NETWORK ENGINEERING AND SECURITY (MS)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Quarter Hours</th>
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</thead>
<tbody>
<tr>
<td>NET 405</td>
<td>NETWORK FUNDAMENTALS (FORMERLY TDC 405)</td>
<td>4</td>
</tr>
<tr>
<td>NET 411</td>
<td>INTRODUCTION TO COMPUTER AND NETWORK SYSTEMS (FORMERLY TDC 411)</td>
<td>4</td>
</tr>
<tr>
<td>NET 413</td>
<td>INTRODUCTION TO LAN TECHNOLOGIES (FORMERLY TDC 413)</td>
<td>4</td>
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<tr>
<td>CSEC 418</td>
<td>INTRODUCTION TO HOST SECURITY (FORMERLY CNS 418)</td>
<td>4</td>
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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 encryption 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.

Advanced Courses

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Quarter Hours</th>
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<tbody>
<tr>
<td>NET 560</td>
<td>ADVANCED NETWORK TECHNOLOGIES AND DESIGN (FORMERLY TDC 560)</td>
<td>4</td>
</tr>
<tr>
<td>NET 563</td>
<td>PROTOCOLS AND TECHNIQUES FOR DATA NETWORKS (FORMERLY TDC 563)</td>
<td>4</td>
</tr>
<tr>
<td>NET 577</td>
<td>NETWORK SECURITY II (FORMERLY TDC 577)</td>
<td>4</td>
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</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Quarter Hours</th>
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<tbody>
<tr>
<td>NET 594</td>
<td>NETWORK CAPSTONE (FORMERLY TDC 594)</td>
<td>4</td>
</tr>
<tr>
<td>or CSEC 594</td>
<td>COMPUTER INFORMATION AND NETWORK SECURITY CAPSTONE (FORMERLY CNS 594)</td>
<td>4</td>
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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 an average GPA of 3.0 or better in the five Foundation Courses.
- 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.

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