PART I. Topics

Supporting materials will be used to introduce the latest developments and technologies that are being used in the field of networking and communication. These materials include RFC documents, Internet Engineering Task Force documents, and other pertinent papers and articles.

PART II. Learning Objectives

Upon successful completion of this course, the student will be able to:

- Describe the layers of the Internet Protocol Suite and how they interact with each other.
- Understand the concepts and technologies related to network architecture and protocols.
- Analyze and evaluate network architectures and protocols based on their performance and reliability.
- Design and implement networks that meet specific requirements.

PART III. Network Architecture and Protocols

Pre: CS 11, STA 144, CSE 11

Quantitative and qualitative comparisons of network architectures and protocols will be made to determine the best approach for various network scenarios. The course will cover topics such as:

- Network protocols and concepts of network architecture.
- Network protocols and concepts of network architecture with an emphasis on data link, network, and transport protocols.
The Virginia Tech honor code will be strictly enforced.

**PART VI: Honor Code**

The final exam will be comprehensive, and the final exam will be administered.

The first exam will be scheduled before the final exam. The first exam will be due in the 1st week. A position exam will be conducted before the final exam. The final exam will be due in the 6th week, and a progress report will be done in the 12th week. A position exam must be approved by the instructor. A course proposal must be done in the 6th week. A position report will be done in the 2nd week. The course proposal will be done in the 2nd week.

Students are required to conduct in-depth research utilizing methodologies and tools for modeling (computer simulation).

<table>
<thead>
<tr>
<th>Type of Assignment</th>
<th>Percent of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Team Project and Paper</td>
<td>25%</td>
</tr>
<tr>
<td>Team Project Progress Report</td>
<td>5%</td>
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<tr>
<td>Midterm Exam</td>
<td>15%</td>
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<tr>
<td>Survey Paper</td>
<td>10%</td>
</tr>
<tr>
<td>Class Presentations and Discussions</td>
<td>5%</td>
</tr>
<tr>
<td>Homework (including paper summary reports)</td>
<td>10%</td>
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</tbody>
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**PART V. Tentative Grade**

- Security 10%
- Performance Evaluation 10%
- Data Link Layer 15%
- Routing and Internetworking 25%
- End-to-end Protocols - UDP, TCP, ICMP 20%
- Application Layer Protocols 15%