



South Portland, Maine 04106

## Computer Information Technology

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**Title:** Network Fundamentals

**Catalog Number:** CMIT 105

**Credit Hours:** 3

**Total Contact Hours:** 45

**Lecture (or Lab):** Lecture - Lab

**Instructor:** Rebecca Test

**Office Hours – Location:** TBA

**Contact Information:** rtest@smccme.edu

**Website** <http://test.smccme.edu>

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**Web Site** <https://sites.google.com/a/smccme.edu/cmit-105-network-fundamentals/>

### Course Syllabus

#### Course Description

This course gives students the technical skills and industry know-how required to installing, configuring, and troubleshooting computer networks. Topics include the OSI Model, TCP/IP, Ethernet, topologies, hardware, and network design, wireless transmission, and security concepts. The course teaches towards the CompTIA's Network+ N10-005 certification exam.

Co-requisites: MATH 050, ENGL 050 or ENGL 075

#### Course Objectives / ACM Learning Outcomes

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:// http://www.acmcecc.org/](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. Analyze the fundamentals of network topologies
2. Describe the physical layers of networks
3. Identify the components of interconnecting networks
4. Describe the TCP/IP layers
5. Apply the fundamentals of routers
6. Apply the fundamentals of switches
7. Troubleshoot analyze computer networks
8. Identify the fundamentals of Network Security

**Weekly Learning Objectives: NOTE that chapter readings may be scheduled differently depending on availability of VM infrastructure and network lab. My website should be reviewed weekly for updated schedule of assignments.**

CMIT 105 Network Fundamentals		
Week	Lecture Topics	Readings and Labs - Assignments
1	Chapter 1: Introduction to Networking - OSI Model. <b>Part 1</b>  Welcome to SMCC and introductions.	<b>Assignments:</b> Purchase book Email Instructor Assignment. <b>Read</b> Chapter 1.  Homework: Review questions Page 39 -42  <b>Read</b> Chapter 2  <b>Lab Getting</b> started installing your VM.
2	<b>Chapter 1:</b> Introduction to Networking - OSI Model. <b>Part 2</b>  <b>Chapter 2:</b> How Computers Find Each Other on Networks <b>Part 1</b>	<b>Read</b> Chapter 2  <b>Assignments:</b> Homework: Review questions Page 90 - 93  <b>Read:</b> Chapter 3 <b>Lab</b>
3	<b>Chapter 2:</b> How Computers Find Each Other on Networks <b>Part 2</b>  <b>Introduction Binary</b>  <b>Chapter 3:</b> How Data Is Transported Over Networks <b>Part 1</b>	<b>Read:</b> Chapter 3  <b>Assignments:</b> Homework: Review questions Page 143 - 145  <b>Lab</b>  <b>Study for Quiz See website for topics</b>
4	<b>Chapter 3:</b> How Data Is Transported Over Networks <b>Part 2</b>  <b>Introduction Binary</b>  <b>QUIZ</b>	<b>Read:</b> Chapter 4  <b>Assignments:</b> Homework: Review questions Page 197 – 199  <b>Lab</b>  <b>Quiz Week 4</b>
5	<b>Chapter 4:</b> Structured Cabling and Networking Elements  <b>Introduction Subnetting</b>	<b>Read</b> Chapter 5  <b>Assignments:</b> Homework: Review questions Page 263 - 265  <b>Lab</b>

6	<b>Chapter 5:</b> Network Cabling  <b>Subnetting CIDR</b>	<b>Read</b> Chapter 6  <b>Assignments:</b> Homework: Review questions Page 322 - 324  <b>Lab</b>
7	<b>Chapter 6:</b> Wireless Networking  <b>More Subnetting CIDR</b>	<b>Read</b> Chapter 7 <b>Assignments:</b> Homework: Review questions Page 372 - 374  <b>Lab</b>  <b>Study for Midterm. See website for topics.</b>
8	<b>Chapter 7:</b> Cloud computing and Remote Access <b>Part 1</b>  <b>MIDTERM</b>	<b>Read</b> Chapter 8  <b>Assignments:</b> Homework: Review questions Page 423 - 425  <b>Lab</b>
9	<b>Chapter 7:</b> Cloud computing and Remote Access <b>Part 2</b>  Review Midterm Answers	<b>Read</b> Chapter 8  <b>Assignments:</b> Homework: Review questions Page 423 - 425  <b>Lab</b>
10	<b>Chapter 8:</b> Network risk Management <b>Part 1</b>	<b>Assignments:</b> Homework: Review questions Page 39 -42  <b>Lab</b>  <b>Read</b> Chapter 8
11	<b>Chapter 8:</b> Network risk Management <b>Part 2</b>	<b>Read</b> Chapter 9  <b>Assignments:</b> Homework: Review questions Page 479 - 481  <b>Lab</b>  <b>Study for Quiz See website for topics</b>
12	<b>Chapter 9:</b> Unified communication and Network Performance Management <b>QUIZ</b>	<b>Read</b> Chapter 10  <b>Assignments:</b> Homework: Review questions Page 536 -538  <b>Lab</b>
13	<b>Chapter 10:</b> Network Segmentation and Virtualization Part 1  Review Quiz Answers	<b>Read</b> Chapter 11  <b>Assignments:</b> Homework: Review questions Page 596 - 598  <b>Lab</b>

14	<b>Chapter 11:</b> Network Segmentation and Virtualization Part 2	<b>Read</b> Chapter 12  <b>Assignments:</b> Homework: Review questions Page 629 - 631  <b>Lab</b>
15	<b>Chapter 12:</b> Industrial and Enterprise Networking	<b>Study for Final Exam</b> <b>See website for topics</b>
16	<b>FINAL Exam</b> Chapters 1 – 12	

### Student Evaluation and Grading

Attendance/Participation	15%
Labs	30%
Quizzes	25%
Midterm - Final	30%

A	93 - 100	C+	77 - 79
A-	90 - 92	C	73 - 76
B+	87 - 89	C-	70 - 72
B	83 - 86	D+	67 - 69
B-	80 - 82	D	63 – 66
		F	62.999

### Text, Tools and / or Supplies

#### Network+ Guide to Networks, 7th Edition

- **Jill West**
- **Tamara Dean**
- **Jean Andrews**
- **ISBN-10:** 1305090942 | **ISBN-13:** 9781305090941

### Attendance Policy

Regular and prompt attendance will contribute to your success in this class. Missing 3 consecutive classes will result in being recorded as AF **Administrative Failure**. 3 or more unexcused absences will result in academic failure. If you are 10 minutes late or more to class, 3 points will be deducted from your attendance grade for the day. If you are late to class 3 or more times, it will count as one absence.

An absence maybe excused if it is a family emergency and does not exceed more than 2 classes. Vacations, sleeping in or poor planning does not constitute an excused absence.

## **Assignment Policy:**

- Assignments are due at the beginning of class.
- All email and assignments must be submitted from your SMCC account.
- An assignment will be considered late if it is turned in 10 minutes after class starts.
- Ten Points will be deducted for each day the assignment is late.
- Assignments should be uploaded into your Google drive along with a hard copy the day the assignment is due unless otherwise specified.
- Assignments uploaded to your Google drive later than the time the assignment is due will receive a 5 point penalty each day they are absent from your drive. This statement assumes that you have turned in a hard copy on time otherwise, 10 points will be deducted for each day the assignment is late.

## **Makeup Policy:**

- If for any reason a student is absent from a class, it is the responsibility of the student to obtain any lecture notes from another student and to immediately schedule with the instructor a makeup time for any missed in-class assignments.
- All assignments, tasks and tests that are submitted or completed after the scheduled time and date shall receive a 10 point grade reduction for day that they are late. In some cases you may not be able to make up the lab due access to equipment so it is highly recommended that you attend every class.
- Quizzes and exams must be made up before the next class period after the quiz date.
- Although, as stated by this policy, most absences are unexcused, however in unusual cases, or in cases of documented, valid, and urgent medical or personal emergency, the discretion of the instructor will apply.

## **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 PM following the last day of the class. You will receive an email to your student email account when course evaluations are available.

## **ADA Syllabus 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.

## **SMCC Pay-for-Print Policy**

### **Per Page Costs**

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The cost varies depending upon page size and whether printing is done in black and white or color.

- a. There is a \$0.10 per page fee for standard 8.5" by 11" black and white documents.
- b. The reverse sides of duplex (double-sided) documents are free.
- c. There is a \$.50 per page fee for standard 8.5" by 11" color documents.
- d. There is a \$.20 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) black and white documents.
- e. There is a \$1.00 per page fee for 8.5" by 14" (legal) or 11" by 17" (tabloid) color documents.

Duplex charges (printing on both sides of a page) work in the following fashion: One page is \$0.10, two pages are \$0.10, three pages are \$0.20, and four pages are \$0.20, etc. The flipsides are free, but another sheet of paper is \$0.10. Please be aware that a document with any color at all (when printed to a color printer) will by default be printed in color. You are responsible for setting the print job to print black and white if you do not need color. For directions, please go to the IT Help tab in My SMCC.

### **How does it work?**

The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, the Academic Achievement Center, Noisy Lounge and technology labs). 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.

### **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.

### **Why is SMCC charging for printing?**

The pay-for-print system is an effort to control escalating printing costs. Charging for printing helps offset the increasing cost of supplies and encourages students to conserve resources. 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 email to [helpdesk@smccme.edu](mailto:helpdesk@smccme.edu).

Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your 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. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Enrollment Service Center (no phone calls, please). The designation “W” will appear on the transcript after a student has officially withdrawn. A course withdrawal is an uncompleted course and may adversely affect financial aid eligibility. Failure to attend or ceasing to attend class does not constitute withdrawal from the course. There is no refund associated with a withdrawal.

**Plagiarism Statement**

Adherence to ethical academic standards is obligatory. Cheating is a serious offense, whether it consists of taking credit for work done by another person or doing work for which another person will receive credit. Taking and using the ideas or writings of another person without clearly and fully crediting the source is plagiarism and violates the academic code as well as the Student Code of Conduct. If it is suspected that a student in any course in which s/he is enrolled has knowingly committed such a violation, the faculty member should refer the matter to the College’s Disciplinary Officer and appropriate action will be taken under the Student Code of Conduct. Sanctions may include suspension from the course and a failing grade in the course. Students have the right to appeal these actions to the Disciplinary Committee under the terms outlined in the Student Code of Conduct.