

EEE 266: MODERN DIGITAL COMMUNICATION SYSTEMS

In Workflow

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Approval Path

1. Sat, 13 Nov 2021 02:23:51 GMT
Perry Heedley (pheedley): Approved for EEE Committee Chair
2. Fri, 19 Nov 2021 22:27:42 GMT
Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
3. Fri, 03 Dec 2021 18:29:30 GMT
Mohammed Eltayeb (mohammed.eltayeb): Approved for ECS College Committee Chair
4. Sat, 04 Dec 2021 00:37:17 GMT
Behnam Arad (arad): Approved for ECS Dean

New Course Proposal

Date Submitted: Fri, 12 Nov 2021 21:57:00 GMT

Viewing: EEE 266 : Modern Digital Communication Systems

Last edit: Fri, 03 Dec 2021 18:25:38 GMT

Changes proposed by: Mohammed Eltayeb (219702627)

Contact(s):

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Catalog Title:

Modern Digital Communication Systems

Class Schedule Title:

Mod. Digital Comm. Systems

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)

266

Course ID: (For administrative use only.)

TBD

Units:

3

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

No

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

Spring 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:

This course provides an overview and performance analysis of digital transmission techniques over band-limited/fading channels and complements the existing EEE 260 course which introduces digital transmission techniques in non-fading channels. To cope with recent advances in communication systems, new concepts like MIMO and diversity-multiplexing trade-offs are also introduced. We currently lack a course that covers these concepts in the EEE department.

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

Review of digital transmission over AWGN channels. Spectral analysis of digital signals. Digital transmission over band-limited channels. Intersymbol Interference. Performance of digital transmission over fading channels. Diversity techniques. Overview of multiple-antenna systems.

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 260 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#02 - Lecture/Discussion (K-factor=1WTU 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."

- 1) Characterize band-limited channels.
- 2) Evaluate the performance of digital modulation techniques in fading environments.
- 3) Analyze the diversity multiplexing trade-offs in multi-antenna systems.
- 4) Evaluate the performance of MIMO systems.

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 two exams (EO 1-4), a project (EO 2), and homework (EO 1-4). The project will focus on identifying a research paper on an emerging communication technology and making an oral presentation of the paper to the class. The project can also include simulations and performance analysis of digital modulation techniques.

For whom is this course being developed?

Majors in the Dept

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
 Disciplinary knowledge

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:

EEE266_syllabus.docx

Key: 14599