Cover Sheet: Request 13476

CNT 4007 Computer Network Fundamentals

Info

Process	Course|Modify|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Richard Newman nemo@ufl.edu
Created	1/4/2019 3:09:42 PM
Updated	8/20/2019 10:05:55 AM
Description of request	Change laboratory designation from "C" to none; reduce credit hours from 4 to 3; modify course description to reflect these changes and the teaching approach currently used.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Computer and Information Science and Engineering 011914001	Arunava Banerjee		3/15/2019
No document changes					
College	Conditionall Approved	ENG - College of Engineering	Heidi Dublin	Conditionally Approved by the HWCOE Curriculum Committee. Resubmit with other related items when updates have been made. Notes from meeting: Syllabus needs to be uploaded and include detailed explanation of why it's moving from a 4 to 3 credit course.	4/10/2019
cnt4007_syllabus_sp19.doc					4/8/2019
Department	Approved	ENG - Computer and Information Science and Engineering 011914001	Arunava Banerjee	Syllabus has been uploaded as requested by CoE CC.	4/16/2019
No document changes					
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved. Department indicates items have been addressed.	8/20/2019
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			8/20/2019
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					

Step	Status	Group	User	Comment	Updated
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|Modify for request 13476

Info

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Description of request: Change laboratory designation from "C" to none;
reduce credit hours from 4 to 3;
modify course description to reflect these changes and the teaching approach currently used.
Submitter: Richard Newman nemo@ufl.edu
Created: 1/4/2019 3:00:08 PM
Form version: 1

Responses

Current Prefix CNT
Course Level 4
Number 007
Lab Code C
Course Title Computer Network Fundamentals
Effective Term Earliest Available
Effective Year Earliest Available
Requested Action Other (selecting this option opens additional form fields below)
Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? Yes
Current Lab Code C
Proposed Lab Code None
Change Course Title? No

Change Transcript Title? No

Change Credit Hours? Yes
Current Credit Hours 4
Proposed Credit Hours 3
Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Maximum Repeatable Credits 3
Change Course Description? Yes
Current Course Description Credits: 4; Prereq: COP 4600.
Fundamental concepts, principles and standards of computer networks. Topics are introduced in

bottom-up approach, starting from physical layer in OSI system architecture with a stronger focus on data link, mac, network and transport layers. (M)
Proposed Course Description (50 words max) Credits: 3; Prereq: COP 4600.
Fundamental concepts, principles and standards of computer networks. Topics are introduced in top-down approach, starting with the application layer in the OSI system architecture with a stronger focus on application, transport, and network layers. (M)
Change Prerequisites? No

Change Co-requisites? No

Rationale The department no longer includes a combined laboratory with the course, as students do relevant exercises and projects using their own machines. Hence, the lab designation of "C should be removed and the credit hours reduced from 4 to 3.
In addition, the department now teaches the course in a top-down approach rather than the bottom-up approach used previously, so the text of the course description should reflect this change.

Computer Network Fundamentals

CEN 4007C Section 11387

Credits: 4

Class Periods: M,W,F | Period 4 (10:40 AM - 11:30 AM)

Location: TUR L005

Academic Term: Spring 2019

Instructor:
Richard Newman
nemo-at-ufl-dot-edu
Office Phone Number: 352-392-1200
Office Hours: MWF 11:30-12:30, CSE-E340

Teaching Assistants:
Please contact through the Canvas website

- Steve Kirkman, kirkman-at-ufl-dot-edu, CSE-E309, office hours TBA
- Ziyu Shu, ziyushu-at-ufl-dot-edu, CSE-E309, office hours TBA

Course Description
Credits: 4; Prereq: COP 4600.
Fundamental concepts, principles and standards of computer networks. Topics are introduced in bottom-up approach, starting from physical layer in OSI system architecture with a stronger focus on data link, mac, network and transport layers. (M)

Course Pre-Requisites / Co-Requisites
COP 4600 Operating Systems

Course Objectives
This course is an introductory survey of the design and implementation of computer networks. We will focus on the concepts and fundamental design principles that have contributed to the global Internet's scalability and robustness and will survey the underlying technologies --- e.g., HTTP, DNS, TCP/IP Protocols, Ethernet, and routers --- that have led to the Internet's phenomenal success.

Topics include: application/transport/network/data-link layer protocols, congestion/flow/error control, routing, addressing, multicast, packet scheduling, switching, internetworking, and networking programming interfaces. There will be both written and programming assignments.

The successful student will be able to:

- Describe the layers of the OSI reference architecture and explain the role of each
- Describe relevant metrics and estimate values for a given network scenario
- Describe packet formats and explain how the fields are used
- Compare network designs and select the best one for a given usage
- Capture and analyze network traffic
- Explain reliable transmission challenges and estimate transmission reliability
- Explain the difference between routing and forwarding and explain routing protocols
- Develop a networked application

Materials and Supply Fees

n/a

Professional Component (ABET):

State the contribution of the course to meeting the professional components of the ABET-accredited degree. Applicable only to ABET course within the degree program.

Relation to Program Outcomes (ABET):

Outcome	Coverage*
a. Apply knowledge	Medium
b1. Conduct experiments	Medium
b2. Statistical design of experiments	
c. Design	High
d. Function on teams	Low
e. Solve problems	High
f. Professional and ethical responsibility	Low
g. Communicate	Low
h1. Economic impact	Low
h2. Global, societal, and environmental impact	Low
i. Lifelong learning	Medium
j. Contemporary issues	Medium
k. Techniques, skills, and tools for degree program	High

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not part of the course.

Required Textbooks and Software

- Computer Networking: A Top-Down Approach, 6/e
- James F. Kurose & Keith W. Ross
- 2016 Addison Wesley
- ISBN 0132856204

(You may also use the 7th edition, but the problems will be from the 6th edition)

Recommended Materials

- Textbook website: http://gaia.cs.umass.edu/kurose_ross/
- Wireshark labs: http://www-net.cs.umass.edu/wireshark-labs/

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance is not required for most classes, but is mandatory for quizzes and examinations. Participation in online homework discussions will be included in your grade also.

Cell phones and pagers must be silent during class. Reading emails, facebook, etc. is appropriate at some other time and place.

Questions are encouraged - raise your hand to be recognized. Try to formulate the question before asking it, and wait to see if it is answered in a few minutes so we can maintain flow. Lengthy discussions will be deferred to office hours.

Most weeks there will be a timed, on-line quiz taken in class, or homework discussion post due Sunday, with responses due Tuesday.

There are no makeups for missed quizzes, but the lowest quiz will be dropped. Quizzes submitted more than 10 minutes late will be docked one point, and none will be accepted after the deadline. If you will not be in class when a quiz is given, you must obtain permission from the instructor ahead of time.

Homework assignments will be posted, and you are required to post a response to all of the questions, then comment on at least one other response. In-class challenges will be collected in class.
There will be several exercises using wireshark, due on Monday. You will be required to submit screenshots and answer some questions for each of these.
There will also be two programming projects.
Projects and exercises are all to be done on an individual basis, unless otherwise indicated. Late penalty is one point per partial day late.
You are encouraged to discuss both textbook material and projects with others in the class. However, you may NOT share code.
Homeworks and exercises may be accepted after the due date at a penalty of one point per partial day until submissions are no longer accepted (typically 2 days to one week after the due date). It is wise to start on these early in case you find them more difficult than you anticipated.
There will be three incremental examinations during the term. If you score well enough on these, then you will be excused from the final examination.
Excused absences must be consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

Course Schedule

Week 1: 1.1-1.3 Introduction
Week 2: 1.4-1.7 Metrics and estimation/wireshark laboratory 1 due/quiz 1
Week 3: 2.1-2.2 Application layer, HTTP/quiz 2
Week 4: 2.3-2.5 FTP, SMTP, DNS/wireshark laboratory 2 due/quiz 3
Week 5: 2.6-2.8 P2P, sockets/wireshark laboratory 3 due/quiz 4
Week 6: 3.1-3.4 Transport layer, UDP/exam 1
Week 7: 3.4-3.5 Reliable delivery, TCP/wireshark laboratory 4 due/quiz 5
Week 8: 3.5-3.7 TCP, congestion control/wireshark laboratory 5 due/quiz 6
Week 9: 3.7-3.8 Congestion control/exam 2
Week 10: 4.1-4.3 Network layer, routing/project 1/quiz 7
Week 11: 4.4-4.5 IP, routing protocols/wireshark laboratory 6 due
Week 12: 4.5-4.6 Routing protocols, RIP, OSPF/quiz 8
Week 13: 4.7-4.8 Broadcast, BGP/wireshark laboratory 7 due
Week 14: 5.1-5.5 Link layer/project 2/quiz 9
Week 15: 5.6-5.8 Link layer/wireshark laboratory 8 due/exam 3
Week 16: Final examination by invitation 5/2/2019 10:00 am – 12:00 pm

Evaluation of Grades

Assignment	Points each	Percentage of Final Grade
Homework Sets	3	5
Quizzes	10	5
Exercises	10	20
Projects	variable	20
Exams	20	50
		100

Grading Policy

The following is given as an example only. Percentages needed to achieve a particular grade may be adjusted downward to reflect examination curving.

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/evals. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and

rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:
http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

Commitment to a safe and inclusive learning environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination.
It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.
If you feel like your performance in class is being impacted by discrimination or harassment of any kind please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@ufl.edu

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the Office of Title IX Compliance, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu.

Campus Resources:

Health and Wellness

U Matter, We Care:
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. https://www.crc.ufl.edu/.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints*:* http://www.distance.ufl.edu/student-complaint-process.