

EEE 260: DIGITAL COMMUNICATIONS

In Workflow

1. EEE Committee Chair (pheedley@csus.edu)
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Approval Path

1. Fri, 12 Nov 2021 22:38:28 GMT
Perry Heedley (pheedley): Approved for EEE Committee Chair
2. Fri, 19 Nov 2021 22:24:41 GMT
Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
3. Fri, 03 Dec 2021 18:09:03 GMT
Mohammed Eltayeb (mohammed.eltayeb): Approved for ECS College Committee Chair
4. Fri, 03 Dec 2021 18:42:48 GMT
Behnam Arad (arad): Approved for ECS Dean

Date Submitted: Fri, 22 Oct 2021 21:26:25 GMT

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Changes proposed by: Mohammed Eltayeb (219702627)

Contact(s):

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Catalog Title:

Digital Communications

Class Schedule Title:

Digital Communications

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:

Fall 2022 (2022/2023 Catalog)

Subject Area: (prefix)

EEE - Electrical and Electronic Engineering

Catalog Number: (course number)

260

Course ID: (For administrative use only.)

127476

Units:

3

Is the primary purpose of this change to update the term typically offered or the enforcement of requisites at registration?

No

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

Fall term only

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:

To cope with recent advances in communication systems, topics related to analog systems are replaced with new digital communication concepts. Specifically, the following topics are added:

- Representation of digitally modulated signals
- Representation of band-pass and low pass signal
- Representation of the noise
- Optimum receiver design
- Receiver implementation
- Receiver performance analysis

The following are removed:

- Review of Fourier series and Fourier transform
- Spread spectrum systems
- Baseband and amplitude-, angle-, and pulse-modulated analog systems

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

Review of probability theory. Spectral density and autocorrelation. Matched filter and correlator receivers. Error performance for binary and M-ary systems. System optimization.

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:

EEE 185, or instructor permission.

Prerequisites Enforced at Registration?

No

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Seminar

Seminar Classification

CS#05 - Seminar (K-factor=1 WTU per unit)

Seminar 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 will be able to:

- 1) Use random variables in solving engineering problems.
- 2) Sketch the basic components of a digital communication system.
- 3) Design optimum receivers for digital modulation techniques.
- 4) Analyze the error performance of digital modulation techniques.
- 5) Design optimum receivers for digital modulation techniques.

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.

Student performance in this course will be evaluated on the basis of three exams (EO 1-5), a project (EO 5), and homework (EO 1-5). The project will focus on identifying a recent research paper on digital communications and making an oral presentation of the paper to the class.

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**Graduate (Masters) Learning Goals:**

Critical thinking/analysis
 Communication
 Information literacy
 Disciplinary knowledge
 Research (optional)

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

Is this a Graduate Writing Intensive (GWI) course?

No

Please attach any additional files not requested above:

EEE_260_syllabus.docx

Key: 1760