



South Portland, Maine 04106

Academic Department

Title: Routing and Switching Fundamentals	Catalog Number: CMIT 225
Credit Hours: 3	Total Contact Hours: 45
Lecture (or Lab): Lecture and Lab	Instructor: Glenn W. Hussey
Office Hours – Location: By Appointment	Contact Information: ghussey@smcme.edu

Course Syllabus

Course Description

This course focuses on the architecture, components, and operation of routers and switches, and explains the principles of switching, routing, and the primary routing protocols. The course will utilize Cisco Packet Tracer for a hands-on approach reinforcing concepts in preparing students for Cisco CCENT and CCNA exams.

Prerequisite(s) CMIT 100, CMIT 105

Course Objectives / ACM Learning Outcomes

Student will be able to apply switching and routing principles and concepts using Cisco switches and routers. Students will be able to apply the knowledge toward the Cisco CCENT and CCNA exams.

The Association for Computing Machinery (ACM) Committee for Computing Education in Community Colleges (CCECC), at the direction of the ACM Board, convened a task force to produce curricular guidance for associate-degree programs in Information Technology (IT). In fulfilling its charge, the CCECC identified the body of knowledge as a set of fifty student learning outcomes that constitute core IT competencies for all IT-related associate degree programs. The full list of student outcomes is available for download at <http://www.acmcecc.org/>.

An ability to demonstrate core IT competency in networking and convergence

22. Carry out basic computer network troubleshooting techniques.
23. Describe the layers, protocols, and components of the OSI model.
24. Diagram the components of an integrated IT system.
25. Differentiate among various computer networking models.

26. Differentiate among various techniques for making a computer network secure.
27. Summarize the flow of data through a computer network scenario.

An ability to function effectively as a member of a diverse team to accomplish common goals

42. Use communication, negotiation, and collaboration skills as a member of a diverse team.

An ability to read and interpret technical information, as well as listen effectively to, communicate orally with, and write clearly for a wide range of audiences

43. Describe the attitudes, knowledge and abilities associated with quality customer service.
44. Produce technical documentation responsive to an identified computing scenario.
45. Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

After successfully completing the course, the student will be able to:

1. Describe the functions of switches and routers
2. Configure, maintain, deploy and back up Cisco devices
3. Describe the basics of VLANs and switch-centric protocols
4. Describe the basics of routing tables
5. Describe in detail how router select the best path for packets
6. Apply concepts to build routing tables

Topical Outline of Instruction

Week	Class Topics and Assignments
1	Introductions Syllabus & Schedule Textbook Review Discussion: CSEC Lab & vRA Overview Assignment: Sign into vRA <hr style="border-top: 1px dashed black;"/> Lecture & Discussion: Virtualization Overview Discussion: Introduction to Packet Tracer Lab: Login and access Packet Tracer Assignment: Resolve any vRA, Lab, or Packet Tracer issues
2	Lecture: TCP/IP Model Review Lecture: Subnetting Review Discussion: VLSM/CIDR Assignment: TCP/IP & Subnetting Assessment Quiz Read Chapter 1

3	Lecture: Routing Concepts Discussion: Connecting to a physical router Discussion: Using Packet Tracer Lab: Dual Subnet/Single Router Environment Assignment: Week 3 Review Questions Read Chapter 2
4	Lecture: Static Routing Lab: Static Routing Assignment: Week 4 Review Questions Read Chapter 3
5	Lecture: Dynamic Routing Lab: RIPv1/RIPv2 EIGRP Assignment: Week 5 Review Questions
6	Quiz 1 - Chapters 1, 2, & 3 Lecture: Single-Area OSPF Lab: OSPF Assignment: Week 6 Review Questions Read Chapter 7
7	Lecture: Access Control Lists Lab: ACLs Assignment: Week 7 Review Questions Read Chapter 8
8	Quiz 2 – OSPF & Chapter 7 Lecture: Dynamic Host Configuration Protocol Lab: DHCP Assignment: Week 8 Review Questions Read Chapter 9
9	Mid-Term Exam Lecture: Network Address Translation Lab: NAT/PAT Assignment: Week 9 Review Questions Read Chapter 4

10	Lecture: Introduction to Switched Networks Lab: Switch Operation Assignment: Chapter 4 Review Questions Read Chapter 5
11	Lecture: Basic Switching Concepts and Configuration Lab: Switch Configuration Assignment: Chapter 5 Review Questions Read Chapter 6
12	Quiz 3 – Chapters 8, 9, & 4 Lecture: Virtual Local Area Networks Lab: VLAN Configuration Assignment: Chapter 6 Review Questions
13	Lecture: Inter-VLAN Routing Lab: Inter-VLAN Routing Lab: Router-on-a-stick Assignment: Read Chapter 10
14	Quiz 4 – Chapters 5 & 6 Lecture: Device Discovery, Management, and Maintenance Project Assigned
15	Open Discussion / Project Work Time Project Due
16	Review for Final Open Discussion Final Exam

Course Requirements

Students will have 4 quizzes per semester, a lab assignment and review questions due each week, a Mid-term Exam, a Practical Application Project, and a Final Exam.

Student Evaluation and Grading

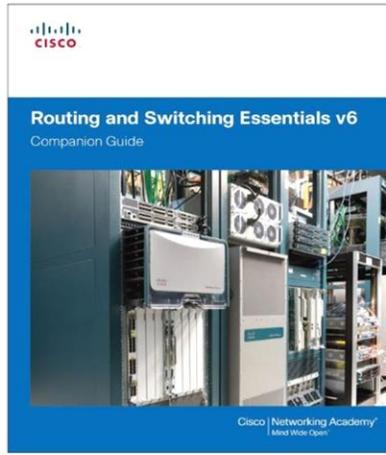
Attendance and Participation (Discussion Boards)	15%
Review Questions	10%
Lab Assignments	20%
Quizzes	20%
Practical Application Project	15%
Mid-term Exam	10%
Final Exam	10%

******* NOTE: Late work is NOT accepted. All due dates are firm. *******

I do not accept late work. All assignments are due for a given week by Saturday at 11:59PM. This provides a full seven days to complete assignments and to take any quizzes or exams. If you miss taking a quiz or exam for any reason, you will NOT be allowed to take it after the due date. There are NO exceptions to this!

Effective time management is critical to succeeding in this class!

Text, Tools and / or Supplies



Title	Routing and Switching Essentials V6 Companion Guide
Author	Cisco Networking Cisco Networking Academy
ISBN	978-1-58713-428-9
Publisher	Cisco Press
Publication Date	December 7, 2016
Binding	Trade Cloth
Type	Print
Price	\$73.33
Required	

Attendance Policy

Regular and prompt attendance is required. Excessive lateness and absences will affect the final course grade.

- More than three absences throughout the semester = -10 points
- Two or more consecutive absences throughout the semester = Academic Failure
- Four absences throughout the semester = Academic Failure

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 p.m. following the last day of the class. You will receive an e-mail to your student e-mail account when course evaluations are available.

For Classes with any Face- to -Face Component

While the syllabus represents current plans, there may be changes during the semester in response to the on-going Covid-19 pandemic. Depending on the progression of the virus, it is possible that the College may have to suspend face-to-face instruction for part of the semester. If we must stop face to face instruction anytime during the semester, your instructor will contact you via your SMCC email or the Brightspace course homepage to discuss next steps for the course.

ADA Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call (207) 741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

The Learning Commons:

The library, tutoring and writing centers, and reference/research assistance (typically located on the second floor of South Portland's Campus Center and in the Midcoast's LL Bean Learning Commons and Health Science Center) will be fully available online during the fall 2020 semester.

Here you can find free academic support through individually scheduled and drop in, online tutoring. You can also find information literacy/research librarians, and professional academic strategy/planning mentoring online. While the physical space of the Learning Commons will not be available at this time, we can also work with you to set up zoom classrooms for small group study. Services are offered by appointment or as drop-in assistance.

To access services:

- Visit My Learning in My Maine Guide or
- Select the "tutoring needed" button if it appears inside your Brightspace course.

Whether On Site or Online, students have consistently reported that the Learning Commons is a friendly, risk-free, and helpful place to seek academic support. It has also been shown that those who make use of the Learning Commons do better in a course than those who do not. We strongly encourage you to take advantage of this valuable and enjoyable resource.

SMCC Pay-for-Print Policy

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen,

near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an e-mail to helpdesk@smccme.edu.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Add-Drop Policy

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses, usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct