

20-06

PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(100-400 LEVEL)

DEPARTMENT ECE EFFECTIVE SESSION F07 Sp 08

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

- | | |
|--|--|
| <input checked="" type="checkbox"/> 1. New course with supporting documents (complete proposal form) | <input type="checkbox"/> 7. Change in course attributes |
| <input type="checkbox"/> 2. Add existing course offered at another campus | <input type="checkbox"/> 8. Change in instructional hours |
| <input type="checkbox"/> 3. Expiration of a course | <input type="checkbox"/> 9. Change in course description |
| <input type="checkbox"/> 4. Change in course number | <input type="checkbox"/> 10. Change in course requisites |
| <input type="checkbox"/> 5. Change in course title | <input type="checkbox"/> 11. Change in semesters offered |
| <input type="checkbox"/> 6. Change in course credit/type | <input type="checkbox"/> 12. Transfer from one department to another |

PROPOSED:

Subject Abbreviation ECE

Course Number 190

Long Title Introduction to Electrical and Computer Engineering

Short Title _____

Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

EXISTING:

Subject Abbreviation _____

Course Number _____

TERMS OFFERED

Check All That Apply:

- Summer Fall Spring

CAMPUS(ES) INVOLVED

- Calumet N. Central
 Cont Ed Tech Statewide
 Ft. Wayne W. Lafayette
 Indianapolis

CREDIT TYPE

1. Fixed Credit: Cr. Hrs. 1
2. Variable Credit Range:
 Minimum Cr. Hrs. _____
 (Check One) To Or
 Maximum Cr. Hrs. _____
3. Equivalent Credit: Yes No
4. Thesis Credit: Yes No

COURSE ATTRIBUTES: Check All That Apply

1. Pass/Not Pass Only
2. Satisfactory/Unsatisfactory Only
3. Repeatable
 Maximum Repeatable Credit: _____
4. Credit by Examination
5. Designator Required
6. Special Fees
7. Registration Approval Type
 Department Instructor
8. Variable Title
9. Remedial
10. Honors
11. Full Time Privilege
12. Off Campus Experience

Instructional Type	Minutes Per Mtg	Meetings Per Week	Weeks Offered	% of Credit Allocated	Delivery Method (Asyn. Or Syn.)	Delivery Medium (Audio, Internet, Live, Text-Based, Video)	Cross-Listed Courses
Lecture	50	1	16	100%			
Recitation							
Presentation							
Laboratory							
Prep							
udio							
Distance							
Clinic							
Experiential							
Research							
Ind. Study							
Pract/Observ							

COURSE DESCRIPTION (INCLUDE REQUISITES):

ECE 190 Introduction to Electrical and Computer Engineering
 Sem: Spring. Class: 1; Credit: 1.
 Prerequisite: Open only to First Year Engineering students.

This course is intended to provide an introduction to electrical and computer engineering for students in their freshman year. A goal is to provide some historical background of the respective sub-areas within ECE, a description of analytical tools that will be developed throughout their curriculum, the motivation for the tools, and to inform students of elective courses in ECE.

Fort Wayne Department Head _____ Date _____	Fort Wayne School Dean _____ Date _____	Fort Wayne Chancellor <u>Michael J. Atkinson</u> 12/3/07 Date _____
Indianapolis Department Head _____ Date _____	Indianapolis School Dean _____ Date _____	Undergrad Curriculum Committee _____ Date _____
North Central Department Head _____ Date _____	North Central Chancellor _____ Date _____	Date Approved by Graduate Council _____
West Lafayette Department Head _____ Date _____	West Lafayette College/School Dean _____ Date _____	Graduate Council Secretary _____ Date _____
Graduate Area Committee Convener _____ Date _____	Graduate Dean _____ Date _____	West Lafayette Registrar <u>Sandra Schaffer</u> 12/17/07 Date _____

12/17/07
[Signature]

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Subject Abbreviation _____

Course Number _____

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Summer Fall Spring

CAMPUS(ES) INVOLVED

- | | |
|---------------------------------------|--|
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| <input type="checkbox"/> Cont Ed | <input type="checkbox"/> Tech Statewide |
| <input type="checkbox"/> Ft. Wayne | <input checked="" type="checkbox"/> W. Lafayette |
| <input type="checkbox"/> Indianapolis | |

CREDIT TYPE

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Minimum Cr. Hrs. _____
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COURSE ATTRIBUTES: Check All That Apply

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| <input type="checkbox"/> 3. Repeatable | 8. Variable Title <input type="checkbox"/> |
| Maximum Repeatable Credit: <input type="checkbox"/> | 9. Remedial <input type="checkbox"/> |
| <input type="checkbox"/> 4. Credit by Examination | 10. Honors <input type="checkbox"/> |
| <input type="checkbox"/> 5. Designator Required | 11. Full Time Privilege <input type="checkbox"/> |
| <input type="checkbox"/> 6. Special Fees | 12. Off Campus Experience <input type="checkbox"/> |

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Presentation							
Laboratory							
Lab Prep							
Studio							
Distance							
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Research							
Ind. Study							
Pract/Observ							

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Fort Wayne Department Head _____ Date _____ Fort Wayne School Dean _____ Date _____

Indianapolis Department Head _____ Date _____ Indianapolis School Dean _____ Date _____

North Central Department Head _____ Date _____ North Central Chancellor _____ Date _____

West Lafayette Department Head _____ Date 11/20/07 West Lafayette College/School Dean _____ Date 12/12/07

Graduate Area Committee Convener _____ Date _____ Graduate Dean _____ Date _____

Fort Wayne Chancellor _____ Date _____

Undergrad Curriculum Committee _____ Date _____

Date Approved by Graduate Council _____

Graduate Council Secretary _____ Date _____

West Lafayette Registrar _____ Date _____

Michael J. Jantsch 12/13/07

Muh/R. Muller

Michael J. Jantsch 12/12/07

TO: The Engineering Faculty
FROM: The Faculty of the School of Electrical and Computer Engineering
RE: New Undergraduate Level Course: ECE 190

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

ECE 190 **Introduction to Electrical and Computer Engineering**
Sem: Spring. Class: 1; Credit: 1.
Prerequisite: Open only to First Year Engineering students.

This course is intended to provide an introduction to electrical and computer engineering for students in their freshman year. A goal is to provide some historical background of the respective sub-areas within ECE, a description of analytical tools that will be developed throughout their curriculum, the motivation for the tools, and to inform students of elective courses in ECE.

Reason: To provide an overview of the fields within electrical and computer engineering. The overview will include an introduction to several analytical, numerical, and experimental tools that students will be expected to master prior to graduation as well as technical challenges that are being addressed in the respective fields.

Mark J. T. Smith
Professor and Head

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes # 4

Date 10-15-07

Chairman ECC 

Supporting Documentation

Required Text: None

Recommended References: None:

Course Outcomes:

A student who successfully fulfills the course requirements will have demonstrated

- i. Knowledge of the respective areas of electrical and computer engineering
- ii. Knowledge of the history of the respective areas
- iii. Knowledge of some essential concepts within each sub-area of ECE

ES&S – Charge and moving charge creating force, electric fields, magnetic fields, energy, efficiency.

FO – Conductors, dielectrics, ferroelectrics, circuit elements (R, L, C), traveling electromagnetic waves.

CNSIP – Information transfer using electromagnetic means. Signals, amplitude modulation, frequency modulation, frequency versus time domain, stochastic processes, biomedical image processing.

Solid State – Semiconductors versus conductors, diodes, transistors, material processing, VLSI.

Computer Engineering – Digital systems, microprocessors, software engineering.

Automatic Control – System regulation, feedback, bandwidth, stability, continuous systems, optimization, discrete systems, hybrid systems.

Assessment of Outcomes: Homework and Quiz performance will be used to track student development and lecture effectiveness.

Engineering Design Content: None

Engineering Design Considerations: None

Course Outline

Topic	Weeks
History/Concepts/Ongoing Challenges in ES&S	2.5
History/Concepts/Ongoing Challenges in Fields/Optics	2.5
History/Concepts/Ongoing Challenges in CNSIP	2.5
History/Concepts/Ongoing Challenges in Solid State	2.5
History/Concepts/Ongoing Challenges in Computers	2.5
History/Concepts/Ongoing Challenges in Automatic Control	2.5

ECE 190-Syllabus**Introduction to Electrical and Computer Engineering**

Objective: To provide an overview of the fields within electrical and computer engineering. The overview will include an introduction to several analytical, numerical, and experimental tools that students will be expected to master prior to graduation as well as technical challenges that are being addressed in the respective fields.

Description: Although some students have been introduced to ECE-related topics from friends/relatives or previous courses in physics and mathematics, very few have an idea of what they will face in their ECE education or in the workforce upon graduation. In this course, a history of the field of ECE will be used to introduce students to key concepts they will be expected to master and how the concepts provide the foundation to solve challenging technical problems.

Instructor: Steve Pekarek

Office: Electrical Engineering Building, Office 148

Office Phone: 765-494-3434

Fax: 765-494-0676

Email: spekarek@purdue.edu

Office Hours: WR 3:00-4:30 PM, and by appointment

Text: None (class notes only)

Prerequisite: Freshman Standing – Not open to students enrolled in ECE

Approximate Syllabus:

Weeks, Content, # of lectures (approximate)

- 1 Course Outline, Management, Description, Experiments of Oersted, Ampere, Faraday
- 2 Electromagnetic Forces, Electromagnetic-Based Energy Conversion
- 3 History of Maxwell/Heavyside, Traveling Electromagnetic Waves
- 4 Electromagnetic Materials (Conductors, Insulators, Dielectrics, Ferrites)
- 5 From Vector to Scalar Models - Dc/Low Frequency Circuits, Oscilloscopes, Multimeters
- 6 History of CNSIP - Radio/Television/Radar/Networking
- 7 Concept of Time versus Frequency Domain, Fourier Series, Fourier Transform,
- 8 Stochastic Versus Deterministic Systems, Signal/Noise Ratio, Modern
Communication/Signal Processing
- 9 History of Solid State Devices – Semiconductors

10	Diodes, Transistors, Nanoelectronics
11-13	Computer Engineering – Binary Systems, Digital Logic, Microprocessors, Programming Languages
14-15	Automatic Control – Feedback, Industrial Process Control (Proportional+Integral), Linearity

Homeworks: Assignments will given each week on Monday. The assignments will be due the by Friday at 4:30. Solutions will be posted on the class website at 5:00 pm on Saturday.

Quizzes: We will have weekly 10 minute quizzes at the end of each lecture that will cover material from 1) the lecture (make sure you are paying attention) and 2) the topic from the previous week/homework (make sure you are understanding). Make-up quizzes given only for medical or family emergencies. Supporting note from physician, mortician required.

Grades: Grades will be based upon the cumulative score of your top 10 quizzes + HW score (HW ~1/11 of total grade).

Academic Dishonesty Policy: All quizzes are to be an individual's own work. Cheating on any quiz will lead to an 'F' for the course.

