

Course Code and Title: ENEE759J

Advanced Topics in Computer Engineering: Interconnection Networks

Instructor:

A. Yavuz Oruç

Email: yavuz@eng.umd.edu.

phone: office: 301 405 3663

Class Schedule:

MW-11:00 am-12:15 pm

Room:

EGR 2116

Textbook:

Lecture Notes and Research Articles

Grading Policy:

Final exam, 40% of the total grade

Reading and presentation of a research paper 30% of the total grade

Home assignments: 30%

Course Overview:

This course will focus on recent advances in circuit and packet switching network research. Such networks are used in IP network backbones for routing data, text, voice and video traffic between servers as well as switching fabrics in parallel and multiprocessor systems. The main goal is to familiarize the student with the frontier research results and open problems in the field, and explore some new research frontiers such as quantum packet switching. The format of the course is designed to encourage graduate students to develop skills to conceive and conduct original research by reading and discussing the state-of-the art research results and techniques that have been described in recent research articles in circuit and packet switching network literature. Students will be assigned a number of papers for reading, presenting them in class, and evaluating their importance.

Specific topics to be covered include, but not limited to,

- Overview of circuit and packet switching concepts
- Sparse crossbars, rearrangeable and nonblocking networks
- Buffered concentrators, superconcentrators
- Buffered unicast and multicast networks
- Input, output, and combined input/output queuing packet switching
- Packet routing algorithms
- Quantum packet switching