**DEPARTMENT**  ECE  
**EFFECTIVE SESSION**  201710

**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. Change in course title
4. Change in course number
5. Change in course credit type
6. Change in course attributes (department head signature only)
7. Change in instructional hours
8. Change in course description
9. Change in course requisites
10. Change in semesters offered (department head signature only)
11. Transfer from one department to another

**PROPOSED**

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>Course Number</th>
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<tbody>
<tr>
<td>ECE</td>
<td>30414</td>
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<table>
<thead>
<tr>
<th>EXISTING</th>
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<tbody>
<tr>
<td>Subject Abbreviation</td>
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<table>
<thead>
<tr>
<th>Term Offered</th>
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<tbody>
<tr>
<td>Summer</td>
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<tr>
<td>Fall</td>
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<tr>
<td>Spring</td>
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<table>
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<tr>
<th>TERMS OFFERED</th>
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<tbody>
<tr>
<td>CAMPUS(EBS) INVOLVED</td>
</tr>
<tr>
<td>Calumet</td>
</tr>
<tr>
<td>Ft. Wayne</td>
</tr>
<tr>
<td>N. Central</td>
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<tr>
<td>Tech Statewide</td>
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<tr>
<td>W. Lafayette</td>
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**PROPOSED**

**Long Title**  Elements of Electro and Fiber Optics

**Short Title**

**CREDIT TYPE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Cr. Hrs.</th>
<th>Minimum Cr. Hrs.</th>
<th>Maximum Cr. Hrs.</th>
<th>Equivalent Credit</th>
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<tbody>
<tr>
<td>Pass/Not Pass</td>
<td>3.0</td>
<td>2.0</td>
<td>4.0</td>
<td>Yes/No</td>
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**COURSE ATTRIBUTES:**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Department</th>
<th>Instructor</th>
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<tr>
<td>6 Registration Approval Type</td>
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<td>7 Variable Title</td>
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<td>9 Honors</td>
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<tr>
<td>10 Off-Campus Experience</td>
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</table>

**COURSE DESCRIPTION (INCLUDE REQUIREMENTS/RESTRICTIONS):**

Restriction: Student must be enrolled in School of Electrical and Computer Engineering.

Requisites: Undergraduate level ECE 30100 Minimum Grade of D- and Undergraduate level ECE 30411 Minimum Grade of D- (may be taken concurrently)

Introduction to the use of lasers, fiber and integrated optical components and devices in communication and sensory applications. Topics include generation, transformation, modulation, deflection and detection of laser beams and their applications in fiber communication and sensory systems.

**COURSE LEARNING OUTCOMES:**

I. an ability to model laser beams and the transformation of laser beams.
II. a knowledge of the operations of gas lasers, semiconductor lasers and light emitting diodes.
III. a knowledge of optical detection schemes and the operations of optical detectors.
IV. an understanding of the optic fiber properties.
V. a knowledge of key components of optical fiber communication systems.

**Signatures:**

Calumet Department Head

Calumet School Dean

Fort Wayne Department Head

Fort Wayne School Dean

Indianapolis Department Head

Indianapolis School Dean

North Central Faculty Senate Chair

Vice Chancellor for Academic Affairs

West Lafayette Department Head

West Lafayette College/School Dean

West Lafayette Registrar

**OFFICE OF THE REGISTRAR**
To: The Faculty of the College of Engineering

From: The Faculty of the School of Electrical and Computer Engineering

RE: Changes to an existing course: ECE 41400 change in number, term offered and requisites.

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

FROM: ECE 41400 Elements of Electro and Fiber Optics
Sem. 2. Lecture 3, Credit 3
Restriction: Student must be enrolled in School of Electrical and Computer Engineering.
Requisites: Undergraduate level ECE 30100 Minimum Grade of D- and Undergraduate level ECE 31100 Minimum Grade of D-

Introduction to the use of lasers, fiber and integrated optical components and devices in communication and sensory applications. Topics include generation, transformation, modulation, deflection and detection of laser beams and their applications in fiber communication and sensory systems.

TO: ECE 30414 Elements of Electro and Fiber Optics
Sem. 1. Lecture 3, Credit 3
Restriction: Student must be enrolled in School of Electrical and Computer Engineering.
Requisites: Undergraduate level ECE 30100 Minimum Grade of D- and Undergraduate level ECE 30411 Minimum Grade of D- (may be taken concurrently)

Introduction to the use of lasers, fiber and integrated optical components and devices in communication and sensory applications. Topics include generation, transformation, modulation, deflection and detection of laser beams and their applications in fiber communication and sensory systems.

Approved for the faculty of the Schools of Engineering by the Engineering Curriculum Committee
ECC Minutes 15 Date 2/21/14
Chairman ECC 12/
REASON: The change is intended to improve the progression of courses from the 20000 level to 30000 and 40000 level courses, for students who wish to focus their studies in the optics area and reflect similar changes, previously submitted to the Engineering Curriculum Committee, in ECE 30412 and ECE 30413. The requisites are changing to allow students to concurrently take ECE 31100, which is proposed to become ECE 30411. This course was previously offered only in spring semester and now will be offered only in fall semester. No other changes will be made.

For V. Ragu Balakrishnan, Head
School of Electrical and Computer Engineering
ECE 5-Digit Course Numbering

First Digit: Level
6 – Graduate only courses
5 – Dual level
4 – Senior Level
3 – Junior Level
2 – Sophomore Level
1 – First Year Level

2nd and 3rd Digits: ECE Area
00 – CNSIP
02 – Automatic Control
04 – Fields and Optics
06 – Microelectronics and Nanotechnology
08 – Computer Engineering
10 – Power and Energy Systems
12 – VLSI
14 – BIS

4th and 5th Digits:
Mostly arbitrary – keep in prereq order if possible within ECE area. When updating, use same last two digits, i.e. ECE 30500 \(\rightarrow\) ECE 30605, etc.

Special Cases:
X9595 for all experimental courses.
X99XX for all seminar or similar courses
XXX99 for all professional practice courses
490XX for all Sr. Design courses