

Course Syllabus

Course Information

CS6386 – Telecommunication Software Design

Term: **Summer 2016**

Days & Time and Location: MW 5:30PM-7:45PM @ ECSS 2.201

Instructor Contact Information

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Office hours: MW 2:00PM – 3:00PM, also by appointment

Office: ECSS 3.607

Course Pre-requisites, Co-requisites, and/or Other Restrictions

CS5390

Prerequisite will be strictly enforced.

Course Description

This graduate course is a study of principles, methods and techniques for designing software for telecommunication systems. Its main focus is on understanding fundamental challenges in telecommunication software systems such as concurrency issues and real-time constraints, protocols design and design for distributed systems. Study of Internet protocols suite, security and wireless protocols will be also be carried out. Assignments and a design project will be used to provide students with a hands-on experience on software design for telecommunication systems.

Student Learning Objectives/Outcomes

The objectives of this course include gaining solid knowledge and some hands-on experience of software design for telecommunication systems. After taking this course a student is expected to be able to explain and evaluate the software design principles and techniques, as well as important concepts and method used in telecommunication software design. Paper critique, hands-on assignments and a design project will be used to further the understanding of this important area of software design.

Course learning objectives of this course are:

- Be able to identify and describe fundamental issues in telecommunication software systems
- Ability to identify sub-systems, describe interfaces and protocols used in large telecommunication networks
- Be able to describe fundamental concepts and software techniques to implement communication protocols, e.g. TCP/IP
- Be able to apply real-time and concurrent software design techniques to telecommunication software systems
- Ability to identify issues and formulate software solutions for highly concurrent and distributed systems

Textbook & References:

No required textbook. Reference materials might be given in class.

Suggested Course Materials

Topics to be discussed in this course include

- Concurrency and real-time concepts
- Software design for distributed real-time systems
- Principles of networking: layering, protocols, interfaces
- Network security concepts and mechanisms
- Design of networking protocols, including security and wireless protocols
- Software design for network performance
- System description languages standards such as Message Sequence Charts (MSC), Testing & Test Control Notation (TTCN) and Specification and Description Language (SDL)

Assignments & Academic Calendar

Exams: There will be two exams: a midterm and a final. The exams will be closed book and the final exam is comprehensive.

Assignments: Homework and hands-on assignments will be assigned. Students are also required to read and critic telecommunication systems related papers as assignment. Results of paper critique may need to be presented to the class.

Project: A design project will be assigned and is to be performed by teams. Teams may need to present their project at the end of the semester.

Grading Policy

The grade each student earns from this class will be based on the following table.

Exam I	20%
Exam II	40%
Assignments & Quizzes	15%
Project	<u>25%</u>
Total	100%

Grades are assigned according to the scale on the right:

A	93 – 100
A-	90 – 92
B+	87 – 89
B	83 – 86
B-	80 – 82
C	70 – 79
F	Below 70.0

Course & Instructor Policies

*There will be absolutely no makeup exams.
No late homework or assignment will be accepted!*

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

These descriptions and timelines are subject to change at the discretion of the Instructor.