

# FREQUENTLY ASKED QUESTIONS

## HOW DOES THIS CERTIFICATE PROGRAM HELP ME?

Completion of the Network Engineering Certificate Program provides you with a technical foundation preparing you for assignments related to research, design, development, procurement, maintenance, and management of wired and wireless networks.

## WHAT ARE THE PREREQUISITES?

- Acceptance by the ECE Department. (Process requires a minimum grade point average (GPA) at the undergraduate level, a sufficient background in mathematics & technical undergraduate studies. Applicants with a B.S.E.E. degree usually satisfy the last two requirements automatically.)
- Command/Company Endorsement

## IS THERE A SERVICE COMMITMENT?

Students participating in a program at The Naval Postgraduate School may incur service and/or employment obligations.

## WHO IS ELIGIBLE?

Applicants with a US Government affiliation, government laboratory engineers, active military personnel, Navy civilians, employees of corporations that are contractors for the Department of Defense (DoD), current NPS resident students.



## CONTACT INFORMATION

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For more information on the  
ECE department, go to:

[www.nps.edu/ece/certificates](http://www.nps.edu/ece/certificates)

For more information on other  
NPS DL programs, go to:

[www.nps.edu/dl](http://www.nps.edu/dl)

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DEPARTMENT OF  
**ELECTRICAL and COMPUTER ENGINEERING**

**GRADUATE CERTIFICATE  
PROGRAM**

IN

**NETWORK  
ENGINEERING**

*Department of Electrical & Computer Engineering*



NAVAL POSTGRADUATE SCHOOL

# THE PROGRAM

The Network Engineering Certificate Program equips the students with a fundamental understanding of broadband network design, performance and measurement in both wired and wireless networks, such as Ethernet, backbone networks, DWDM and dark fiber networks, software defined networks, internet of things, WiFi, WiMAX, LTE, and wireless sensor networks.

## THE CURRICULUM

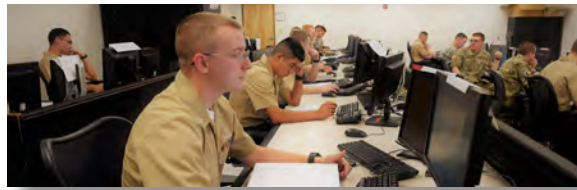
### Two Required Courses

**EC3710 Computer Communications Methods (3-2) or CS3502 – Computer Communications and Networks (4-2)**

Students will develop an understanding of computer communications networks with an emphasis on the requirements of military environments and the US Navy's combat platforms. Coverage includes the essential topics of network topology, connectivity, queuing delay, message throughput, and performance analysis. Local area networks and principles of networking devices are presented.

**EC4745 Mobile Ad Hoc Wireless Networking (3-2)**

This course presents the fundamental principles, design issues, performance analysis, and military applications of infrastructure and ad hoc wireless packet switched networks.



## THE CURRICULUM...continued

**And one or two of the following electives for total a minimum of 12 credit hours:**

**EC4785 Internet Engineering (3-2)**

This course examines the optimal design and analysis of interconnected, heterogeneous computer networks, specifically those employed by the DoD with a focus on the TCT/IP suite. Techniques for segmentation and reassembly, routing, transfer agent placement, error control, throughput analysis, broadcasting, and multicasting are examined.

**EC4725 Advanced Telecommunication Systems Engineering (3-2)**

This course explores the engineering of communications transport networks and concepts in telephony and traffic engineering such as availability, blockage, dimensioning and survivability. Public switched telephone networks, mobile switching networks, and signaling and provisioning are presented.

**EC4710 High Speed Networking (3-2)**

This course systematically develops the traffic characteristics of DoD and commercial broadband services and determines the need for high speed networks with emphasis on quality of service.

**EC4430 Multimedia Information and Communications (3-1)**

The course presents real-time communication of digital multimedia (audio, video and text) information over packet-switched networks. Topics include digital representation and compression of multimedia information, transmission, storage and distribution of compressed information, and end-to-end delivery issues, such as loss, reliability, security and encryption of multimedia information.

# THE OUTCOMES

- Students will have the cognitive skills required for analysis, design and evaluation of wired and wireless networks and the ability to apply these skills in a network-centric environment.
- Students will have the ability to apply network analysis and maintenance techniques in creating and maintaining existing networks.
- Students will have the skills and abilities required to analyze, design and evaluate heterogeneous networks.
- Students will have the skills and abilities required to analyze, design and evaluate network and signaling protocols, such as medium access, routing, transport, and application protocols.
- Students will have the cognitive skills required for analysis, design and evaluation of modern telecommunications networks in both wired and wireless media and the ability to apply these skills in a network-centric environment.
- Students will have the ability to analyze and evaluate strategic and commercial broadband networks.

