

COURSE DESCRIPTION

Department and Course Number	CS 302	Course Coordinator	Bangalore
Course Title	Object-Oriented Design	Total Credits	4

Current Catalog Description

CS 302 is a continuation of CS 201 and emphasizes concepts of object-oriented software design. Topics include inheritance, recursion, algorithm analysis, and object-oriented software design using data structures such as stacks, queues, and binary trees. This class has a laboratory component. Writing is a significant component of this course (QEP). Prerequisites: CS 201

Textbook

Modern Software Development Using Java, 2nd ed., by Paul T. Tymann and G.Michael Schneider, Course Technology, 2007.

References

Introduction to Programming in Java: An Interdisciplinary Approach by Robert Sedgewick and Kevin Wayne, Addison-Wesley, 2008.

Course Goals

- 1. To introduce principles and practice of software design and development using the object-oriented programming approach.*
- 2. To develop the problem solving skills necessary to design software solutions to problems.*
- 3. To design and analyze algorithms using recursion and data structures implemented as objects using the Java programming language.*

Prerequisites

Introduction to Object-Oriented Programming with “C” or better

Major Topics Covered in the Course

See Course Goals above

Laboratory projects (specify number of weeks on each)

There are 15 weekly lab sessions, including two lab programming exams.

There are five homework programming assignments, approximately two weeks is allowed for each assignment.

Estimate CSAB Category Content

	CORE	ADVANCED		CORE	ADVANCED
Data Structures	<u>20</u>	<u>0</u>	Computer Organization and Architecture	<u>0</u>	<u>0</u>
Algorithms			Concepts of Programming Languages		
Software Design	<u>20</u>	<u>0</u>		<u>0</u>	<u>0</u>

Oral and Written Communications

The lab report involves written explanation of the object-oriented design approach used, analysis of the algorithms implemented, and approach to testing the program.

Social and Ethical Issues

None

Theoretical Content

Analysis of Algorithms (5 hours)

Problem Analysis

A large component of this course is the design and analysis of algorithms using recursion and data structures implemented as objects. Students are assessed using five homework programming assignments, two lab exams, and three class exams.

Solution Design

See Problem Analysis above.