EEE 245: ADVANCED DIGITAL SIGNAL PROCESSING

In Workflow

1. EEE Committee Chair (pheedley@csus.edu)
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9. Catalog Editor (torsetj@csus.edu)
10. Registrar's Office (wlindsey@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

Approval Path

1. Sun, 30 Sep 2018 23:14:05 GMT
   Perry Heedley (pheedley): Approved for EEE Committee Chair
2. Mon, 01 Oct 2018 02:56:44 GMT
   Fethi Belkhouche (fbelkhou): Approved for EEE Chair
3. Fri, 19 Oct 2018 18:11:18 GMT
   Troy Topping (troy.topping): Rollback to EEE Chair for ECS Committee Chair
4. Thu, 03 Oct 2019 22:00:35 GMT
   Fethi Belkhouche (fbelkhou): Rollback to EEE Committee Chair for EEE Chair
5. Fri, 08 Oct 2021 22:36:48 GMT
   Perry Heedley (pheedley): Approved for EEE Committee Chair
6. Fri, 15 Oct 2021 21:16:38 GMT
   Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
7. Fri, 22 Oct 2021 18:59:21 GMT
   Mohammed Eltayeb (mohammed.eltayeb): Approved for ECS College Committee Chair
8. Fri, 22 Oct 2021 19:01:13 GMT
   Behnam Arad (arad): Approved for ECS Dean

Date Submitted: Sun, 30 Sep 2018 23:12:41 GMT

Viewing: EEE 245 : Advanced Digital Signal Processing

Last edit: Fri, 15 Oct 2021 21:16:12 GMT

Changes proposed by: Perry Heedley (102011596)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
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Catalog Title:
Advanced Digital Signal Processing

Class Schedule Title:
Adv Digital Signal Process

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 2019 (2019/2020 Catalog)

Subject Area: (prefix)
EEE - Electrical and Electronic Engineering

Catalog Number: (course number)
245

Course ID: (For administrative use only.)
127371

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, 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 current catalog lists EEE 174 and EEE 181 as prerequisites for EEE 245. We propose to modify the course to reflect the current course content. Specifically EEE 174 was replaced with ENGR 50 and the course syllabus was modified in order to be more aligned with the catalog description.

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)
Advanced signal processing topics include: multirate signal processing, adaptive filter design and analysis, spatial filtering and the application of FIR filter theory to beamforming. Applications of digital signal processing in communication systems, radar systems, and imaging systems are covered.

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:
ENGR 50, ENGR 120, EEE 181; 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."
Upon successful completion of this course, the student will be able to:
1) Use basic probability theory to model random signals in terms of random processes.
2) Design and apply optimal minimum mean square estimators and in particular linear estimators
3) Analyze and apply stochastic gradient algorithms.
4) Utilize adaptive digital signal processing to improve signal quality and extract meaningful features.
5) Design and apply adaptive filters to given applications.

Attach a list of the required/recommended course readings and activities:
EEE_245_outlineV1.docx

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 adaptive filter application or advanced signal processing theory 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
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

Reviewer Comments:

Troy Topping (troy.topping) (Fri, 19 Oct 2018 18:11:18 GMT): Rollback: College committee was advised that EEE is reconsidering prerequisites.

Fethi Belkhouche (fbelkhou) (Thu, 03 Oct 2019 22:00:35 GMT): Rollback: To be discussed at the committee level

Key: 1748