CPE 138: COMPUTER NETWORKING FUNDAMENTALS

In Workflow

1. EEE Committee Chair (pheedley@csus.edu)
2. EEE Chair (mahyar.zarghami@csus.edu)
3. ECS College Committee Chair (figgess@csus.edu)
4. ECS Dean (kevan@csus.edu)
5. Academic Services (torsetj@csus.edu;%20cnewsome@skymail.csus.edu)
6. Senate Curriculum Subcommittee Chair (curriculum@csus.edu)
7. Dean of Undergraduate (james.german@csus.edu;%20celena.showers@csus.edu)
8. Dean of Graduate (cnewsome@skymail.csus.edu)
9. Catalog Editor (torsetj@csus.edu)
10. Registrar's Office (wlindsey@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

Approval Path

1. Fri, 09 Oct 2020 21:42:54 GMT
   Perry Heedley (pheedley): Approved for EEE Committee Chair
2. Wed, 14 Oct 2020 15:26:04 GMT
   Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
3. Fri, 23 Oct 2020 02:31:16 GMT
   Gareth Figgess (figgess): Approved for ECS College Committee Chair
4. Fri, 23 Oct 2020 07:43:15 GMT
   Kevan Shafizadeh (kevan): Approved for ECS Dean

Date Submitted: Fri, 09 Oct 2020 20:00:54 GMT

Viewing: CPE 138 : Computer Networking Fundamentals

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Changes proposed by: Xiaoyan Sun (219182783)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
Xiaoyan Sun	xiaoyan.sun@csus.edu	916-278-6946

Catalog Title:
Computer Networking Fundamentals

Class Schedule Title:
Computer Network Fundamentals

Academic Group: (College)
ECS - Engineering & Computer Science

Academic Organization: (Department)
Electrical and Electronic Engineering

Will this course be offered through the College of Continuing Education (CCE)?
No

Catalog Year Effective:
Spring 2021 (2021/2022 Catalog)

Subject Area: (prefix)
CPE - Computer Engineering

Catalog Number: (course number)
138

Course ID: (For administrative use only.)
110586

Units:

3

In what term(s) will this course typically be offered?

Fall, Spring

Does this course require a room for its final exam?

Yes, final exam requires a room

Does this course replace an existing experimental course?

No

This course complies with the credit hour policy:

Yes

Justification for course proposal:

The new criteria for ABET/EAC accreditation requires that 'the curriculum for all EAC programs must now include principles and practices for secure computing'. The major changes in this course proposal are to add appropriate cybersecurity components into this course.

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)

Overview, structure, models, concepts, principles and protocols of computer networking. Network architecture, ISO/OSI reference model, TCP/IP protocol stack, layering. Protocol, encapsulation, socket. HTTP, FTP, SMTP, DNS, P2P, TCP, UDP. Multiplexing and demultiplexing, reliable data transfer, flow control, congestion control. Internet addressing, routing, forwarding, IP, ICMP. Error detection and correction, multiple access problem, LAN vs WAN, Ethernet, ARP, switching. Wireless standards. Network security, threats and attacks, defense and countermeasures. Cross Listed: CSC 138; only one may be counted for credit.

Are one or more field trips required with this course?

No

Fee Course?

No

Is this course designated as Service Learning?

No

Does this course require safety training?

No

Does this course require personal protective equipment (PPE)?

No

Does this course have prerequisites?

Yes

Prerequisite:

CSC 35, CSC 60, CSC 130. Not currently enrolled in CSC/CPE 138.

Prerequisites Enforced at Registration?

Yes

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Discussion

Discussion Classification
CS#04 - Lecture /Recitation (K-factor=1 WTU per unit)
Discussion Units
3

Is this a paired course?
No

Is this course crosslisted?
Yes

Do they meet together and fulfill the same requirement?
Yes

Please identify the crosslisted course:
CSC 138

Can this course be repeated for credit?
No

Can the course be taken for credit more than once during the same term?
No

Description of the Expected Learning Outcomes: Describe outcomes using the following format: 'Students will be able to: 1), 2), etc.'
Students will be able to:
1. Explain the basic principles, architecture, layered models, and implementations of computer networks.
2. Describe the details of important network protocols on different layers across the protocol stack.
3. Apply reliable communication including the various methods for error detection, correction, retransmission, flow control, and congestion control.
4. Explain the working mechanisms of routing, forwarding, internet addressing, and switching.
5. Identify professional and ethical responsibilities, and security issues and countermeasures.

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.
The following assessment strategies will be used:
1. Wireshark Labs (LO 1-4);
2. Network Projects, such as Socket Programming Assignments (LO 1-4);
3. Exams (LO 1-5).

Is this course required in a degree program (major, minor, graduate degree, certificate?)
Yes

Has a corresponding Program Change been submitted to Workflow?
No

Identify the program(s) in which this course is required:

Programs:
BS in Computer Engineering

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?
No

Will there be any departments affected by this proposed course?
No

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.
I/we agree

University Learning Goals

Undergraduate Learning Goals:

Competence in the disciplines
Knowledge of human cultures and the physical and natural world
Integrative learning
Personal and social responsibility
Intellectual and practical skills

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?
No

GE Course and GE Goal(s)

Is this a General Education (GE) course or is it being considered for GE?
No

Please attach any additional files not requested above:
outline-138-cybersecurity-v9.pdf

Key: 857