UNIVERSITY CURRICULUM COMMITTEE

Proposal for New Course

1. Is this course being proposed for Liberal Studies designation? Yes ☐ No ☒
   If yes, route completed form to Liberal Studies.

2. New course effective beginning what term and year? (ex. Spring 2008, Summer 2008) **Fall 2006**
   See effective dates schedule.

3. College **Engineering and Natural Sciences** 4. Academic Unit **Electrical Engineering**

5. Course subject/catalog number **EE490** 6. Units **1-3**

7. Co-convened with _____ 6a. Date approved by UGC _____
   (Must be approved by UGC prior to bringing to UCC. Both course syllabi must be presented)

8. Cross-listed with _____
   (Please submit a single cross-listed syllabus that will be used for all cross-listed courses.)

9. Long course title **Advanced Topics in Electrical Engineering**
   (max 100 characters including spaces)

10. Short course title (max. 30 characters including spaces) **Adv Topics in Electrical Egr**

11. Catalog course description (max. 30 words, excluding requisites).

Advanced topics in electrical engineering that are not regularly offered. Topics depend on regular or visiting faculty expertise and student demand.

12. Grading option: Letter grade ☒ Pass/Fail ☐ or Both ☐
    (If both, the course may only be offered one way for each respective section.)

13. Is this a topics course? Yes ☒ No ☐

14. May course be repeated for *additional* units? yes ☒ no ☐
    a. If yes, maximum units allowed? **9**
    b. If yes, may course be repeated for additional units in the same term? (ex. PES 100) yes ☒ no ☐
       i. If yes, max units/term **9**

15. Please check **ONE** of the following that most appropriately describes the course:

    a. Lecture w/0 unit embedded lab ☐ Lecture only ☒ Lab only ☐ Clinical ☐ Research ☐
    Seminar ☐ Field Studies ☐ Independent Study ☐ Activity ☐ Supervision ☐

    b. In addition to the above, it will also be taught: Web ☐ ITV ☐ Hybrid web ☐ Hybrid ITV ☐

16. Prerequisites (must be completed ***before*** proposed course) _____

17. Corequisites (must be completed ***with*** proposed course) _____

18. If course has no requisites, will all sections of the course require (check one):

    instructor consent ☒ department consent ☐ no consent ☐

19. Is the course needed for a plan of study (major, minor, certificate? yes ☐ no ☒
Name of new plan? _____
Note: A new plan or plan change form must be submitted with this request.

20. Does course duplicate content of existing courses within or outside of your college? yes ☐ no ☒
If yes, list any courses this course may have duplicative material with and estimate percentage of duplication:

_____
_____
_____
_____

Please attach letters of support from each department whose course is listed above.

21. Will this course affect other academic plans, academic units, or enrollment? yes ☐ no ☒
If yes, explain in justification and provide supporting documentation from the affected departments.

22. Is a potential equivalent course offered at a community college (lower division only)? yes ☐ no ☐
If yes, does it require listing in the *Course Equivalency Guide*? yes ☐ no ☐
Please list, if known, the institution, subject/catalog number of the course. _____

23. Justification for new course, including unique features if applicable. (Attach proposed syllabus in the approved university format).

This course is proposed to enhance the students choices of electives by allowing advanced topics from one to three credits each. Secondly, it will facilitate the department offering advanced topic courses that reflect emerging areas of study in electrical engineering. These advanced topic classes will utilize laboratory equipment, specialized software and the computing infrastructure provided by the college.

24. Names of current faculty qualified to teach this course **All regular EE Faculty, Emeritus and Adjunct Faculty**

25. If course will require additional faculty, space, or equipment, how will these requirements be satisfied? _____

26. Will present library holdings support this course? yes ☒ no ☐

If the course being submitted for approval is NOT a LIBERAL STUDIES course, please go to step 42.

LIBERAL STUDIES ONLY

Contact name: _____ **Contact email:** _____

Dept. Chair name: _____ **Dept. Chair email:** _____

College Contact name : _____ **College Contact email:** _____

27. This course is a ☐ Single section ☐ Multi-section
28. List names of faculty who may teach this course: _____
29. Section enrollment cap: _____

If this course is being submitted for approval as a new LIBERAL STUDIES course, please complete questions 30-33.

OR

If this course is being submitted for approval as a new JUNIOR LEVEL WRITING course, please complete questions 37-38.

OR

If this course is being submitted for approval as a new SENIOR CAPSTONE course, please complete questions 39-41.

NEW LIBERAL STUDIES COURSE

30. Thematic Focus (check all that apply): ***If a topics course, must apply to ALL sections.***

Environmental Consciousness ☐ Technology and Its Impact ☐ Valuing the Diversity of Human Experience ☐

31. Distribution Block (check one): ***If a topics course, must apply to ALL sections.***

Aesthetic and Humanistic Inquiry ☐ Cultural Understanding ☐ Lab Science ☐

Science/Applied Science ☐ Social and Political Worlds ☐

32. Skills (check two): ***If a topics course, must apply to ALL sections.***

Creative Thinking ☐ Critical Reading ☐ Effective Oral Communication ☐ Effective Writing ☐ Critical Thinking ☐

Ethical Reasoning ☐ Quantitative/Spatial Analysis ☐ Scientific Inquiry ☐ Use of Technology ☐

33. Is this a topics course? Yes ☐ No ☐

If YES, please complete questions 34-36. If NO, please go to question 42.

TOPICS COURSE ONLY

34. Identify the Student Learning Outcomes that will be found in ALL topic syllabi offered under this course number. _____

35. Explain by what method(s) Student Learning Outcomes will be assessed in ALL topic syllabi offered under this course number.

_____

36. Please attach an example of a Topic Syllabus offered under this course number.

GO TO question 42.

NEW JUNIOR LEVEL WRITING COURSE (*refer to question 19*)

37. To which degree programs offered by your department/academic unit does this proposal apply? _____

38. Do you intend to offer ABC 300 and ABC 300W? yes ☐ no ☐
If no, please submit a course delete form for the ABC 300.

GO TO question 42

NEW SENIOR CAPSTONE COURSE (*refer to question 19*)

39. To which degree programs offered by your department/academic unit does this proposal apply? _____

40. Does this proposal replace or modify an existing course or experience? yes ☐ no ☐
If yes, which course(s)? _____

41. Do you intend to offer ABC 400 and ABC 400C? yes ☐ no ☐
If no, please submit a course delete form for the ABC 400.

42. Approvals

Department Chair (if appropriate) Date

Chair of college curriculum committee Date

Dean of college Date

For Committees use only

For Liberal Studies Committee **Date**

Action taken:

_____ Approved as submitted _____ Approved as modified

For University Curriculum Committee **Date**

Action taken:

_____ Approved as submitted _____ Approved as modified

EE490 COURSE SYLLABUS – ADVANCED TOPICS IN ELECTRICAL ENGINEERING

General Information

- College of Engineering and Natural Sciences, Department of Electrical Engineering
- EE490 – Advanced Topics in Electrical Engineering
- May be offered in any semester
- 1-3 clock hours (50 minute periods) and 1-3 credits
- Instructor's name - varies
- Office address - varies
- Office hours - varies

Course prerequisites – Instructor's consent

Course description - ***Advanced topics in electrical engineering that are not regularly offered. Topics depend on regular or visiting faculty expertise and student demand.***

Student Learning Expectations/Outcomes for this Course – This course will support one or more of the objectives and progam learning outcomes that follow :

Objective – Graduates are technically competent and prepared for leadership and professional practice with strength in design, problem solving, communications and teaming.

- Outcome 2.1 Possess professional skills and knowledge of the design process.
- Outcome 2.2 Ability to function in disciplinary and multi-disciplinary teams.
- Outcome 2.3 Possess oral and written abilities to effectively communicate.
- Outcome 2.4 Abilities in creativity, critical thinking and problem identification, formulation and solving.

Objective – Graduates are grounded in mathematics and engineering science fundamentals and prepared for advanced education and lifelong learning.

- Outcome 3.1 Ability to apply knowledge of physics and mathematics (including calculus, linear algebra, complex variables and differential equations).
- Outcome 3.2 Ability to apply knowledge of probability, statistics, Laplace transforms and Fourier transforms.
- Outcome 3.3 Ability to design and conduct scientific and engineering experiments.
- Outcome 3.4 Motivation and skills needed for lifelong learning.
- Outcome 3.5 Ability to use industry standard analysis and design software tools.

Objective – Graduates are experienced with and understand diverse populations, such as that existing in the American Southwest.

- Outcome 4.1 Ability to relate a broad education and contemporary issues to engineering solutions and their impact in a societal and global context.
- Outcome 4.2 An appreciation and understanding of professional and ethical responsibility.

Course structure/approach – Typically, this course will use lecture format with homework, major papers, and simulation and laboratory experimentation in a studio classroom/laboratory setting. Learning may be enhanced using collaborative and active learning methodologies and web augmentation.

Textbook and required materials – vary with individual topic being addressed. Typically this includes books, notes, journal articles and web-based materials.

Recommended optional materials/references (attach reading list) – varies by topic.

Course outline – This will vary by the number of credits, but for a three credit course, two hour exams and a final are typically expected. The first portion of the course will focus on background and theory related to the topic and the second portion of the course will focus on application, simulation and experimentation. Students will also typically present some of their work during the class.

Assessment of Student Learning Outcomes

- Methods of Assessment – Papers and homework will be graded both for content and English usage. Students will use rubrics to help identify their writing and speaking strengths and weaknesses. Exams and surveys are also used to help assess learning.
- Timeline for Assessment – throughout the course.

Grading System – A weighted average of the assignments, in-class activities and exams will determine the grade for the course. Typically, a scale of 90-100 will indicate an A, 80 up to 90 a B, 70 up to 80 a C, 60 up to a 70 a D, and below a 60 a failing grade.

Course policies – typical policies include:

- Retests/makeup tests are allowed if students notify the instructor in advance of a missed exam.
- Attendance is encouraged and monitored through in class learning activities/
- Statement on plagiarism and cheating - *Choose high ethical standards because you are an engineering professional in training. Inform me (anonymously is fine) of any dishonest behavior so I can take appropriate steps to ensure fairness to the class. Copying from another person without attributing the work to them is plagiarism and copying another person's homework or test paper is also dishonest behavior which will be handled according to the college honor code and existing procedures. Working with another student in preparing homework is acceptable as long as the finished product is your own work. You must sign a statement on each exam that certifies that you have neither given nor received any unauthorized aid during that exam.*

University policies: Attach the Safe Working and Learning Environment, Students with Disabilities, Institutional Review Board, and Academic Integrity policies or reference them on the syllabus.

Justification Form for Instructional Fees

Date: 2-6-06

☒ New ☐ Increase ☐ Deletion ☐ Reallocation Submitted by: David Scott

Engineering and Natural Sciences — **College/School**
Electrical Engineering — **Department**
EE 490 — **Course**
Advanced Topics in Electrical Engineering — **Title**
varies — **Topic**

Please select ONE course component where the fee will be attached:
☒ Lecture ☐ Lab ☐ Recitation ☐ Clinical ☐ Research ☐ Seminar ☐ Field Studies ☐ Activity ☐ Independent Study ☐ Supervision

Purpose of Fee: Support the classroom and simulation laboratories with supplies, equipment and software.

☐ **Flat Fee**
Amount of Fee: $

OR
☒ **Per Unit Fee** – *Variable Unit Courses Only*
Amount per Unit: $15
Min amount: $15
Max amount: $45

Estimated Annual Income: $900

Fee in Effect
Start Term: Fall 2006
End Term: none

This fee should be charged for classes offered on the following campuses:

☒ **Flagstaff Mountain**

Annualized Enrollment in Class *(all sections):* 20

Annualized Cost to Department *(Estimate expenditures by item):* $ 900

Item Type *(Provided by Comptroller's Office):*

AREA/ORGN *(For Revenue Deposit)*: EGR2512-$15 / credit

Rationale: The costs of maintaining the laboratories that support advanced topics classes are estimated at nearly $13,000 per semester (for computer replacement every 3 years, other test equipment, EE specific software licenses, parts and test leads). These laboratories are shared by about 10 junior and senior classes a year. One third of this fee is dedicated to college computing infrastructure for classroom technology, servers and generalized software. The departmental operations budget is only able to cover copying, telephone and basic needs of the faculty.
(including explanation why these costs cannot be covered in the current operations budget of the department)

☐ **Online (web & satellite classes)**

Annualized Enrollment: **Annualized Cost to Department:** $

Rationale:
(If different from rationale for Flagstaff Mountain, please explain.)

☐ **Statewide** Services to students in Statewide sections will be provided by the Flagstaff Academic Unit*: ☐ YES ☐ NO

Annualized Enrollment: **Annualized Cost to Department:** $

Rationale:
(If different from rationale for Flagstaff Mountain, please explain.)

☐ **Yuma** Services to students in Yuma sections will be provided by the Flagstaff Academic Unit*: ☐ YES ☐ NO

Annualized Enrollment: **Annualized Cost to Department:** $

Rationale:
(If different from rationale for Flagstaff Mountain, please explain.)

Chair/Director Signature Date

Associate Provost-Academic Administration Signature Date

Dean Signature Date

Comptroller's Office Signature Date

*For sections where the services to students will NOT be provided by the Flagstaff Academic Unit the class fees collected will be directed to the following accounts:
STATEWIDE - General class fees CED 2505 item type #162602505005; ID classes offered at Scottsdale Community College CED 2521 item type #162602521005
YUMA - General class fees NAY 2502 item type #165652502005. (11/04)

*For sections where the services to students will NOT be provided by the Flagstaff Academic Unit the class fees collected will be directed to the following accounts:
STATEWIDE - General class fees CED 2505 item type #162602505005; ID classes offered at Scottsdale Community College CED 2521 item type #162602521005
YUMA - General class fees NAY 2502 item type #165652502005. (11/04)