ECE681 High Performance Routers and Switches

Instructor: Prof. Roberto Rojas-Cessa
       Office: ECE 323
       Phone: 973-596-3508
       Email: rojas@njit.edu
Office hours: M (4:30pm-5:30pm), R (10:00am-11:30pm), any other times by appointment.

Description: This course discusses designs of packet switches and Internet routers, for different network segments. It mainly analyzes algorithmics used in general networking, where complexity is estimated and considered for practical implementations.

Learning outcomes: the student will become familiar with the different parts of Internet routers, specially designed for high performance.

Weekly Outline

Week	Topic	Chapter, Reading
1	Intro to High Performance Routers	Notes, 1
2	IP lookup, Term Project (TP) Intro	Notes, 2
3	IP lookup, Packet Classification	Notes, 2,3
4	Packet Classification	Notes, 3
5	Basic switch architectures	Notes
6	Shared-Memory Switches	Notes, 6
7	**Midterm Exam**	**All lectures covered**
8	SPRING BREAK	
9	Input-Buffered switches, TP2	Notes, 7
10	Banyan Based Switches, TP3	Notes, 8
11	QoS provisioning	Notes, 4
12	Internally Buffered Switches, TP4	Notes, 11
13	Clos network Switches	Notes, 12
14	Optical Switch and other topics	Notes, 14, 15
15	**Term project presentation/report**	
16	Final Exam	**All lectures after midterm**

Textbook:
We will mainly base our course material with class notes (I will provide them). Reference material**:** Class notes, class exercises, and IEEE papers.

Prerequisites: None. However, ECE637 is desirable.
Grading Schema: Quizzes (10%*), Homework (10%*), Midterm Exam (25%), Final Exam (25%), and Term Project (30%*). Note: * valid points only if both exams are taken.

Academic Integrity policy: The NJIT University Code on Academic Integrity will be followed in all courses. The code states "Each student shall demonstrate honesty and integrity in the completion of all assignments and in the participation of the learning process".