TO: The Faculty of the College of Engineering  
FROM: School of Electrical and Computer Engineering of the College of Engineering  
RE: New Graduate Course, ECE 60874 Mobile Computing Systems

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 60874 Mobile Computing Systems**  
Sem. 2, Lecture 3, Cr. 3.

Prerequisite by Topic: Object-Oriented Programming, Computer Networks, and Operating Systems

**Description:** This course will introduce the technologies of mobile computing systems for various applications, including multimedia, cloud services, location-based services, data collections and privacy. This course will include both hands-on assignments writing mobile applications as well as reading recently published papers on the technologies. The students will design mobile services and present their projects.

**Reason:** This course will examine recent technologies in mobile computing. Thus, students should have background on general computing systems. The technologies for mobile computing change rapidly so this course will read recently published papers. The goal of this course is to survey the recent progresses in mobile technologies and develop promising mobile services. Thus, 600-level would be appropriate.

Michael R. Melloch, Associate Head  
School of Electrical and Computer Engineering

Approved for the faculty of the Schools of Engineering by the Engineering Curriculum Committee

ECC Minutes 3-14  
Chairman ECC 3-14
Supporting Document to the Form 40G
for a New Graduate Course

To: Purdue University Graduate Council
From: Faculty Member: Yung-Hsiang Lu

Department: Electrical and Computer Engineering
Campus: West Lafayette

Date:

Subject: Proposal for New Graduate Course

Contact for information if questions arise:
Name: Matt Golden
Phone: 494-3374
Email: goldenm@purdue.edu
Address: EE Building, Room 135

Course Subject Abbreviation and Number: ECE 60874
Course Title: Mobile Computing Systems

Course Description:
This course will introduce the technologies of mobile computing systems for various applications, including multimedia, cloud services, location-based services, data collections and privacy. This course will include both hands-on assignments writing mobile applications as well as reading recently published papers on the technologies. The students will design mobile services and present their projects.

Semesters Offered:
For the benefit of graduate student plan of study development, how frequently will this prototype be offered? Which semesters?
Spring

A. Justification for the Course:
Provide a complete and detailed explanation of the need for the course (e. g., in
the preparation of students, in providing new knowledge/training in one or more
topics, in meeting degree requirements, etc.), how the course contributes to
existing majors and/or concentrations, and how the course relates to other
graduate courses offered by the department, other departments, or
interdisciplinary programs.

Justify the level of the proposed graduate course (500- or 600-level) including
statements on, but not limited to: (1) the target audience, including the anticipated
number of undergraduate and graduate students who will enroll in the course; and
(2) the rigor of the course.

- This course will examine recent technologies in mobile computing. Thus,
students should have background on general computing systems. The
technologies for mobile computing change rapidly so this course will read
recently published papers. The goal of this course is to survey the recent
progresses in mobile technologies and develop promising mobile services.
Thus, 600-level would be appropriate.

Use the following criteria:
Graduate Council policy requires that courses at the 50000 level in the Purdue
system should be taught at the graduate level and meet four criteria: a) the use of
primary literature in conjunction with advanced secondary sources (i.e.,
advanced textbooks); b) assessments that demonstrate synthesis of concepts and
ideas by students; c) demonstrations that topics are current, and; d) components
that emphasize research approaches/methods or discovery efforts in the course
content area (reading the research, critiquing articles, proposing research,
performing research). Such courses should be taught so that undergraduate
students are expected to rise to the level of graduate work and be assessed in the
same manner as the graduate students.

- Anticipated enrollment
  o Undergraduate  0
  o Graduate  15

B. Learning Outcomes and Method of Evaluation or Assessment:

ECE Graduate Learning Outcomes:

a. Knowledge and Scholarship (thesis/non-thesis)
b. Communication (thesis/non-thesis)
c. Critical Thinking (thesis/non-thesis)
d. Ethical and Responsible Research (thesis) or Professional and Ethical
   Responsibility (non-thesis)

- List Learning Objectives for this course and map each Learning Objective to one
or more of the ECE Learning Outcomes (a-d, listed above):

- examine recent technologies in mobile computing (a, c)
- design mobile services and present their projects (b, c)
- plan for data collection and respect users' privacy (a, c, d)
- critique technologies and peer review projects (b, c)

- Methods of Instruction
  - Lecture

- Will/can this course be offered via Distance Learning?
  - The course will not be offered via Distance Learning though it could be if necessary.

- Grading Criteria

Grading criteria (select from checklist); include a statement describing the criteria that will be used to assess students and how the final grade will be determined. Add and delete rows as needed.

  - exams and/or quizzes
  - papers and/or projects
  - homework

  ▶ Describe the criteria that will be used to assess students and how the final grade will be determined:

  Homework Assignments (35%)
  Midterm Exam (20%)
  Semester Project (25%)
  Final Exam (20%)

C. Prerequisite(s):

List prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence. Add bullets as needed.

- Graduate Standing or Consent of Instructor
- Prerequisite by Topic: Object-Oriented Programming, Computer Networks, and Operating Systems
D. Course Instructor(s):

Provide the name, rank, and department/program affiliation of the instructor(s). Is the instructor currently a member of the Graduate Faculty? (If the answer is no, indicate when it is expected that a request will be submitted.) Add rows as needed.

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Dept.</th>
<th>Graduate Faculty or expected date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yung-Hsiang Lu</td>
<td>Associate</td>
<td>ECEN</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Professor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E. Course Outline:

Provide an outline of topics to be covered and indicate the relative amount of time or emphasis devoted to each topic. If laboratory of field experiences are used to supplement a lecture course, explain the value of the experience(s) to enhance the quality of the course and student learning. For special topics courses, include a sample outline of a course that would be offered under the proposed course. (This information must be listed and may be copied from syllabus).

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Principal Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to mobile computing systems. Course overview</td>
</tr>
<tr>
<td>1</td>
<td>Wireless networks</td>
</tr>
<tr>
<td>1</td>
<td>Multimedia and mobile applications</td>
</tr>
<tr>
<td>2</td>
<td>Mobile and cloud computing</td>
</tr>
<tr>
<td>3</td>
<td>Resource management</td>
</tr>
<tr>
<td>2</td>
<td>Location-based services</td>
</tr>
<tr>
<td>2</td>
<td>Data collection and privacy</td>
</tr>
<tr>
<td>2</td>
<td>Trends in mobile computing</td>
</tr>
<tr>
<td>1</td>
<td>Student presentations of projects</td>
</tr>
</tbody>
</table>

F. Reading List (including course text):

A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.

A secondary reading list or bibliography should include material students may use as background information.
• Primary Reading List


• Secondary Reading List

G. Library Resources

Describe any library resources that are currently available or the resources needed to support this proposed course.

• The course textbook will be on reserve at the library. All additional assigned readings will be made available to the students electronically through Blackboard or other means.

H. Course Syllabus

(While not a necessary component of this supporting document, an example of a course syllabus is available, for information, by clicking on the link below, which goes to the Graduate School's Policies and Procedures Manual for Administering Graduate Student Program.
See Appendix K.
PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE
(50000-60000 LEVEL)

DEPARTMENT: Electrical and Computer Engineering
EFFECTIVE SESSION: Spring 2016

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

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

PROPOSED:

Subject Abbreviation: ECE
Course Number: 60874
Long Title: Mobile Computing Systems
Short Title: Mobile Computing Systems

EXISTING:

Subject Abbreviation
Course Number

TERMS OFFERED:

Check All That Apply:
☐ Fall ☑ Spring ☐ Summer

CAMPUS(ES) INVOLVED:
☐ Calumet ☑ N. Central
☐ Cont Ed ☑ Tech Statewide
☐ Ft. Wayne ☑ W. Lafayette
☐ Indianapolis

CREDIT TYPE

1. Fixed Credit Cr. Hrs. 3
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
7. Variable Title
8. Honors
4. Credit by Examination
9. Full Time Privilege
5. Fees ☐ Coop ☐ Lab ☑ Rate Request
6. Off Campus Experience
Include comment to explain fees

Schedule Type Minutes Per Week Meetings Per Week Weeks Of Credit % of Credit Cross-Listed Courses
Lecture 3 50 18 100
Recitation
Presentation
Laboratory
Lab Prep
Studio
Distance
Clinic
Experiential
Research
Ind. Study
Prac/observe

COURSE DESCRIPTION (INCLUDE REQUIRITES/RESTRICTIONS):
This course will introduce the technologies of mobile computing systems for various applications, including multimedia, cloud services, location-based services, data collections and privacy. This course will include both hands-on assignments writing mobile applications as well as reading recently published papers on the technologies. The students will design mobile services and present their projects.

* COURSE LEARNING OUTCOMES:

examine recent technologies in mobile computing (a, c)
design mobile services and present their projects (b, c)
plan for data collection and respect users' privacy (a, c, d)

Calumet Department Head Date Calumet School Dean Date Calumet Director of Graduate Studies Date

Fort Wayne Department Head Date Fort Wayne School Dean Date Fort Wayne Director of Graduate Studies Date

Indianapolis Department Head Date Indianapolis School Dean Date IU-PUI Associate Dean for Graduate Education Date

North Central Department Head Date North Central School Dean Date North Central Director of Graduate Studies Date

West Lafayette Department Head Date West Lafayette School Dean Date Date Approved by Graduate Council Date

Graduate Area Committee Convener Date Graduate Dean Date Graduate Council Secretary Date

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