



**CS/ME 6754, COA 8676E
Design & Engineering
Information Technology**

<http://www.eislab.gatech.edu/courses/me6754/>

**Georgia Tech
Spring 2001
Robert E. Fulton
Angela Y. Birkes**

Overview

This course overviews the application of information technology to the product life cycle, including design, engineering, manufacture/construction, sustainment, and recycle/retirement. With an emphasis on the needs of design and engineering, it introduces information systems concepts from a database technology orientation. It assumes no background in databases per se, but it does assume background in engineering and design computer applications, as well as some knowledge of software development. Guest lectures are anticipated to provide insight into recent techniques and/or specific design and engineering applications.

Candidate topics include:

Topic	Representative Techniques & Technologies
• Process modeling	IDEF0, UML
• Information modeling	
• Relational approaches	IDEF1X, Entity-Relationship
• Object-flavored approaches	EXPRESS, UML, XML
• Content standards	IGES, STEP
• Communication protocols	CORBA, DCOM, RMI
• Integration frameworks	OMG OMA, product data management (PDM) systems, Internet

Candidate hands-on exercises include experiences with SQL in ORACLE (rdbms), EXPRESS tools, XML tools, Java objects, and Metaphase (PDM system)

Successful completion of this course will give the student a broad basis for industrial practice and for research in design and engineering applications.

Prerequisites

The course is open to MS and PhD students. It assumes that participants have a working knowledge of computing systems (including basic Unix operations), some programming background, and a basic understanding of design and engineering.

Student Requirements

- 1) Extensive reading, both from the reader and additional handouts. The reader includes:
 - a) Chapters 1, 2, and 4 from *Object-Oriented Database Management: Applications in Engineering and Computer Science* by A. Kemper and G. Moerkotte, Prentice-Hall (1994)
 - b) Selected articles on object oriented systems
 - c) Chapters 5-6 from *Building Product Models* by C. Eastman, CRC Press (1999), which covers ISO STEP technologies
- 2) Homework assignments. Some will be paper-based, others will be computing exercises (e.g., schema and database queries).
- 3) Midterm and final.
- 4) Class project.
- 5) Active participation in class, including pre-class preparation.

Acknowledgements

Much of the course content comes from renditions taught by Profs. Eastman and Fulton and Dr. Russell Peak. Their help with the course this semester (and that of other colleagues) is gratefully acknowledged.

Filename: course-overview.doc
Directory: P:\courses\ME6754_Design_Engineering_IT\200101_Spring
Template: C:\Documents and Settings\angela\Application
Data\Microsoft\Templates\Normal.dot
Title: ME 6754 - Design & Engineering Information Technology
Subject:
Author: EIS Lab
Keywords:
Comments:
Creation Date: 1/8/2001 12:12 PM
Change Number: 4
Last Saved On: 1/8/2001 3:20 PM
Last Saved By: angela
Total Editing Time: 19 Minutes
Last Printed On: 1/8/2001 8:18 PM
As of Last Complete Printing
Number of Pages: 1
Number of Words: 362
Number of Characters: 2,264