CpE654 WS / NIS654 WS
Design and Analysis of Network Systems
Introduction

This course is managed and primarily taught by Prof. Lawrence and Prof. Bali with guest speakers engaged in the development of various networking technologies.

You can reach us at:

Dr. Victor Lawrence
Tel.: 201-216-5623; Email: victor.lawrence@stevens.edu

Dr. Shri Bali
Tel.: 732-977-8305; Email: sbali@stevens.edu

CpE654 A / NIS654 A
Design and Analysis of Network Systems

Course Pre-requisite

There are no pre-requisites except the students should have taken courses in Electrical Engineering, Computer Science, or related areas at the undergraduate level.

If you are not sure if you have adequate background for the course, please see one of us.

CpE654 / NIS654
Design and Analysis of Network Systems
Resources and references

Course text:

There is no required text for the course.

But there are many excellent books on the subject which we have listed for you covering many of the topics we cover. We will also pass on or point to papers or texts relevant to the material we cover as needed.

.

A Few Excellent Books on Networking

There is no required text for the course. But the books listed below provide an excellent coverage of networking technologies and the design processes. The slides for the course have also drawn liberally from these books and other available sources.

"Broadband Cable Access Networks, The HFC Plant" by David Large and James Farmer, Morgan kaufman, Elsevier.

"Top-Down Network Design" by Priscilla Oppenheimer,3rd edition. Cisco Press

"Computer Networks", 5th Edition, Andrew S. Tanenbaum and David J. Wetherall, Publisher: Prentice Hall

"Computer Networks A Systems Approach", 5th Edition, Larry L. Peterson and Bruce S Davie, Elsevier, Morgan kaufmann,

"Computer Networking: A Top-Down Approach", 5/E, James F. Kurose, *University of Massachusetts, Amherst,* Keith W. Ross, *Polytechnic University, Brooklyn;*

"Computer Networks: A Top Down Approach" by Behrouz A. Forouzan and Firouz Mosharraf, 1st Edition, Mc Graw Hill

Larry L. Peterson and Bruce S Davie, "Computer Networks A Systems Approach, 5th Edition, Elsevier, Morgan Kaufmann, ISBN: 978-0-12-385059-1

William Stallings, "Foundations of Modern Networking SDN, NFV, QoE, IoT, Cloud, Addison_Wesley, 2016

CpE654 / NIS654
Design and Analysis of Network Systems

Course description: (also see course syllabus)

The course provides a broad overview of future intelligent multimedia networks, as well as in-depth understanding in selected areas of today's rapidly evolving network technologies.This evolving network is enabling the visions of connected people, cities, vehicles, and all things.

The course starts with the basics of TCP/IP networking, then moves on to describing technologies and architectures of LTE, 5G, IoT (Internet of Things), Cloud Computing, Software Defined Networks (SDN) and virtualization (VNF) and Smart Cities.

The course also briefly covers processes for the design of such secure networks based on customer driven requirements.

CpE654 / NIS654
Design and Analysis of Network Systems

Assignments:

- Periodic HW assignments to encourage students to review the covered material.
- One midterm quiz.
- Group based hands-on projects with presentations and reports at the end of the semester.
- A Final Network Design Project

Grading:

HW: 20%
Midterm:.30%
Hands on Group Project: 30%
Final Network Design Project: 20%