Cosumnes River College
ITIS 151 / CISN 341
Networking Theory and Routing Technologies
An Online Course
Spring 2020

Instructor: Buddy Spisak   **Online Office Hours**: Mon. 6:00-8:00 p.m. (Jan. 13 to May 22)

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E-mail: spisakj@crc.losrios.edu The turnaround time for responding to most e-mails is about one to two days. Be sure to include your name and the course number in each e-mail so I can identify who you are and what the e-mail is about.
Course Web page: https://lrccd.instructure.com
Instructor Web page: http://crc.losrios.edu/spisakj/

Prerequisites: None
Corequisite: CISN 304
Lecture/Lab: Fully online (21689) Wednesdays 6 to 8 p.m.

Accepted for Credit: CSU
Class Credits: 3.5 units

Textbook: No textbook is required for this course. All materials are available via the Cisco Networking Academy website at www.netacad.com. Note: There are two suggested textbooks that can be purchased at the college bookstore or online (e.g., through *Amazon.com*).

Optional textbook: *Routing and Switching Essentials Course Booklet*, version 6
Authors: Cisco Networking Academy
Publishing Info.: Cisco Press, 2017
ISBN-10: 1-58713-427-6
ISBN-13: 978-1-58713-427-2

Optional textbook: *Routing and Switching Essentials Labs & Study Guide,* version 6
Author: Allan Johnson
Publishing Info.: Cisco Press, 2017
ISBN-10: 1-58713-426-8
ISBN-13: 978-1-58713-426-5

Resource Materials: CISCO Network Academy Curriculum

Supplies: Ear buds or a headset could be beneficial when listening to videos.

A flash drive is recommended (at least 8GB, but 16GB is preferred) to store your work for the class**.**

Course Description:

This course covers networking theory and routing technologies, including the OSI Model, beginning router configurations, and routed and routing protocols. It prepares students for the CISCO Certified Network Associate (CCNA) certification examination. It also continues and expands the study of binary, decimal, and hexadecimal numbering systems to change variable length sub-net mass. C-ID: ITIS 151

Student Learning Outcomes and Course Objectives:

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

- TROUBLESHOOT AND SOLVE ROUTING PROBLEMS WITHIN A ROUTING DOMAIN (SLO 1).
- Understand and describe the purpose, nature, and operations of a router, routing tables, and the route lookup process, dynamic routing protocols, distance vector routing protocols, and link-state routing protocols, the purpose and types of access control lists (ACLs), and the operations and benefits of Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS) for IPv4 and IPv6, and Network Address Translation (NAT).
- CONFIGURE AND TROUBLESHOOT BASIC OPERATIONS OF A SMALL SWITCHED NETWORK (SLO 2).
- Configure and verify static routing and default routing; configure and troubleshoot basic operations of routers in a small routed network including Routing Information Protocol (RIPv1 and RIPv2) and Open Shortest Path First (OSPF) protocol (single-area OSPF); Configure, monitor, and troubleshoot ACLs for IPv4 and IPv6; and configure and troubleshoot NAT operations.
- CONFIGURE AND TROUBLESHOOT VLANS IN A SMALL SWITCHED NETWORK (SLO 3).
- Describe basic switching concepts, how VLANs create logically separate networks and how routing occurs between them, and enhanced switching technologies such as VLANs, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q.
- Configure and troubleshoot basic operations of a small switched network, VLANs, and inter-VLAN routing.

Methods of Measuring Student Learning Outcomes:

- You will demonstrate knowledge of course concepts through class discussions and achievement on quizzes and a final examination.
- You will demonstrate competence in the coursework by completing lab work and participating in discussions during the semester.

Student Obligations:

- **Attendance**: Since this course is online, it is important to participate frequently in the class.
- **Late Work**: Unless noted all assignments are due on Sunday by midnight each week. Late work will be accepted ONLY if you have contacted me prior to the due date either by e-mail or voice mail. In general, late work is due the next week, and no late assignments may be turned in after one week from the original due date regardless of the reason. For every day an assignment is late, you will lose 10% of its grade.
- **Due Dates**: Unless noted, all assignments will be submitted in Canvas. If, for any reason, you cannot access Canvas or are unable to submit the assignment on time, please e-mail it to me instead so that you are not penalized for being late. Quizzes and the discussion items cannot be taken past their due dates. If you miss a quiz and you want to make up points, you can take advantage of the extra credit assignments posted in Canvas. Everyone is welcome to work on the extra credit assignments. Typically, they are five to ten points each, depending on the difficulty of the assignment.

- **Labs**: There will be seven labs credited for homework for the class. The due dates are in the **SCHEDULE** portion of this handout. We will spend a lot of time working on lab activities. Each lab has a set of review questions that you will need to answer in Canvas to receive points for that assignment.
- **Discussions**: I want everyone to take a pro-active approach to learning this material. This includes using the discussion feature in Canvas to ask questions and answer other students' questions. I will also post questions each week that you can answer to further your understanding of the material. I expect two postings each week unless otherwise noted.
- **Language Matters:** Part of communicating effectively with one another involves communicating correctly with one another. This is not an English class; however, I will be looking at and commenting on the basic accuracy of your written English, such as sentence boundaries, spelling, and other basic grammar issues. While you will not fail the class because of your English, you may lose some points for frequent and repeated errors. Keep in mind that your use of English can influence your readers positively—or negatively.
- **Skills Exam and Final Exam**: These exams will be administered through Canvas.
- **Plagiarism Policy**: It is inappropriate, and a violation of academic policy, to copy information from any source (including, but not limited to, textbooks, magazine articles, newspaper articles and internet articles) without giving proper credit to the author by using standard quotation procedures such as in-line quotes, footnotes, endnotes, etc. Quotes may not exceed 25% of the assignment's total length. You will receive no credit (0 points) for any assignment that copies any material from any other source without giving proper credit to the author(s). Repeat offenders of this policy are subject to academic discipline as outlined in the policies published by the college.
- **Cheating**: Students who cheat will receive a failing grade for the course. (See the Student Behavior and Academic Integrity page of the college website (https://www.crc.losrios.edu/catalog18/geninfo/integrity.)
- **E-mail**: Every student will be required to have an email account. If you do not have an email account, the college provides free email accounts for all current students. To activate your account, go to https://sso.losrios.edu/idp/profile/SAML2/Redirect/SSO?execution=e3s1 and follow the directions provided.
- **E-mail etiquette**: I will not tolerate rude and demeaning comments or e-mails to anyone in this class. Please keep your comments and e-mails topic-related. If I determine that a comment or e-mail to anyone else in the class is rude or demeaning, I will warn you once. If your behavior continues to be unacceptable, I will refer you to the administration of the college for disciplinary action.
- **Personal belongings**: All cell phones, beepers, pagers, etc. should be turned off or set to vibrate during any of the online lectures/labs.
- **Disabilities:** If you have a documented disability and wish to discuss academic accommodations, please contact me or contact the Office of Disabled Student Programs and Services at 916-691-7275 as soon as possible.
- **Canvas:** This class utilizes a product called "Canvas." It is highly recommended that you check the website frequently for scheduling updates and homework assignments. Most of the homework assignments and quizzes will be done on Canvas.
- **Online Course Responsibilities:** This course requires significant self-motivation. You must not get behind. Labs and weekly assignments can take up to 15 hours to finish. Please don't try to finish them in one day. Not all activities are created equal. Some may take a bit longer than others. You would normally spend 7 hours per week in class for this course: total of 189 hours. Allow yourself at least 10 hours per week to complete the activities online, including the time spent writing the class discussion postings. You should plan additional time to read the textbook and study for the quizzes. Some people believe that an on-line format provides a much easier way to study this subject than an on-campus framework because they love to read and avoid the parking problems. Others feel very intimidated at first. Be patient as you work your way through the activities.

Grading:
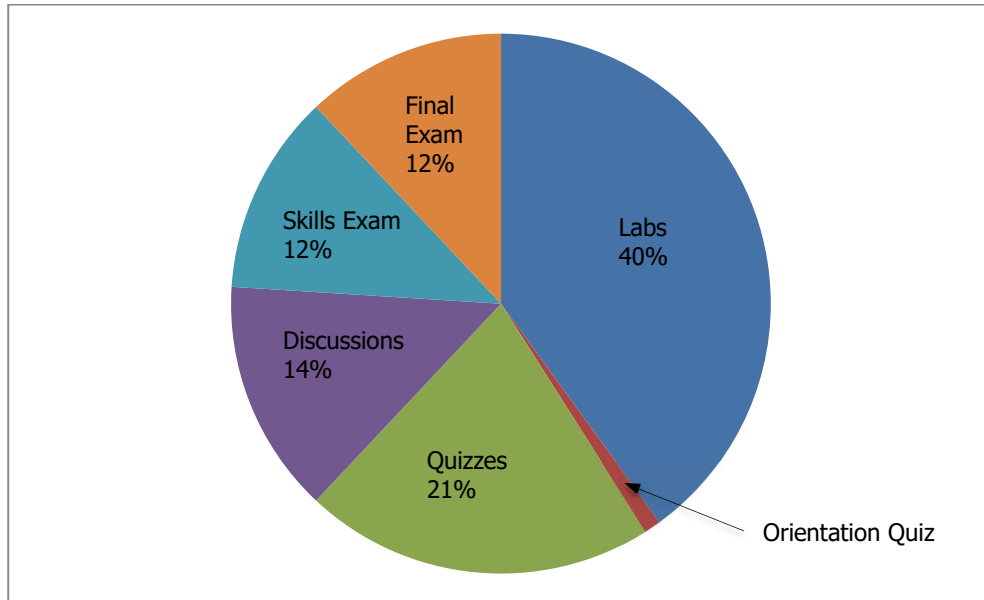
Course Topic		Points	Total	Approximate % the of Grade
Labs (7)		50	350	40
Orientation Quiz (1)		10	10	1
Quizzes (6)		30	180	21
Discussions (6)		20	120	14
Skills Exam (1)		100	100	12
Final Exam (1)		100	100	12

Point System: There are 860 total assigned points.

Grade Ranges: A=774-860, B=688-773, C=602-687, D=516-601, F=0-515

Schedule: It is tentative and can change during the term. All changes will be located under the "Announcements" section in Canvas for the course.

	Day:		Lecture/Lab Schedule:	Assignment Due:	Due Date (By Midnight):
Week 1	Wed.	1/22	Orientation and Introductions	View the Online Orientation	Sun., Jan. 26
			Chapter 1: Routing Concepts	Orientation Disc.	
			Introduction to Packet Tracer	Orientation Quiz	
			Lab #1		
Week 2	Wed.	1/29	Chapter 2: Static Routing	Disc. #1 (Ch. 1)	Sun., Feb. 2
			Chapter 3: Dynamic Routing	Lab Review #1	
			Lab #2	Quiz #1 (Ch. 1)	
Week 3	Wed.	2/5	Chapter 4: Switched Networks	Disc. #2 (Ch. 2-3)	Sun., Feb. 9
			Chapter 5: Switch Configuration	Lab Review #2	
			Lab #3	Quiz #2 (Ch. 2-3)	
Week 4	Wed.	2/12	Chapter 6: VLANs	Disc. #3 (Ch. 4-5)	Sun., Feb. 16
			Lab #4	Lab Review #3	
				Quiz #3 (Ch. 4-5)	
Week 5	Wed.	2/19	Chapter 7: Access Control Lists	Disc. #4 (Ch. 6)	Sun., Feb. 23
			Lab #5	Lab Review #4	
				Quiz #4 (Ch. 6)	
Week 6	Wed.	2/26	Chapter 8: DHCP	Disc. #5 (Ch. 7)	Sun., Mar. 1
			Lab #6	Lab Review #5	
				Quiz #5 (Ch. 7)	
Week 7	Wed.	3/4	Chapter 9: NAT for IPv4	Disc. #6 (Ch. 8)	Sun., Mar. 8
			Lab #7	Lab Review #6	
				Quiz #6 (Ch. 8)	
Week 8	Wed.	3/11	Chapter 10: Device Discovery, Management, and Maintenance	Lab Review #7	Mon., Mar. 16
			Skills Exam		
			Final Exam		All work needs to be turned in.