

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS
COURSE MODIFICATION PROPOSAL
Courses must be submitted by October 15, 2010,
to make the next catalog (2011-12) production

DATE (CHANGE DATE EACH TIME REVISED): 6/14/10; REV 9.20.10

PROGRAM AREA(S): COMPUTER SCIENCE

Directions: All of sections of this form must be completed for course modifications. Use YELLOWED areas to enter data. All documents are stand alone sources of course information.

1. Course Information.

[Follow accepted catalog format.] (Add additional prefixes if cross-listed)

OLD

Prefix COMP Course# 429 Title Computer Networks Units (3)
 3 hours lecture per week
 hours blank per week

X Prerequisites: COMP 232 and COMP 362
 Consent of Instructor Required for Enrollment
 Corequisites:

Catalog Description (Do not use any symbols): Basic software design and analysis considerations in networking computers into coherent, cooperating systems capable of processing computational tasks in a distributed manner. Network topology, routing procedures, message multiplexing and process scheduling techniques will be discussed.

General Education Graded Repeatable for up to units
 Categories CR/NC X A - F Total Completions
 Lab Fee Requested
 Course Level: Multiple Enrollment in same semester
 X Undergraduate Optional (Student's choice)
 Post-bac/Credential
 Graduate

NEW

Prefix COMP Course# 429 Title Computer Networks Units (3)
 3 hours lecture per week
 hours blank per week

X Prerequisites: COMP 232 and COMP 362
 Consent of Instructor Required for Enrollment
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General Education Graded Repeatable for up to units
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 Lab Fee Requested
 Course Level: Multiple Enrollment in same semester
 X Undergraduate Optional (Student's choice)
 Post-bac/Credential
 Graduate

2. Mode of Instruction (Hours per Unit are defaulted)

Hegis Code(s) _____
(Provided by the Dean)

Existing

Proposed

| | Units | Hours Per Unit | Benchmark Enrollment | Graded | | Units | Hours Per Unit | Benchmark Enrollment | Graded | CS No. (filled out by Dean) |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|
| Lecture | <u>3</u> | <u>1</u> | <u>24</u> | y | Lecture | <u>3</u> | <u>1</u> | <u>24</u> | y | <input type="checkbox"/> |
| Seminar | <input type="checkbox"/> | <u>1</u> | <input type="checkbox"/> | <input type="checkbox"/> | Seminar | <input type="checkbox"/> | <u>1</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lab | <input type="checkbox"/> | <u>3</u> | <input type="checkbox"/> | <input type="checkbox"/> | Lab | <input type="checkbox"/> | <u>3</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Activity | <input type="checkbox"/> | <u>2</u> | <input type="checkbox"/> | <input type="checkbox"/> | Activity | <input type="checkbox"/> | <u>2</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Field Studies | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Field Studies | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Indep Study | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Indep Study | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other blank | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Other blank | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3. Course Attributes:

General Education Categories: All courses with GE category notations (including deletions) must be submitted to the GE website: <http://summit.csuci.edu/geapproval>. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)

- A-1 Oral Communication
- A-2 English Writing
- A-3 Critical Thinking

B (Mathematics, Sciences & Technology)

- B-1 Physical Sciences
- B-2 Life Sciences – Biology
- B-3 Mathematics – Mathematics and Applications
- B-4 Computers and Information Technology

C (Fine Arts, Literature, Languages & Cultures)

- C-1 Art
- C-2 Literature Courses
- C-3a Language
- C-3b Multicultural

D (Social Perspectives)

E (Human Psychological and Physiological Perspectives)

UDIGE/INTD Interdisciplinary

Meets University Writing Requirement

Meets University Language Requirement

American Institutions, Title V Section 40404: Government US Constitution US History

Refer to website, Exec Order 405, for more information: <http://senate.csuci.edu/comm/curriculum/resources.htm>

Service Learning Course (Approval from the Center for Community Engagement must be received before you can request this course attribute).

4. Justification and Requirements for the Course. *[Make a brief statement to justify the need for the course]*

OLD

The course is an elective course for Computer Science majors.

Requirement for the Major/Minor

X Elective for the Major/Minor

Free Elective

NEW

The course is an elective course for Computer Science majors.

Requirement for the Major/Minor

X Elective for the Major/Minor

Free Elective

Submit Program Modification if this course changes your program.

5. Student Learning Outcomes. (List in numerical order. You may wish to visit resource information at the following website: <http://senate.csuci.edu/comm/curriculum/resources.htm>)

Upon completion of the course, the student will be able to:

OLD

- Explain the role of each layer in a multi-layer network model
- Determine the advantages and disadvantages of various network topologies
- Discuss Internet protocols at high and low levels of detail
- Organize and express ideas clearly and convincingly in oral and written forms.

Upon completion of the course, the student will be able to:

NEW

- Design network protocols at all (but physical) network layers.
- Design and implement software incorporating a variety of network protocols at any network layer.
- Design and implement networked applications using BSD sockets.
- Synthesize and articulate ideas clearly and convincingly in oral and written forms.

6. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

OLD

- * Introduction -- switching schemes, OSI 7 layer architecture
- * Physical Layer -- transmission media, digital/analog

NEW

- * Introduction -- switching schemes, network layer architecture

transmission, multiplexing schemes

- * Data Link Layer -- error detection/correction, stop-and-wait protocol, sliding window protocol
- * Network Layer -- virtual circuit service, datagram service, routing, congestion control
- * LAN/WAN -- multiple access algorithms, ethernet, token ring, NSFNET, X.25
- * Internet protocols -- IP ARP RARP ICMP UDP TCP GGP EGP IGP EGMP DNS
- * UNIX Network Programming -- client/server model, UNIX systems programming services, BSD socket interface (local/remote interprocess communication mechanisms)

- * Application layer – protocols, email (SMTP, POP, IMAP) world wide web (HTTP), security (SSL, TLS, HTTPS), name service (DNS), peer-to-peer protocols
- * Transport layer – connectionless (UDP), reliable data transfer (GBN), selective repeat (SR), connection-oriented (TCP), flow control, congestion control
- * Network Layer – virtual circuit networks, datagram networks, routing algorithms, dynamic host configuration (DHCP), internet protocol (IP4, IP6, ICMP), internet routing (RIP, OSPF, BGP), multicasting
- * Physical Layer -- transmission media, digital/analog transmission, multiplexing schemes
- * Data Link Layer -- error detection/correction, multiple access protocols, links layer addressing and address resolution (MAC, ARP), Ethernet access protocols, switching, virtual LANs, point-to-point protocol (PPP)
- * Wireless networks – wireless multiple access algorithms, 802.11 protocol family, other wireless protocols, mobility management, mobile IP, security in wireless networks
- * Multimedia networking – streaming (RTSP), best-effort services, controlled services (RTP, RTCP, SIP, H.323), classes of services, quality of service
- * Network management – protocols (SNMP), structure of management information (SMI), management information base (MIB), abstract syntax notation (ASN.1)
- * UNIX Network Programming -- client/server model, UNIX systems programming services, BSD socket interface (local/remote interprocess communication mechanisms)

Does this course content overlap with a course offered in your academic program? Yes No X
If YES, what course(s) and provide a justification of the overlap.

Does this course content overlap a course offered in another academic area? Yes No X
If YES, what course(s) and provide a justification of the overlap.

Overlapping courses require Chairs' signatures.

7. Cross-listed Courses (Please note each prefix in item No. 1)

- A. List cross-listed courses (Signature of Academic Chair(s) of the other academic area(s) is required).
- B. List each cross-listed prefix for the course:
- C. Program responsible for staffing:

8. References. [Provide 3-5 references]

OLD Tannenbaum, *Computer Networks*, 4th ed., Prentice Hall (2002) ISBN 0130661023
Comer, *Internetworking with TCP/IP*, Vol 1, 4th ed., Prentice Hall (2000) ISBN 0130183806
Stevens, *Unix Network Programming*, 2nd edition, Prentice Hall (1998) ISBN 013490012X

NEW Tannenbaum, *Computer Networks*, 4th ed., Prentice Hall (2002) ISBN 0130661023
Comer, *Internetworking with TCP/IP*, Vol 1, 4th ed., Prentice Hall (2000) ISBN 0130183806
Stevens, *Unix Network Programming*, 2nd edition, Prentice Hall (1998) ISBN 013490012X

9. Tenure Track Faculty qualified to teach this course.
Computer Science faculty

10. Requested Effective Date or First Semester offered: Fall 2011

11. New Resource Requested: Yes No

If YES, list the resources needed.

A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)

B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)

C. Facility/Space/Transportation Needs:

D. Lab Fee Requested: Yes No (Refer to the Dean’s Office for additional processing)

E. Other.

12. Indicate Changes and Justification for Each. [Check all that apply and follow with justification. Be as brief as possible but, use as much space as necessary.]

- | | | |
|---|--------------------------|--------------------------------|
| <input type="checkbox"/> Course title | X | Course Content |
| <input type="checkbox"/> Prefix/suffix | X | Course Learning Objectives |
| <input type="checkbox"/> Course number | <input type="checkbox"/> | References |
| <input type="checkbox"/> Units | <input type="checkbox"/> | GE |
| <input type="checkbox"/> Staffing formula and enrollment limits | <input type="checkbox"/> | Other <input type="checkbox"/> |
| <input type="checkbox"/> Prerequisites/Corequisites | <input type="checkbox"/> | Reactivate Course |
| <input type="checkbox"/> Catalog description | | |
| <input type="checkbox"/> Mode of Instruction | | |

Justification: The course content is described in greater detail. Outcome has been modified to make it assessable

13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes No

If, YES attach a program update or program modification form for all programs affected.

Priority deadline for New Minors and Programs: **October 4, 2010** of preceding year.

Priority deadline for Course Proposals and Modifications: **October 15, 2010.**

Last day to submit forms to be considered during the current academic year: **April 15th.**

Peter Smith, A.J. Bieszczad

6/14/10

Proposer(s) of Course Modification

Date

Type in name. Signatures will be collected after Curriculum approval.

Approval Sheet

Course: COMP 429

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

| | | |
|---------------|--|--|
| Program Chair | | |
|---------------|--|--|

Signature

Date

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| Program Chair | | |
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Signature

Date

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| Program Chair | | |
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Signature

Date

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| General Education Chair | | |
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Signature

Date

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| Center for Intl Affairs Director | | |
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Signature

Date

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| Center for Integrative Studies Director | | |
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Signature

Date

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| Center for Multicultural Engagement Director | | |
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Signature

Date

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| Center for Civic Engagement and Service Learning Director | | |
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Signature

Date

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| Curriculum Chair | | |
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Signature

Date

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| Dean of Faculty | | |
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Signature

Date