis Process, Modeling Logic with Decision Tables

c. System Data Requirements

Introduction, Conceptual Data Modeling, Gathering Information for Conceptual Data Modeling, Introduction to E-R Modeling, Conceptual Data Modeling and the E-R Model, Representing Super-types and Sub-types, Business Rules, Role of Packaged Conceptual Data Models – Database Patterns

Unit 4 Design   12 Hrs.

a. Designing Databases

Introduction, Database Design, Relational Database Model, Normalization, Transforming E-R Diagrams into Relations, Merging Relations, Physical File and Database Design, Designing Fields, Designing Physical Tables

b. Designing Forms and Reports

Introduction, Designing Forms and Reports, Formatting Forms and Reports, Assessing Usability

c. Designing Interfaces and Dialogues

Introduction, Designing Interfaces and Dialogues, Interaction Methods and Devices, Designing Interfaces and Dialogues in Graphical Environments

Unit 5 Implementation and Maintenance   4 Hrs.

a. System Implementation

Introduction, System Implementation, Software Application Testing, Installation, Documenting the System, Training and Supporting Users, Organizational Issues in Systems Implementation

b. System Maintenance

Introduction, Maintaining Information Systems, Conducting Systems Maintenance

Teaching Methods

The general teaching pedagogy includes class lectures, group discussions, case studies, guest lectures, research work, project work, assignments (theoretical and practical), and examinations (written and verbal), depending upon the nature of the topics. The teaching faculty will determine the choice of teaching pedagogy as per the need of the topics.
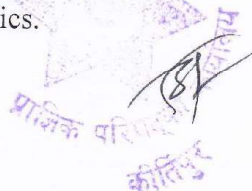
Evaluation

Examination Scheme				
Internal Assessment		External Assessment		
Theory	Practical	Theory	Practical	Total
40	-	60 (3 Hrs.)	-	100

Text Book

1. Jeffrey A. Hoffer, Joey George, Joe Valacich, "*Modern Systems Analysis and Design*", 6/E, Prentice Hall India.

Reference Book

2. Jeffery Whitten, Lonnie Bentley, "*Systems Analysis and Design Methods*", 7/E, McGraw-Hill