# E2-221 Aug. 3:0

# Communication NetworksA

## Instructor

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## Teaching Assistant

Email:

**Department: Department of ECE**

Course Time:

Lecture venue:

Detailed Course Page:

## Announcements

## Brief description of the course

This course is about Internet architecture, applications, protocols, and design from an end-to-end and layering perspective and a performance analysis perspective. This is a first semester core course for the M.Tech (Communication and Networking) students.

## Prerequisites

Some background in probability theory and random processes is preferred.

## Syllabus

Introduction to networking. Layering in the Internet. Application layer; HTTP, SMTP, telnet, ftp. TCP/IP protocol stack. Transport layer; TCP and UDP, congestion control, flow control, error control - ARQ schemes and analysis. Network layer; IP, optimal routing, algorithms for shortest path routing, routing protocols, mobile IP, IPV6, internetworking. Data link layer; random access, random/slotted ALOHA, splitting algorithms, CSMA-CD, Wireless LANs, CSMA-CA, IEEE 802.11 MAC throughput analysis.

Modelling and performance analysis in networks; deterministic analysis, scheduling, stochastic analysis - traffic models, performance mesaures. Queueing models: Little's theorem, M/M/1, M/M/m, M/M/m/m, M/G/1

queueing systems, priority queueing.

## Course outcomes

Understanding of the Internet architecture, applications, protocols, and design from an end-to-end and layering perspective and a performance analysis perspective.

## Grading policy

2 tests (25 marks each)

1 Final exam (50 marks)

Total: 100 marks

## Assignments

## Resources