

# ENPM 632: Advanced TCP/IP Networking

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Prerequisite: ENPM 631: TCP/IP Networking

Course Description:

This course builds on the topics discussed in TCP/IP Networking (ENPM 631) and provides more in depth discussion of some of the topics as well as more advanced topics such as Multi-protocol Label Switching (MPLS), Mobile IP, IP security, Voice over IP, and detailed discussion about features in IPv6. Socket programming is covered and a related project will be a big part of the course.

1) Detailed outline including specific modules, if applicable:

- Review of the introduction to TCP/IP
- Advanced topics in IPv6
- Introduction to the Socket Interface and network programming
- Application development using Sockets programming and Docker
- Deploying Applications in Kubernetes
- Helm charts
- IP switching and MPLS
- Internet Security
- Advanced use of Wireshark (statistics, and graphs)

2) Grading policy:

- Class participation (Quizzes): 5%
- Homework: 20%
- Midterm exam: 40%
- Project and presentation: 35%

3) Textbook(s):

- Internetworking with TCP/IP, Vol. 1 (5th Edition)  
By Douglas Comer

Learning outcomes:

- The students will learn more advanced topics in networking, such as IPv6, and related protocols
- They are expected to understand the socket interface and simple network programming
- They will develop an application using socket programming and Docker containerization
- They will learn to deploy web applications in Kubernetes.