

NETWORK ENGINEERING AND SECURITY (MS)

Program Requirements	Quarter Hours
Introductory Courses	0-16
Degree Requirements	48
Total hours required	48-64

Learning Outcomes

Students will be able to:

- Describe the operations and metrics of Border Gateway Protocol (BGP) routing, including the BGP path selection process.
- Contrast IPv6 and IPv4 routing, including protocol headers, routing protocols, subnetting, tunneling and translation mechanisms.
- Describe and compare Quality of Service (QoS) techniques for providing differentiated treatment of Voice over IP (VoIP) and data packet flows.
- Design a fault-tolerant network and identity protocols to implement and manage these networks.
- Explain methods used for authentication and integrity in public-key encryptions systems, including digital signatures and PKI.
- Explain and demonstrate the operations of an Intrusion Detection System (IDS), including writing IDS rules.

Degree Requirements

Course Requirements

No Introductory Course may be substituted for any other course at any level.

Introductory Courses

Introductory courses may be waived for any of the following conditions:

- The student has the appropriate course work to satisfy an Introductory Course.
- The student has appropriate and verified professional experience to satisfy an Introductory Course.
- If an exam is available, the student passes a Graduate Assessment Examination (GAE) in the Introductory Course area.

Course	Title	Quarter Hours
NET 405	NETWORK FUNDAMENTALS	4
NET 411	INTRODUCTION TO COMPUTER AND NETWORK SYSTEMS	4
NET 413	INTRODUCTION TO LAN TECHNOLOGIES	4
CSEC 418	INTRODUCTION TO HOST SECURITY	4

Foundation Courses

Course	Title	Quarter Hours
NET 460	FOUNDATIONS OF NETWORK TECHNOLOGIES	4
NET 463	COMPUTER NETWORKS AND DATA SYSTEMS	4

NET 477	NETWORK SECURITY	4
CSEC 440	INFORMATION SECURITY MANAGEMENT (FORMERLY CNS 440)	4
CSEC 450	DIGITAL FORENSIC TECHNIQUES (FORMERLY CNS 450)	4

Students who have not completed the Foundation Courses can register for a maximum of four (4) Advanced Courses.

Advanced Courses

Course	Title	Quarter Hours
NET 560	ADVANCED NETWORK TECHNOLOGIES AND DESIGN	4
NET 563	PROTOCOLS AND TECHNIQUES FOR DATA NETWORKS	4
NET 577	NETWORK SECURITY II	4

Major Elective Courses

Students must complete eight (8) credit hours of Major Elective Courses, typically two 4-credit hour courses. Major Elective Courses must be in the range of 420-599 and must be chosen from NET or CSEC courses.

CDM Open Elective Courses

Students must complete four (4) credit hours of CDM Open Elective Course. The Open Elective must be in the range of 420-699 and must be chosen from CSC, CSE, CSEC, NET, SE, IS, ECT, IT, PM, IPD, HIT, HCI, or GAM courses. The Open Elective must not have been otherwise used to satisfy degree requirements. Credit for courses taken outside of the school will only be given if approved by a faculty advisor.

Capstone

Course	Title	Quarter Hours
NET 594 or CSEC 594	NETWORK CAPSTONE COMPUTER INFORMATION AND NETWORK SECURITY CAPSTONE	4

Degree Requirements

Students in this degree program must meet the following requirements:

- Complete a minimum of 48 graduate credit hours in addition to any required introductory courses of the designated degree program.
- Complete all graduate courses and requirements listed in the designated degree program.
- Earn a grade of C- or better in all courses of the designated degree program.
- Maintain a cumulative GPA of 2.5 or higher.
- Students pursuing a second (or more) graduate degree may not double count or retake any course that applied toward the completion of a prior graduate degree. If a required course in the second degree was already completed and applied toward a previous degree, the student must meet with a faculty advisor to discuss a new course to be completed and substituted in the new degree. This rule also applies to cross-listed courses, which are considered to be the same courses, but offered under different subjects.
- Students pursuing a second master's degree must complete a minimum of 48 graduate credit hours beyond their first designated

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degree program in addition to any required introductory courses in their second designated degree program.

Students with a GPA of 3.9 or higher will graduate with distinction.

For DePaul's policy on repeat graduate courses and a complete list of academic policies see the DePaul Graduate Handbook.