CENT 140 Computer Networking I
Syllabus Fall 2012

Instructor:	Sally Dunan
Office:	Bldg 13, Rm 107
Office hours:	MW: 11:30 AM - 12:30 PM TR: 8:00 - 8:30 AM, 11:30 - 12:30 PM, 3:30 - 4:00 PM F: by appointment
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Course Website:	https://laulima.hawaii.edu/access/content/group/HON.20024.201310/index.html
Class Time & Place:	TR 08:30-11:20 AM, Bldg 13, Rm 104

Course Description: This course introduces the OSI and TCP/IP models, industry standards, commonly used network topologies, IP addressing using subnet masks and variable length subnet masks, basic network copper cabling, routing concepts and the configuration and use of routers.

Prerequisites: CENT 130

Note: This course covers a wide range of concepts and terminology related to networking. Students should expect to spend 10 hours per week, or more, outside lecture and lab studying course materials.

Student Learning Outcomes: Upon completion of this course the student will be able to:

- Correctly name and describe the functions performed at each layer of the OSI and TCP/IP reference models. (**)
- Compare the OSI and TCP/IP networking models. (**)
- Use a protocol analyzer to examine network traffic and the details of TCP/IP packets.
- Design IP networks according to specifications, including creating appropriate subnet designs and assigning IP addresses. (**)
- Describe WAN standards and protocols.
- Explain the functions of routing and network layer protocols.
- Describe distance vector routing protocols.
- Identify commonly used distance vector routing protocols such as RIP and IGRP.
- Identify EIGRP as an advanced distance vector routing protocol.
- Describe link state routing protocols.
- Identify commonly used link state routing protocols such as OSPF and IS-IS.
- Perform basic router configurations including hostnames, passwords, ethernet interfaces, serial interfaces. (**)
- Configure static routing and dynamic routing protocols including RIP version 1, RIP version 2, EIGRP, and OSPF. (**)
- Design, set up and configure a network using at least two routers, including specified routing protocols. (**)

** outcomes that are very important for success in this course.

Course Content:

Networking Fundamentals (EXP1)

- Networking Terminology and Models. Networking devices, topologies, protocols, OSI model, TCP/IP model, peer-to-peer communication, encapsulation and networking industry standards.
- Services and functions of the TCP/IP Application Layer.
- Examining TCP/IP packets using a protocol analyzer.
- Functions and operation of the TCP/IP and OSI Transport Layers.
- Functions and operation of the TCP/IP Internet Layer and OSI Network Layer.
- Network Layer Addressing. Decimal, binary, dotted decimal notation, IP addressing, subnetting and network masks.
- OSI Data Link Layer functions and framing.
- OSI Physical Layer, industry standards, copper cabling.
- Ethernet fundamentals, technologies, switching.

- MAC addressing. Hexadecimal, MAC addresses.
- Planning and Cabling LANs and WANs. Basic network configuration, troubleshooting and password recovery.

Routing Protocols and Concepts (EXP2)

- Introduction to Routing and Packet Forwarding, WANs and Routers, Basic Router Configuration
- Cisco Discovery Protocol, Cisco IOS Software, Router Boot Sequence and Cisco File System.
- Static Routing
- Dynamic Routing Protocols
- Distance Vector Routing Protocols
- RIP Version 1
- VLSM and CIDR
- RIP Version 2
- The Routing Table
- EIGRP
- Link-State Routing Protocols
- OSPF

Textbooks: The course uses the on-line material provided by the Cisco Networking Academy. The following textbooks are required.

- *Network Fundamentals, CCNA Exploration Companion Guide*, Dye, Cisco Press, 2008, ISBN: 9781587132087. This is a hard copy version the material for the first half of the course. HCC bookstore prices: used - $45.05 ; new - $59.25.
  Cisco Press: http://www.ciscopress.com/bookstore/product.asp?isbn=1587133482
- *Routing Protocols and Concepts, CCNA Exploration Companion Guide*, Graziani, Cisco Press, 2008, ISBN: 9781587132728. HCC bookstore prices: used - $45.05; new - $59.25.
  This is a hard copy version of the material for the second half of the course.
  Cisco Press: http://www.ciscopress.com/bookstore/product.asp?isbn=1587132729

The following may be a useful reference to the commands used for configuring routers (and switches).

- CCNA Portable Command Guide, 2nd Edition, Empson, Cisco Press, ISBN: 9781587201936.
  Cisco Press: http://www.ciscopress.com/bookstore/product.asp?isbn=1587201933

Course Website: The course schedule, lecture notes, assignments and additional references will be posted on the Laulima course web site, which requires logging in using your MyUH login name and password.

Elements of Student Evaluation: Students will be evaluated on the items listed below. The approximate weighting for each area is shown. The relative weighting of each area may change, if deemed appropriate.

Assignment Type	**Number**	**Percentage**
Lab Assignments	34	10 %
Online & Written Quizzes (assigned as homework)	24	10 %
Case Studies	2	20 %
Cisco Online Final Exams (EXP1 & EXP2)	2	20 %
Cisco Online Feedback Surveys (EXP1 & EXP2) **(REQUIRED for GRADE)**	2	0
In-class Written Exams (EXP1 & EXP2)	2	20 %
Skills Exams (EXP1 & EXP2)	2	20 %
Total		100 %

Grading Scale: A standard 10% grading scale will be used. (A = 90%, B = 80%, C = 70%). This is NOT a points-based course. Each element is weighted according to the percentages indicated above.

Quizzes: Quizzes will include written quizzes and Cisco on-line chapter quizzes. Quizzes will be assigned as homework. Cisco quizzes may be retaken for practice prior to the Cisco on-line final exams. The last score recorded in the Cisco gradebook for any on-line quiz is the score that will be used for determining the final course grade.

Lab Assignments: Labs provide the hands-on experience necessary for this course. Labs may be performed in class or assigned as homework. Labs are normally due the week following the week during which they are assigned, but this may vary. Check your individual progress report to determine actual due dates for each assignment.

Case Studies: Case studies are comprehensive lab-type assignments involving network design and network configuration. A written report including documentation of network design and configuration is required for the case studies. Check the individual progress report to determine due dates for case studies.

Exams: The course exams include the Cisco on-line final exams, in-class written exams, and final skills exams for each of the Cisco networking curriculum EXP 1 and EXP 2 courses. The skills exams will require network design and network configuration. All exams are closed book, closed notes, and will be given in class. No calculators are permitted. An exam may be made up in the case of an excused absence.

Late Policy: The penalty for late work is 10% of the points possible for the assignment per week late. A one week grace period is allowed. Both the late penalty and grace period are built into the grading database.

Expected Student Workload: Students should expect to spend a minimum of 12 hours per week on this course including class time, assignments, and related reading. Students for whom this material is new may find that they need to spend considerably more time studying for this course.

Attendance: If you are late or miss class, as a professional courtesy, please leave a voice mail message or send email with a simple explanation (e.g., sick, had a car problem, overslept, etc.) of the reason for the absence or tardiness. If you have an ongoing time conflict, such as a work schedule that requires you to routinely leave early, please discuss the situation with me in advance so that I can be aware of it. Attendance is essential to success.

Unofficial Drops and N Grade: Students who disappear without officially dropping the course will receive an F. If you encounter conflicts with completing course requirements, please see me to discuss possible grading options, such as an N grade. The N grade will be given at the discretion of the instructor and is not automatic.

Professional Work Habits and Ethics: Students are expected to demonstrate a professional attitude and work habits throughout the course. Factors that reflect professionalism include attendance and punctuality, attentiveness in class, ethical work, work quality, and behavior and language, as described in the separately provided document. Egregious or repeated failure to demonstrate professional and ethical work habits will result in failing the course.

Networking Lab Access: You can work in the networking lab in Bldg 13, Rm 104, to complete lab assignments when other classes are not in session. See Gerald Chen (Bldg 13, Rm 103, Tel. 844-2332) for access to the lab outside regular class hours. Access to CENT labs outside of class is intended for the purpose of completing assigned course work only.

School Computer Lab: HCC maintains a computer lab for student use in Bldg 2, Rm 405A. All students can use this lab to check email, study, work on assignments, etc.

Student Email Accounts: The course email list will use your UH System email address, which is the same as your "MyUH_account"@hawaii.edu. You can set your UH email account to automatically forward email to any account you prefer to use for email.

Student Regulations: A summary of Student Regulations and the Student Conduct Code are posted on the HCC web site. Complete copies of the Student Conduct Code are available from the office of the Dean of Students.

Student Access: Students who have disabilities requiring special accommodation should contact the Student Health Office or the College Skills Center to document their disabilities and request necessary accommodations.