

# CPCS-454 Syllabus

## Catalog Description

**CPCS-454** Object-Oriented Analysis and Design

**Credit:** 3 ( Theory: 3, Lab: 0, Practical: 0)

**Prerequisite:** CPCS-351

**Classification:** Elective

The objective of this course is to familiarize students with the fundamental foundations of Object-Oriented Approach in relation to systems and the advantages of this method. This course covers understanding various approaches and methodologies used in different phases of software development lifecycle, including requirements, analysis and specification, software design, software construction, software maintenance, and software process.

### Class Schedule

Lab/Tutorial 90 minutes 1 times/week

Meet 50 minutes 3 times/week or 80 minutes 2 times/week

## Textbook

Alan Dennis, Barbara Haley Wixom, David Tegarden, ,  
"Systems Analysis and Design with UML", John Wiley &  
Sons; 4 edition (2012-02-01)

**ISBN-13** 9781118037423 **ISBN-10** 1118037421

## Grade Distribution

Week	Assessment	Grade %
6	Exam 1	10
12	Exam 2	10
14	Lab Exam	20
15	Project (Individual)	20
16	Comprehensive Final Exam	40

## Last Articulated

December 23, 2015

## Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j	k
		x	x							x

## Course Learning Outcomes (CLO)

By completion of the course the students should be able to

- Apply several requirement and operations needed to analyze, design, and implement the systems during different phases of system development life cycle (SDLC). (k)**
- Estimate the system feasibility study for implementing a software system (c)
- Convert high level business requirements (from the system request) into detailed requirement specification (k)**
- Identify business processes and use cases to understand the existing system (k)
- Understand the process used to model business processes with activity diagrams. (k)**
- Create CRC cards, class diagrams, and object diagrams to understand the processes used in the existing system. (c)**
- Create sequence and communication diagrams, behavioral state machines and CRUDE matrices for the proposed system. (c)
- Understand the use of factoring, partitions, and layers. (k)
- Create package diagrams for the proposed system. (c)
- Map the problem domain objects to different object-persistence formats (d)
- Learn several fundamental user interface (UI) design principles. (k)**
- Understand server-based, client-based, and client-server physical architectures. (d)
- Learn how operational, performance, security, cultural, and political requirements affect the design of the physical architecture layer. (k)
- Comprehend different types of tests and when to use them. (d)

## Coordinator(s)

Dr. Maryam Altriki, Assistant Professor

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## Topics Coverage Durations

Topics	Weeks
Introduction to Systems Analysis and Design	1
Project Management	1
Requirements Determination	1
Business Process and Functional Modeling	1
Structural Modeling	1
Behavioral Modeling	2
System Design	1
Class and Method Design	1
Data Management Layer Design	2
Human–Computer Interaction Layer Design	2
Physical Architecture Layer Design	1
Construction	1