



SACRAMENTO
STATE

Course Change Proposal Form A



Academic Group (College): Engineering & Computer Science	Academic Organization (Department): Computer Science Department	Date: November 12, 2008
Type of Course Proposal: New ___ Change <u>X</u> Deletion ___	Department Chair: Anne-Louise Radimsky	Submitted by: Anne-Louise Radimsky
Does this course fulfill a requirement for single-subject or multiple subject credential students? Yes ___ No <u>X</u>	For Catalog Copy: Yes <u>X</u> No ___ CCE (Extension): Yes ___ No <u>X</u>	Semester Effective: Fall <u>X</u> Spring __, 2009 __

This course replaces experimental course Subject Area (prefix) and Catalog Nbr (course number):	
If changing an existing course, should new version be considered a repeat of the original version? If so, the same Course ID will be maintained. If not, a new Course ID will be assigned. Note: In PeopleSoft terminology, the Course ID is the unique system identifier, not the Catalog Nbr.	Yes <u>X</u> No ___

Change from:

Subject Area (prefix) & Catalog Nbr (course no.): CSC 275	Title: Advanced Data Communication Systems	Units: 3
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Change to:

Subject Area (prefix) & Catalog Nbr (course no.): N/A	Title: N/A	Units: N/A
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JUSTIFICATION:

Change in prerequisite only. Current Catalog Prerequisite is: CSC 138 or CPE 138 or CSC 205. The proposed New Catalog Prerequisite is: Fully classified graduate status in Computer Science, Software Engineering, or Computer Engineering. The proposed change will better reflect the level of preparation students are expected to have. The change will also allow fully classified graduate students to enroll in CSC 275.

NEW COURSE DESCRIPTION: (Not to exceed 80 words, and language should conform to catalog copy. See <http://www.csus.edu/umannual/acad.htm> - Guidelines for Catalog Course Description)

N/A

Note:

Prerequisite: Proposed new prerequisite: Fully classified graduate status in Computer Science, Software Engineering, or Computer Engineering.
Enforced at Registration: Yes X No ___

Corequisite:
Enforced at Registration: Yes ___ No ___

Graded: Letter <u>X</u> Credit/No Credit ___	Instructor Approval Required? Yes ___ No <u>X</u>
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Course Classification (e.g., lecture, lab, seminar, discussion): Seminar	Title for CMS (not more than 30 characters) Adv Data Communicat Systm
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Cross Listed? Yes ___ No <u>X</u>	If yes, do they meet together and fulfill the same requirement, and what is the other course.
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How Many Times Can This Course be Taken for Credit? 1

Can the course be taken for Credit more than once during the same term? Yes No X

FOR NEW COURSE PROPOSALS OR SUBSTANTIVE CHANGES ONLY:

Description of the Expected Learning Outcomes: Describe outcomes using the following format: "Students will be able to: 1), 2), etc."
See the example at <http://www.csus.edu/acaf/example.htm>

****Attach a list of the required/recommended course readings and activities [Note: it is understood that these are updated and modified as needed by the instructor(s).] This attachment should be forwarded only to your Dean's office, not Academic Affairs.**

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above:

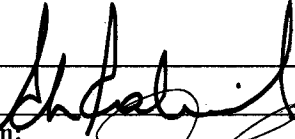
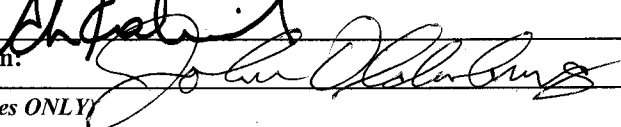
For whom is this course being developed?
Majors in the Dept Majors of other Depts Minors in the Dept General Education Other
Is this course required in a degree program (major, minor, graduate degree, certificate)? Yes No
If yes, identify program(s):

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer facilities, faculty, etc.)? Yes No
If yes, attach a description of resources needed and verify that resources are available.

Indicate which department or programs will be affected by the proposed course (if any). _____

The Department Chair's signature below indicates that affected programs have been sent a copy of this proposal form.

Approvals: If proposed change, new course or deletion is approved, sign and date below. If not approved, forward without signing to the next reviewing authority, and attach an explanatory memorandum to the original copy.

Signatures:	Date
Department Chair: 	12/9/08
College Dean or Associate Dean: 	12/9/08
CPSP (for school personnel courses ONLY)	
Associate Vice President and Dean for Academic Programs	

Distribution: Academic Affairs (original), Department Chair and College Dean. Dean's office to send original after approval to Academic Affairs, at mail zip 6016. An electronic copy must also be sent.

CSUS

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE
Department of Computer Science (RVR 3018; 278-4238/6834)

C Sc 275 – Advanced Data Communications, Spring 2008 (TR 4-5:15p; LIB 128)

INSTRUCTOR: *Isaac Ghansah*

Office: RVR (ECS)-4004; Phone:278-7659;

Email: ghansah@csus.edu (Please insert "CSc275 -" somewhere in the subject line);

WWW: <http://gaia.ecs.csus.edu/~ghansahi/> ;

Office Hours: M 645-715p, T 1-3:30p; or by appointment

CATALOG DATA:

Fundamental concepts, principles and issues of Data Communication Systems. The ISO/OSI reference model is used as a vehicle for discussion and the course emphasizes lower layers of the model. Specific topics include: motivation and objectives, layered architectures, physical layer principles and protocols, data link and multiple-access control principles and protocols, circuit and packet switching, local area network design principles and performance comparisons, introduction to wide area network architectures. Typical examples and standards are cited for point-to-point, satellite, packet radio and local area networks.

PREREQUISITE: C Sc/Cp E 138 or C Sc 205, or permission of instructor.

Prerequisite Proof:

The department now has a policy requiring every student in every course to provide transcripts showing proof that they have appropriate prerequisites. Every student must provide this documentation in order to be permitted to enroll in this course. It is the responsibility of the student to provide such documentation by providing a transcript with the said prerequisites highlighted. **To do this you must submit to the instructor a copy of your transcript from CMS. You can do so by** going through to your "Student Center" and selecting "Unofficial Transcripts" to print. This report has your Sac State grades. You can also select and print "Transfer Credit Report." This must be done within the first two weeks of classes. Any student who does not provide such verification will be dropped from the class. Any student who has completed one or more prerequisites at another school must provide similar verification to the instructor.

Repeat Policy:

The department has a policy specifying that students may not repeat a Computer Science course more than once. Any student who wishes to repeat a course more than once (that is, take a course for a third time) must submit a petition requesting permission to do so. Student records will be reviewed to determine whether a student is taking this course for three or more times. Any such student must return an approved petition to the instructor within the first two weeks of class. Any student who does not submit an approved petition will be dropped from the class. Petitions are available in the Department office (RVR 3018) and require the signature of both the Instructor and the Dept. Chair.

TEXTBOOKS:

1. Alberto Leon-Garcia and Indra Widjaja, *Communication Networks*, 2/e, McGraw-Hill, 2004 (Required)
2. Ghansah, I., C Sc 275 Class Notes, 2008, <http://gaia.ecs.csus.edu/~ghansahi/> (required)

REFERENCES:

3. W. Stallings, *Data and Computer Communications*, 8/e, Prentice Hall, 2006
4. L. Peterson and B. Davie, *Computer Networks 4 Ed*, 2007, Morgan Kaufmann.
5. *Recent Articles* from the technical literature and product information from manufacturer's literature.

GOALS/EXPECTED OUTCOME:

1. To develop state-of-the-art knowledge of advanced topics in data communications.
2. To develop breadth and depth of knowledge of commercially available local and metropolitan area networks.
3. To provide understanding of modern data communication hardware/software interfaces, architectures, configurations, and protocols.
4. To provide programming experience in implementing serial drivers for data link protocols.

PREREQUISITES BY TOPIC:

1. Computer Organization.
2. Telecommunication vocabulary and concepts
3. Computer Interfacing
4. Probability theory

GRADING POLICY:

Midterm	20%
Final	35%
Homework	20%
Project/Oral and Written Communication	20%
Attendance to Oral Presentations	5%

Grading Breakdown (%)

A=93-100	C=73-76
A-=90-92	C-=70-72
B+=87-89	D+=67-69
B=83-86	D=63-66
B-=80-82	D-=60-62
C+=77-79	F=59 or below

You are required to keep backup (machine-readable) copies of all submitted work, and also to keep all returned (graded) work, until after final grades are posted.

COURSE POLICIES:

1. Information in this syllabus is subject to change with notice.
2. Attendance to class and frequent check of email is expected. Class roll will not be checked after first week of classes. However, you are responsible for material presented and announcements made in class or by email. This could include changes to the syllabus, exam dates, etc.
3. Late assignment/project will be penalized by 20% if one lecture late. Nothing will be accepted if more than one lecture late, or if solution has been posted.
4. Make-up exams will only be given under extreme circumstances. The instructor reserves the right to reject make-up requests.
5. Be aware of the school's policy on *drops, incomplete, repeats, and cheating (Academic Dishonesty)*.

Ethics/Academic Honesty

Any work submitted is a contractual obligation that the work is the student's and for which he/she could be quizzed in detail. Discussion among students in assignments and projects is part of the educational process and is encouraged. No discussion among students is allowed in any exams/quizzes. However, each student must make an effort to do his/her own work in all assignments and exams. No type of plagiarism will be tolerated except in the case of group work. In that case each student should indicate the part of the work, which was their major responsibility in their final joint submission. Nevertheless, I emphasize any work submitted is a contractual obligation that the work is the student's and for which he/she could be quizzed in detail. *The minimum penalty for even a single incident of cheating brought to the attention of the instructor in this course is automatic failure of the course; additional more severe penalties may also be applied. Note that cheating is grounds for dismissal from the University.*

Please refer to the Computer Science Dept. document entitled "Policy on Academic Integrity" (available online via the Computer Science department, www.ecs.csus.edu/csc home page) and to the University Policy Manual section on Academic Honesty (all available online via the instructor's home page) for additional information. *IT IS THE RESPONSIBILITY OF EACH STUDENT TO BE FAMILIAR WITH, AND TO COMPLY WITH, THE POLICIES STATED IN THESE DOCUMENTS. In addition, unless otherwise stated, the use of the following devices during exams/quizzes is prohibited: cell phones, pagers, laptops, and PDAs.*

ADVICE on WORKLOAD and CLASS NOTES:

There are a lot of *reading assignments*. You should endeavor to read the assigned pages before coming to class. There will also be *homework* assignments to be handed in. In addition, you will be required to complete an *independent project*, which is worth a considerable fraction of your grade for the course.

The *class notes are online* and should be considered as a guide. Many parts of it are not detailed enough to be self-contained. In addition, experience shows that new

material is added every semester. Therefore, *attendance* to class is necessary in order to understand the details.

INDEPENDENT PROJECT/ORAL AND WRITTEN COMMUNICATION

Independent student projects involving programming (ie. simulation or implementation), or research paper.

A list of possible projects are provided by the instructor. Students may choose their own topics upon approval of instructor. Joint programming projects are encouraged. Oral and written communication skills are essential for any work environment you find yourself. Therefore, the deliverables for the projects will include a detailed report and oral presentation report and/or demonstration. The grading will verify your written and/oral communication skills. For details of the specific grading criteria see details of Independent Project call for proposals.

COMPUTER ACCOUNTS AND ELECTRONIC COMMUNICATION:

a) gaia account

You must have a UNIX account on the ECS system "gaia" for this class. If you don't have a UNIX account on gaia,

a. Use your favorite Browser and Go to www.ecs.csus.edu

b. Click on Computing Services -> Network Accounts -> Get a new Account.

c. Fill out all required fields

You can also obtain an account by getting one from the College IT staff in room 2011. *For both security reasons and convenience all email to me must be sent from that account.* The College has a web-based email system on gaia (gaia.ecs.csus.edu/mail) that you can use for email. You must also use your gaia account for subscribing to the class mailing list which is described below.

b) Mailing List

I have established a Mailing List for this course with a web-based maillist interface called Mailman. It is MANDATORY for every student accepted into the course to subscribe to the Mailing List within the first two weeks of classes. The list will be used to facilitate electronic communication for the course. Failure to subscribe to the list in a timely manner could result in your missing important assignments, clarifications, announcements, etc that are sent by email. *You must check email on a regular basis and I will assume that you have received and read all messages I send to the list. The instructor will not be held responsible for your failures.* To subscribe to the list go to the following website and fill out appropriate forms there.

<http://www.ecs.csus.edu/mailman/listinfo/csc275>

This will add your email address (the one from which you send the message, hopefully gaia) to the *csc275* mailing list. Subsequently you can send questions or discussion items regarding topics in *csc275* to everyone on the list. To do this, just send an email message to the address "csc275@ecs.csus.edu". This is a good way to send messages to other students in the class regarding clarifications about assignments, lecture, etc. Note that these email messages are sent to *everyone* on the *csc250* list (including the instructors). If you need to communicate privately with the Instructor, use the instructor's individual email address as given above. **Note: Do not send HTML e-mail to the list. Some mail reader programs do not understand HTML Tags.**

To make sure that your gaia account is used for subscription to the mailing list you must send the email from gaia. I will check the list from time to time to determine who is registered. If I notice any email address other than one from gaia, I will delete it.

c) Assignment/Homework Submission

You must submit all homework/assignments/project reports electronically via WebCT, which can be reached from mySacState (my.csus.edu). *I will not accept a hardcopy.* Any file which is placed in WebCT will be named according to one of the formats below (depending on the type of assignment). Please do NOT submit pdf files as I will not be able to make comments on them. Word format is preferable. Also if you are using Word 2007 make sure the file name is .doc and NOT .docx which is the default file name for Word 2007. I do not have Word 2007.

Your-name_course#_hmwk_hmwk#, your-name_course#_lab_lab#, your-name_course_project_project#

For example if a student named John Doe is submitting homework#1 the file name of the email attachment should be *doe-john_275_hmwk_1*

Please note: If the attachment is not according to proper format as stated above, it will not be accepted.

SOME USEFUL REFERENCES

JOURNALS:

1. IEEE Communication magazine (Published monthly by IEEE Commun. Soc.)
2. IEEE Journal of Selected Areas in Communication
3. Conference Proceedings. IEEE INFOCOM
4. Conference Proceedings. IEEE GLOBECOM
5. Conference Proceedings. International Conference on Communications
6. IEEE Network Magazine
7. Computer Communication Review (Publ. ACM SIGCOMM)
8. IEEE/ACM Transactions on Networks.

C Sc 275 - TENTATIVE SCHEDULE (subject to change with notice)

Week	SUBJECT MATTER	READING
1	Introduction and Review: Network, Service and Layered Architecture. Motivation. Types. Examples. The ISO/OSI and TCP/IP Architectures. Applications.	Ch 1 - 2
2	Physical Layer Concepts- capacity, bandwidth, data rate. Nyquist and Shannon's Theorem. Media. Physical layer protocol examples.	Ch.3 (p99-166)
3	Data Link Layer Concepts and Data Link Control. Functions. Errors. Cyclic Redundancy Check (CRC). Proof of CRC algorithm; Hardware implementation. ARQ protocol. Flow control. HDLC and variants. DDCMP. Performance issues.	Ch. 3 (p166-190), Ch5 (p282-348)
4	Circuit, Message and Packet Switching. Multiplexing. SONET Multiplexing. Telephone networks. Transport networks.	Ch4
5	Media Access Control Protocols - Packet Broadcast Systems. Multiple Access Protocols: Random access, polling/token passing, and reservation protocols, FDMA, TDMA, CDMA	Ch6.1- Ch6.5
	Local Area Networks (LANs) – Ethernet, Token Ring, Wireless LANs, High Speed LAN Standards, Cellular Networks	Ch6.6- Ch6.9, 6.10, 6.11
6-7	Advanced Architectures and Advanced Topics: Real-time Transport Protocols, Session Control Protocols. Multimedia information: data compression, image and video coding. Voice/Video over IP (VOI).	Ch10.6 - Ch10.7, Ch12
8	Security Protocols	Ch11
9-11	Wireless Communications and Mobility	Notes
12-15	Project Presentations.	
16	Final Exam	

IMPORTANT DATES:

Spring Break: Mar 31 – Apr 6, 2008; FINAL EXAM: Thurs 5/22/08, 3-5pm

CSC 275

JUSTIFICATION:

The proposed change will better reflect the level of preparation students are expected to have. The change will also allow fully classified graduate students to enroll in CSC 275.

OLD DESCRIPTION:

PLEASE NOTE: DESCRIPTION WILL NOT CHANGE.

Fundamental concepts, principles and issues of data communication systems. The ISO/OSI reference model is used as a vehicle for discussion and emphasizes the lower layer of the model. Specific topics include: motivation and objectives, layered architectures, physical layer principles and protocols, data link and medium access control principles and protocols, circuit, packet and cell switching, local area network design principles and performance comparisons, high speed networking, introduction to wide area network architectures. Typical examples and standards are cited for point-to-point, satellite, packet radio and local area networks.