Proposal Form For Addition And Revision Of Courses

1. Proposing College / School: Samuel Ginn College of Engineering
   Department: Electrical & Computer Engineering

2. Course Prefix and Number: ELEC 3800

3. Effective Term: Fall 2012

4. Course Title: Random Signals & Systems
   Abbreviated Title (30 characters or less):

5. Requested Action:
   - [ ] Renumber a Course
   - [ ] Add a Course
   - [x] Revise a Course
   - Current Course Number:
   - Proposed Course Number:
   - Type of Revision: bulletin

6. Course Credit:
   Contact/Group Hours | Scheduled Type (e.g.: Lab, Lecture, Practicum, Directed Study) | Weekly or Per Term? | Credit Hours | Anticipated Enrollment
   Maximum Hours (Repeatability): 3 | Lecture | 3 | |
   Total Credit Hours: 3

7. Grading Type:
   - [x] Regular (ABCDF)
   - [ ] Satisfactory/Unsatisfactory (S/U)
   - [ ] Audit

8. Prerequisites/Corequisites:
   Use “P:” to indicate a prerequisite, “C:” to indicate a corequisite, and “P/C:” to indicate a prerequisite with concurrency.
   P: ELEC 2120

9. Restrictions: List specific restriction in space above.
   - [ ] College
   - [ ] Major
   - [ ] Standing
   - [ ] Degree

10. Course Description:
   (20 Words or Less; exactly as it should appear in the Bulletin)
   Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

11. May Count Either:
    (Indicate if this particular course cannot be counted for credit in addition to another)
    Program Type or Program Title
    (e.g.: minor, major, etc.) (e.g.: MS in Chemistry, Performance Option, Minor in Art)
    Requirement or Elective?
    (required or optional?)

12. Affected Program(s):
    (Respond “N/A” if not included in any program; attach memorandum if more space is required)
    Program Type: major
    Program Title: BS in ELEC, ECPE, WIRE, WIRS
    Requirement or Elective?: required

13. Overlapping or Duplication of Other Units’ Offerings:
    (If course is included in any other degree program, is used as an elective frequently by other unit(s), or is in an area similar to that covered by another college/school, attach correspondence with relevant unit)
    - [ ] Applicable
    - [x] Not Applicable
14. Justification: update to bulletin description

(Include a concise, yet adequate rationale for the addition/revision of the course, citing accreditation, assessments (faculty, graduate, and/or external) where applicable)

15. Resources:

(Indicate whether existing resources such as library materials, classroom/lab space, and faculty appointments are adequate to support the proposed addition/revision; if additional resources are required, indicate how such needs will be met, referencing the appropriate level of authorization -- i.e.: Dean -- where necessary; if no additional resources or shifting of resources will be necessary, respond "Not Applicable")

16. Student Learning Outcomes:

(State in measurable terms (reflective of course level) what students should be able to do when they have completed this course)

17. Course Content Outline:

(Provide a comprehensive, week-by-week breakdown of course content, including assignment due dates)

18. Assignments / Projects:

(List all quizzes, projects, reports, activities and other components of the course grade -- including a brief description of each assignment that clarifies its contribution to the course's learning objectives)

19. Rubric and Grading Scale:

(List all components of the course grade -- including attendance and/or participation if relevant -- with point totals for each; indicate point totals and ranges or percentages for grading scale; for S/U grading, detail performance expectations for a passing grade)

20. Justification for Graduate Credit:

(Include a brief statement explaining how the course meets graduate educational standards (i.e.: rigorous standards for evaluation, development of critical thinking and analytical skills, etc.))

( Included below are standard statements regarding course policies. If necessary, a statement may be altered to reflect the academic policies of individual faculty members and/or the academic unit or department, provided that there is no conflict with the Tiger Cub, Faculty Handbook, or any existing university policy.)

POLICY STATEMENT

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student's immediate family, the death of a member of the student's immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please see the Tiger Cub for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g.: hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need special accommodations in class, as provided for by the Americans With Disabilities Act, should arrange for a confidential meeting with the instructor during office hours in the first week of classes (or as soon as possible if accommodations are needed immediately). The student must bring a copy of their Accommodation Letter and an Instructor Verification Form to the meeting. If the student does not have these forms, they should make an appointment with the Program for Students with Disabilities, 1288 Haley Center, 844-2096 (V/TT).
<table>
<thead>
<tr>
<th>Old Bulletin Description</th>
<th>Proposed Revised Bulletin Description</th>
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<tr>
<td><strong>ELEC 2220 COMPUTER SYSTEMS</strong> (3)  LEC. 3. Pr., ELEC 2210 or ELEC 2200 Computer hardware and software organization, processor programming models, data representation, assembly language programming, design of memory systems, input and output device interfacing and programming and multiprocessing.</td>
<td><strong>ELEC 2220 COMPUTER SYSTEMS</strong> (3)  LEC. 3. Pr., ELEC 2200 Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing and programming, multiprocessing.</td>
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<td><strong>ELEC 3050 EMBEDDED SYSTEM DESIGN LAB</strong> (1)  LAB. 3. Pr., ELEC 2210 and ELEC 2220 Development and integration of microcontroller-based hardware and software to design an embedded system to meet specified requirements. Issues related to professional practice.</td>
<td><strong>ELEC 3050 EMBEDDED SYSTEM DESIGN LAB</strong> (1)  LAB. 3. Pr., ELEC 2210 and ELEC 2220 Integration of hardware and software in the design of an embedded computing system; development of professional skills.</td>
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<td><strong>ELEC 3700 ANALOG ELECTRONICS</strong> (3)  LEC. 3. Pr., ELEC 2210 and ELEC 2120 Design and analysis of single-stage and multistage transistor amplifiers; biasing for integrated circuit design; small-signal modeling; operational amplifier circuits; IC design techniques; noise and RF amplifiers; D/A and A/D converters.</td>
<td><strong>ELEC 3700 ANALOG ELECTRONICS</strong> (3)  LEC. 3. Pr., ELEC 2210 and ELEC 2120 Amplifier modeling. Design and analysis of single-stage and multistage transistor amplifiers. Biasing for integrated circuit design. Operational amplifier circuits.</td>
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<td><strong>ELEC 3800 RANDOM SIGNALS AND SYSTEMS</strong> (3)  LEC. 3. Pr., ELEC 2120 Analysis of random signals and noise, system reliability, responses of linear systems to random inputs, optimal filter design.</td>
<td><strong>ELEC 3800 RANDOM SIGNALS AND SYSTEMS</strong> (3)  LEC. 3. Pr., ELEC 2120 Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.</td>
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<td><strong>ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING</strong> (3)  LEC. 3. Pr., MATH 2650 Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems.</td>
<td><strong>ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING</strong> (3)  LEC. 3. P/C: MATH 2650 Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.</td>
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<td><strong>ELEC 4200 DIGITAL SYSTEM DESIGN</strong> (3)  LEC. 2, LAB. 3. Pr., ELEC 2210 and ELEC 2220 Hierarchical, modular design of digital systems, synchronous and asynchronous sequential circuit analysis and design, programmable logic devices and field programmable gate arrays, and circuit simulation for design verification and analysis.</td>
<td><strong>ELEC 4200 DIGITAL SYSTEM DESIGN</strong> (3)  LEC. 2, LAB. 3. Pr., ELEC 2210 and ELEC 2220 Hierarchical, modular design of digital systems; computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.</td>
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<td><strong>ELEC 5100 WIRELESS COMMUNICATION SYSTEMS</strong> (3)  LEC. 3. Pr., ELEC 3400 and ELEC 3320 Introduction to mobile cellular radio and wireless personal communications, cellular concept, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.</td>
<td><strong>ELEC 5100 WIRELESS COMMUNICATION SYSTEMS</strong> (3)  LEC. 3. Pr., ELEC 3400 Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.</td>
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<td><strong>ELEC 5120 TELECOMMUNICATION NETWORKS</strong> (3)  LEC. 3. Pr., ELEC 3400 Plain Old Telephone System (POTS), Public Switching Telephone Network (PSTN), circuit switching, packet switching, frame relay, local subscriber loop, trunk, Signal System 7 (SS7), ISDN, DSL, ATM, SONET, wavelength division multiplexing (WDM), SMDS, voice over IP, network management.</td>
<td><strong>ELEC 5120 TELECOMMUNICATION NETWORKS</strong> (3)  LEC. 3. Pr., ELEC 3400 Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.</td>
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