Organic and Printed Flexible Electronics

ECE 5833

Description / Conditions

Transcript Abbreviation:
Flexible Electroni

Course Description:
Conducting organic small molecules and polymers (structural, optical and electrical properties); printable metal-
oxide semiconductors; Printing techniques, organic light emitting diodes; transport and carrier injection; organic
transistors; organic lasers.

Course Levels:
Undegraduate (1000-5000 level)
Graduate (5000-8000 level)

Designation:
Elective

General Education Course:
(N/A)

Cross-Listings:
(N/A)

Course Detail

Credit Hours (Minimum if “Range” selected):
3.00

Max Credit Hours:
3.00
Select if Repeatable: Off

Maximum Repeatable Credits: (N/A)

Total Completions Allowed: (N/A)

Allow Multiple Enrollments in Term: No

Course Length:
14 weeks (autumn or spring)
12 weeks (summer only)

Off Campus: Never

Campus Location: Columbus

Instruction Modes:
In Person (75-100% campus; 0-24% online)

Prerequisites and Co-requisites:
Prereq: 3030, or permission of instructor for non-ECE majors; or Grad standing in engineering, biological sciences, or math and physical sciences.

Electronically Enforced: No

Exclusions:
Not open to students with credit for 7833 or 5194.04.

Course Goals and Learning Objectives

Course Goals / Objectives:
Gain a fundamental understanding of the field of organic and printed electronic materials, fabrication techniques and devices and their potential impact

Check if concurrence sought: No
### Contact Hours

#### Contact Hours:

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<tr>
<th>Topic</th>
<th>LEC</th>
<th>REC out-of-class</th>
<th>REC in-class</th>
<th>Weekly LAB out-of-class</th>
<th>Weekly LAB in-class</th>
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<td>Motivation for study of organic and printed flexible electronics</td>
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<td>Materials properties/synthesis of printable semiconductors</td>
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<td>Materials parameter space for design</td>
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<td>Processing issues for organic and printable semiconductors</td>
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<td>Organic solar cells</td>
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<td>Molecular electronics with NDR &amp; organic lasers</td>
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<td>Carbon-based electronics (nanotubes and graphene)</td>
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<td>Organic sensors (bio &amp; chemical)/Future market opportunities</td>
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### Grading and Texts

#### Grading Plan:
Letter Grade
Course Components:
Lecture

Grade Roster Component:
Lecture

Credit by Exam (EM):
No

Grades Breakdown:

<table>
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<tr>
<td>Class Discussions</td>
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<tr>
<td>Class presentations</td>
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<td>Term Paper</td>
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Representative Textbooks and Other Course Materials:

<table>
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<th>Title</th>
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ABET Student Learning Outcomes

ABET-CAC Criterion 3 Outcomes:
(N/A)

ABET-ETEC Criterion 3 Outcomes:
(N/A)

ABET-EAC Criterion 3 Outcomes:
(N/A)

Embedded Literacies (UG courses only)

Embedded Literacies Info:
Attachments / Additional Notes or Comments

Attachments:
(N/A)

Additional Notes or Comments:
(N/A)