**PURDUE UNIVERSITY**

**REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE**

(10000-40000 LEVEL)

**APARTMENT** School of Electrical and Computer Engineering (EFD 27-10)

**EFFECTIVE SESSION** Fall 2010

**INSTRUCTIONS:** Please check the items below which describe the purpose of this request:

- [ ] New course with supporting documents
- [ ] Add existing course offered at another campus
- [ ] Expiration of a course
- [ ] Change in course number
- [ ] Change in course title
- [ ] Change in course credit/type
- [ ] Change in course attributes (department head signature only)
- [ ] Change in instructional hours
- [ ] Change in course description
- [ ] Change in course requisites
- [ ] Change in semesters offered (department head signature only)
- [ ] Transfer from one department to another

**PROPOSED:**

- Subject Abbreviation: __________
- Course Number: 20200
- Long Title: Linear Circuit Analysis II
- Short Title: Linear Circuit Analysis II

**EXISTING:**

- Subject Abbreviation: ECE

**TERMS OFFERED:**

- Check All That Apply: [ ] Summer [ ] Fall [ ] Spring

**CAMPUS(ES) INVOLVED:**

- [ ] Calumet
- [ ] Cont Ed
- [ ] Ft. Wayne
- [ ] Tech Statewide
- [ ] Indianapolis
- [ ] W. Lafayette

**ABBREVIATED TITLE WILL BE ENTERED BY THE OFFICE OF THE REGISTRAR IF OMITTED (30 CHARACTERS ONLY):**

**CREDIT TYPE:**

<table>
<thead>
<tr>
<th>1. Fixed Credit: Cr. Hrs.</th>
<th>1. Pass/Not Pass Only</th>
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<tbody>
<tr>
<td>2. Variable Credit Range:</td>
<td>2. Satisfactory/Unsatisfactory Only</td>
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<tr>
<td>Minimum Cr. Hrs. (Check One)</td>
<td>3. Repeatable</td>
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<td>Maximum Cr. Hrs.</td>
<td>Maximum Repeatable Credit:</td>
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<td>Equivalent Credit: Yes/No</td>
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<td>Schedule Type</td>
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<td>Rotation</td>
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<td>Apprenticeship</td>
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<td>Laboratory</td>
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<td>Studio</td>
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<td>Distance</td>
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<td>Clinic</td>
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<td>Research</td>
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<td>Ind. Study</td>
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<td>Pract/Observer</td>
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**COURSE ATTRIBUTES:** Check All That Apply

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<th>6. Registration Approval Type</th>
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<tbody>
<tr>
<td>Department</td>
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<td>7. Variable Title</td>
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<tr>
<td>8. Honors</td>
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<tr>
<td>9. Full Time Privilege</td>
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<tr>
<td>10. Off Campus Experience</td>
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**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**

Prerequisites: ECE 20100 Minimum Grade of C and (MA 26200 [may be taken concurrently] or MA 26600 [may be taken concurrently] or MA 36600 [may be taken concurrently])

**COURSE OUTLEARNING OUTCOMES:**

See attachment.

**Calumet Department Head**

Date

**Calumet School Dean**

Date

**Fort Wayne Department Head**

Date

**Fort Wayne School Dean**

Date

**Indianapolis Department Head**

Date

**Indianapolis School Dean**

Date

**North Central Chairman**

Date

**West Lafayette Registrar**

Date

**OFFICE OF THE REGISTRAR**
**PURDUE UNIVERSITY**
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

**DEPARTMENT** School of Electrical and Computer Engineering (EFD 27-10)  
**EFFECTIVE SESSION** Fall 2010

**INSTRUCTIONS**: Please check the items below which describe the purpose of this request.

- [ ] 1. New course with supporting documents
- [ ] 2. Add existing course offered at another campus
- [ ] 3. Expiration of a course
- [X] 4. Change in course number
- [ ] 5. Change in course title
- [ ] 6. Change in course credit/type
- [ ] 7. Change in course attributes (department head signature only)
- [ ] 8. Change in Instructional hours
- [ ] 9. Change in course description
- [ ] 10. Change in course requisites
- [ ] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

**PROPOSED:**

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>Subject Abbreviation ECE</th>
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<tbody>
<tr>
<td>Course Number</td>
<td>Course Number 20200</td>
</tr>
<tr>
<td>Long Title</td>
<td>Linear Circuit Analysis II</td>
</tr>
<tr>
<td>Short Title</td>
<td>Linear Circuit Analysis II</td>
</tr>
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Abbreviated title will be entered by the Office of the Registrar if omitted. (50 CHARACTERS ONLY)

**CREDIT TYPE**

| 1. Fixed Credit: Cr. Hrs. | 2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To | 3. Equivalent Credit: Yes | No |
|---------------------------|----------------------------------------------------------|--------------------------|

**COURSE ATTRIBUTES**: Check All That Apply

|-----------------------|------------------------------------|---------------|-------------------------|----------------|------------------------------------|------------------|----------|------------------------|-------------------------|

**SCHEDULE TYPE**

<table>
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<tr>
<th>Lecture</th>
<th>Recitation</th>
<th>Laboratory</th>
<th>Studio</th>
<th>Distance</th>
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**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**
Prerequisites: ECE 20100 Minimum Grade of C and (MA 28200 [may be taken concurrently] or MA 26600 [may be taken concurrently] or MA 36600 [may be taken concurrently])

**COURSE LEARNING OUTCOMES:**
See attachment.

**Calumet Department Head**

**Calumet School Dean**

**Fort Wayne Department Head**

**Fort Wayne School Dean**

**Indianapolis Department Head**

**Indianapolis School Dean**

**North Central Department Head**

**North Central Dean**

**West Lafayette Department Head**

**West Lafayette School Dean**

**West Lafayette Registrar**

**OFFICE OF THE REGISTRAR**

FOR OFFICIAL USE ONLY

CAMPUS(ES) INVOLVED:

- Calumet
- Cont Ed
- FL Wayne
- Indianapolis
- N. Central
- Tech Statewide
- W. Lafayette
TO: The Faculty of the College of Engineering
FROM: The Faculty of the School of Electrical and Computer Engineering
RE: Change to Existing Undergraduate Course: ECE 20200, Linear Circuit Analysis II, change in requisites.

The faculty of the School of Electrical and Computer Engineering has approved the following changes to an existing course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

From: ECE 20200 Linear Circuit Analysis II
Sem. Fall, Spring, Summer; Cr. 3; Lecture 3.
Prerequisites: ECE 20100 and (MA 26200 [may be taken concurrently] or MA 26600 [may be taken concurrently]) or MA 36600 [may be taken concurrently]
Restrictions: Must be enrolled in one of the following: School of Electrical & Computer Engineering, School of Interdisciplinary Engineering
Description: Continuation of ECE 20100. Use of Laplace Transform techniques to analyze linear circuits with and without initial conditions. Characterization of circuits based upon impedance, admittance, and transfer function parameters. Determination of frequency response via analysis of poles and zeros in the complex plane. Relationship between the transfer function and the impulse response of a circuit. Use of continuous time convolution to determine time domain responses. Properties and practical uses of resonant circuits and transformers. Input - output characterization of a circuit as a two-port. Low and high-pass filter design.

To: ECE 20200 Linear Circuit Analysis II
Sem. Fall, Spring, Summer; Cr. 3; Lecture 3.
Prerequisites: ECE 20100 Minimum Grade of C and (MA 26200 [may be taken concurrently] or MA 26600 [may be taken concurrently]) or MA 36600 [may be taken concurrently]
Restrictions: Must be enrolled in one of the following: School of Electrical & Computer Engineering, School of Interdisciplinary Engineering
Description: Continuation of ECE 20100. Use of Laplace Transform techniques to analyze linear circuits with and without initial conditions. Characterization of circuits based upon impedance, admittance, and transfer function parameters. Determination of frequency response via analysis of poles and zeros in the complex plane. Relationship between the transfer function and the impulse response of a circuit. Use of continuous time convolution to determine time domain responses. Properties and practical uses of resonant circuits and transformers. Input - output characterization of a circuit as a two-port. Low and high-pass filter design.
Reason: This course is part of the Core Curriculum for the BSEE and BScmpE degrees. Subsets of Core Curriculum courses serve as prerequisites for most upper division ECE electives. In addition, a degree requirement for all ECE students is to achieve a GPA in all major-area (ECE) courses of at least a 2.0. Therefore, in order to ensure that ECE students are as well prepared as possible for upper division ECE courses, as well as to facilitate their achievement of the minimum major-area GPA of 2.0, a minimum grade requirement in the key ECE prerequisite course is being proposed.

on behalf of V. Balakrishnan, Interim Head
School of Electrical and Computer Engineering
Course Learning Outcomes:

i. an ability to compute impedances and admittances of components and circuits.
ii. an ability to compute responses of linear circuits with and without initial conditions via one-sided Laplace transform techniques.
iii. an ability to compute responses to linear circuits using transfer function and convolution techniques.
iv. an ability to analyze and compute responses of linear circuits containing mutually coupled inductors and ideal transformers in the s-domain.
v. an ability to analyze basic two port circuits using the various types of two port parameters and be able to construct such parameters from a given circuit.
vi. an ability to analyze and design basic LP, BP, HP and resonant circuits in the s-domain.