

ITEC 445 Advanced Networking – Section J10
Department of Integrated Information Technology
College of Engineering and Computing
University of South Carolina

Spring 2022

Monday – Wednesday – Friday 12:00 – 12:50pm

Online:

<https://us02web.zoom.us/j/87236313080?pwd=WS9oZ0pGaWVMOFQrVFFMaVRkTjV5UT09>

Course Number	ITEC 445 Section 1
Course Name	Advanced Networking
Course Credit	3 credits
Course Description and Overview	Description: This course will cover network infrastructure topics (client/server protocols, routing, switching) with emphasis on hands-on implementations using network operating system software.
Instructor	Jorge Crichigno Email: jcrichigno@cec.sc.edu Phone: 505-727-6858 Office: Innovation Center, room 1306 Office hours: by appointment
Pre-requisites	ITEC 245 Introduction to Networking
Co-requisites	None
Textbook	1- Switching, Routing, and Wireless Essentials, Cisco Press. 2- L. Miller, “Cybersecurity Survival Guide,” 2 nd Edition (electronic material provided by the instructor). 3- Additional material provided by the instructor (electronic material).
Topics	Module 1: Basic device configuration Module 2: Switching concepts Module 3: VLANs Module 4: Inter-VLAN routing Module 5: Routing concepts Module 6: Static routing Module 7: Troubleshooting static routes and basic dynamic routing protocols Module 8: Introduction to Network Security and Firewalls Module 9: Next-generation firewalls, zones, and interfaces Module 10: Basic security policies and Network Address Translation (NAT) Module 11: Application identification (AppID) Module 12: Content identification (Content ID) Module 13: URL filtering
Student learning outcomes	1- Describe routing and switching concepts. 2- Implement routing schemes based on static routing. 3- Select appropriate routers and switches for hierarchical networks. 4- Explain the role of trunking VLANs in a network. 5- Design and implement switched networks, including VLANs and inter-VLAN routing. 6- Use 802.1Q standard for trunking on inter-switch connections. 7- Describe the need for network security and zone-based policies. 8- Describe next-generation firewall technologies. 9- Implement security policy rules based on zones to protect networks.

	<p>10- Apply NAT policies, AppID and ContentID to protect networks from malware and viruses.</p> <p>11- Apply URL filtering to protect networks from malicious URLs.</p>																		
Grading policy	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="background-color: #e0e0e0;">Grading Scale</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>>= 90 – 100</td> </tr> <tr> <td>B+</td> <td>>= 86 – 89.99</td> </tr> <tr> <td>B</td> <td>>= 80 – 85.99</td> </tr> <tr> <td>C+</td> <td>>= 76 – 79.99</td> </tr> <tr> <td>C</td> <td>>= 70 – 75.99</td> </tr> <tr> <td>D+</td> <td>>= 66 – 69.99</td> </tr> <tr> <td>D</td> <td>>= 60 – 65.99</td> </tr> <tr> <td>F</td> <td>Below 59.99</td> </tr> </tbody> </table> <p>The weights are distributed according to the following activities:</p> <p>Final exam: 25%</p> <p>Midterm exam: 25%</p> <p>Assignments: 40% (labs ~20%, homeworks ~10%, and in-class assignments ~10%)</p> <p>Chapter Exams online: 10%</p>	Grading Scale		A	>= 90 – 100	B+	>= 86 – 89.99	B	>= 80 – 85.99	C+	>= 76 – 79.99	C	>= 70 – 75.99	D+	>= 66 – 69.99	D	>= 60 – 65.99	F	Below 59.99
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COVID-19 guidelines	<p>Students must follow the guidelines established by the University of South Carolina: https://sc.edu/safety/coronavirus/safety_guidelines/index.php.</p>																		
Preparation and participation	<p>Student learning is enhanced by commitment to attend and engage in all class sessions. Lack of preparation, poor attendance and passive participation all contribute to performance difficulties.</p> <p>Expected study and work level: assigned notes, book chapters or sections should be read before coming to class. Hence, reading the assigned material before class will help each student's performance and learning experience from such sessions. Students are encouraged to take notes in class or upon reviewing the required readings. Notes on important points of the assigned reading will prove useful in the classroom discussion.</p>																		
Accommodating disabilities	<p>Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Student Disability Resource Center: 803-777-6142, TDD 803-777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services. See https://www.sa.sc.edu/sds/.</p>																		
Academic integrity	<p>Assignments and examination work are expected to be the sole effort of the student submitting the work, unless otherwise clearly noted. Students are expected to follow the University of South Carolina Honor Code and should expect that every instance of a suspected violation will be reported. Students found responsible for violations of the Code will be subject to academic penalties under the Code. Cheating on a test or copying someone's else work will result in a zero-point for that work, possibly a grade of F in the course, and, in accordance with the University policy, be referred to the University Committee for Academic Responsibility and may result in expulsion from the University.</p>																		
Attendance policy	<p>Attendance is expected at all class sessions. In accordance with USC's Attendance Policy, absence from more than 10 percent of the scheduled class sessions (more than two absences), whether excused or unexcused, is excessive and the instructor may exact a letter grade penalty for such absences. It is of particular importance that</p>																		

a student who anticipates absences in excess of 10 percent of the scheduled class sessions receives prior approval from the instructor before the last day to change schedule as published in the academic and refund calendars on the registrar’s Web site. See <http://registrar.sc.edu/>

Academic calendar

Event	Date
Classes Begin	Jan. 10, Monday
Dr. Martin Luther King, Jr. Service Day (no classes)	Jan. 17, Monday
Last day to change/drop a course without a grade of "W" being recorded (Part of Term 30)	Jan. 18, Tuesday
Last day to apply for May graduation	<u>Graduation Application Deadline</u>
Midpoint in Semester	March 3, Thursday
Spring Break (no classes)	March 6 – 13, Sunday – Sunday
Last day to drop a course or withdraw without a grade of "WF" being recorded (Part of Term 30)	March 28, Monday
Awards Day	April 21, Thursday
Last Day of Classes	April 25, Monday
Reading Day	April 26, Tuesday
Final Examinations (includes exams on Saturday)	April 27 – May 4, Wednesday - Wednesday
Commencement Exercises in Columbia	May 6 – 7, Friday - Saturday