

CSC 113: COMPUTER NETWORKING AND CYBER SECURITY FOR TEACHERS

In Workflow

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Approval Path

1. Mon, 16 Nov 2020 20:25:25 GMT
Anna Baynes (shaverdian): Approved for CSC Committee Chair
2. Wed, 18 Nov 2020 17:29:33 GMT
Nikrouz Faroughi (faroughi): Approved for CSC Chair
3. Fri, 20 Nov 2020 17:43:53 GMT
Gareth Figgess (figgess): Approved for ECS College Committee Chair
4. Tue, 01 Dec 2020 21:33:18 GMT
Kevan Shafizadeh (kevan): Approved for ECS Dean

New Course Proposal

Date Submitted: Fri, 13 Nov 2020 19:34:26 GMT

Viewing: CSC 113 : Computer Networking and Cyber Security for Teachers

Last edit: Fri, 13 Nov 2020 19:34:25 GMT

Changes proposed by: Xiaoyan Sun (219182783)

Contact(s):

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Catalog Title:

Computer Networking and Cyber Security for Teachers

Class Schedule Title:

Networking for Teachers

Academic Group: (College)

ECS - Engineering & Computer Science

Academic Organization: (Department)

Computer Science

Will this course be offered through the College of Continuing Education (CCE)?

Yes

Please specify:

CCE Only

Catalog Year Effective:

Spring 2021 (2021/2022 Catalog)

Subject Area: (prefix)

CSC - Computer Science

Catalog Number: (course number)

113

Course ID: (For administrative use only.)

TBD

Units:

3

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

Fall, Spring, Summer

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:

This course will be part of a proposed CCE-only program for current k-12 teachers to receive a specific or introductory authorization to teach computer science in k-12. The Commission on Teacher Credentialing has defined the subject matter necessary to earn this authorization. This is one of a set of courses being proposed for this program.

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

Introduction to basic components of digital devices and computing systems. Overview, structure, and types of computer networks. The layered model of networks and common protocols in each layer, such as HTTP and IP. Introduction to common network applications such as web, email, and videos. Common cyber security problems and solutions. Cyber safety. Pedagogical content includes strategies for teaching and retaining students by developing engaging learning experiences and designing student assessment in computer science.

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 110 and CSC 111. Not currently enrolled in CSC 113.

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?

No

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 completing this course will be able to:

- 1) Describe the basic components of digital devices and computing systems.
- 2) Explain the differences between different types of networks.
- 3) Explain how computer networks and the Internet work.
- 4) Describe layered network models.
- 5) Describe the common network applications such as web, email, and video.
- 6) Explain how to achieve reliable communication in networks.
- 7) Describe network performance issues including bandwidth and delays.
- 8) Explain how data are sent through the internet via packets and how packets are routed in the network.
- 9) Explain the common protocols such as HTTP, TCP, UDP, and IP.
- 10) Describe common network attacks and threats, and security defense mechanisms and countermeasures.
- 11) Describe professional and ethical issues and responsibilities related to cyber security.
- 12) Describe the current trends and issues in cyber safety.
- 13) Demonstrate basic understanding of the Python language.
- 14) Identify pedagogical content knowledge of networking, design effective instruction plans, activities, student assessments and evaluation for K-12 teaching.
- 15) Apply the major core concepts and practices for frameworks and standards in Computer Science in California.

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. Homework Assignments (LO 1-13);
2. Mid-term Exam and Final Exam (LO 1-13).

For whom is this course being developed?

Other

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

No

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)?

Yes

For the Council for the Preparation of School Personnel (to be filled out with assistance of your department chair):

Does this course change impact your department's currently written Program Standards Document?

No

Common Standards: In what way does this course or program change impact the currently written Common Standards document? Please include any suggested language changes:

N/A

Is this change in response to program or unit assessment activities?

No

Will this course introduce any new or changes to program assessments?

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:

csc113-Xiaoyan Sun-v8.docx

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