# ADVANCED NETWORKING PROTOCOLS FOR TELECOMMUNICATIONS GRADUATE CERTIFICATE

**Banner Code:** VS-CERG-ANPT

**Academic Advising**

MSN 2B5  
4400 University Drive  
Fairfax, VA 22030  
Phone: 703-993-3810  
Email: tcom@gmu.edu  
Website: ece.gmu.edu/graduate-certificates/certificate-program-advanced-networking-protocols-telecommunications

This graduate certificate provides an in-depth understanding of advanced protocols used in a variety of telecommunications networks.

The graduate certificate may be pursued on a part-time or full-time basis.

## Requirements

### Certificate Requirements

Total credits: 15

This certificate may be pursued on a full-or part-time basis.

### Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 609</td>
<td>Interior Gateway Protocol (IGP) Routing</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 610</td>
<td>Border Gateway Protocol (BGP) Routing</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or TCOM 535 The TCP/IP Suite of Internet Protocols</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 9

### Electives

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 611</td>
<td>Multi-Protocol Label Switching (MPLS)</td>
<td></td>
</tr>
<tr>
<td>TCOM 631</td>
<td>Voice Over IP</td>
<td></td>
</tr>
<tr>
<td>TCOM 662</td>
<td>Advanced Secure Networking</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

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1 May not be taken twice for credit. If a student takes TCOM 515 Internet Protocol Routing: Lecture and Laboratory Course and TCOM 535 The TCP/IP Suite of Internet Protocols in the core element, the course(s) may not be taken again in the elective element.