

TCN-5445 Telecommunication Network Programming

Catalog Description

Advanced telecommunications network programming skills including Router and Bridge Software, socket programming and protocol handler. (3 credits)

Prerequisites

SCIS Graduate Standing

Type

Elective for MSTN, Core option for PhD

Course Objectives

This course teaches network programming from a system perspective and uses UNIX/Linux as an example. It provides students with essential network and system programming skill training. In addition to socket programming, students will also learn in depth the system fundamentals, including I/O, multi-threading, IPC, synchronization, and shared memory.

Topics

Introduction

TCP and UDP Socket Programming

I/O Multiplexing

Name and Address Conversions

Daemon Processes and the inetd Superserver

Nonblocking I/O

Routing Sockets

Broadcasting and Multicasting

Multi-threading

Interprocess communication

Synchronization: Mutexes and Semaphores

Shared Memory

Remote Procedure Calls

Textbook

W. Richard Stevens, Bill Fenner, and Andrew M. Rudoff, UNIX Network Programming, Volume 1: The Sockets Networking API (3rd Edition), Addison-Wesley Professional, 2003

W. Richard Stevens, UNIX Network Programming, Volume 2: Interprocess Communications (2nd Edition), Prentice Hall, 1999.

Last Update

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