PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF A GRADUATE COURSE
(50000-60000 LEVEL)

DEPARTMENT: Engineering
EFFECTIVE SESSION: Fall 2010

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: 60300
Long Title: Computational Models and Methods
Short Title: Computational Models & Methods

EXISTING:
Subject Abbreviation:
Course Number:
Long Title:
Short Title:

TERMS OFFERED:
Check All That Apply:
- Summer
- Fall
- Spring

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

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

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/Net Pass Only
2. Satisfactory/Unsatisfactory Only
3. Repeatable
4. Credit by Examination
5. Special Fees
6. Registration Approval Type Department Instructor
7. Variable Title
8. Honors
9. Full Time Privilege
10. Off Campus Experience

Schedule Type
Lecture
Recitation
Presentation
Laboratory
Lab Prep
Studio
Distance
Clinic
Experiential
Research
Ind. Study
Pract/Observe

Minutes Per Mto. 76 Meetings Per Week 2
Weeks Offered 15 % of Credit Allocated 100

COURSE DESCRIPTION (INCLUDE REQUISES/RESTRICTIONS):
Computation models and techniques for the analysis of algorithm complexity. The design and complexity analysis of recursive and nonrecursive algorithms for searching, sorting, set operations, graph algorithms, matrix multiplication, polynomial evaluation and FFT calculations. NP-complete problems. Prerequisites: Graduate standing.

Calumet Department Head

Calumet School Dean

Calumet Undergrad Curriculum Committee

Calumet Undergraduate Curriculum Committee Date

Fort Wayne Department Head

Fort Wayne School Dean

Fort Wayne Chancellor

Undergraduate Curriculum Committee Date

Indianapolis Department Head

Indianapolis School Dean

Date Approved by Graduate Council

North Central Faculty Senate Chair

Vice Chancellor for Academic Affairs

Graduate Council Secretary

West Lafayette Department Head

West Lafayette College/School Dean

West Lafayette Registrar

Graduate Area Committee Convener

Graduate Dean

Date

OFFICE OF THE REGISTRAR
Supporting Document for a New Graduate Course

To: Purdue University Graduate Council

From: Faculty Member: Carlos Pomalaza-Raez
Department: Engineering
Campus: Fort Wayne

Date: 6/30/2010

Subject: Proposal for New Graduate Course-Documentation Required by the Graduate Council to Accompany Registrar's Form 40G

Contact for information if questions arise:
Name: Don Mueller
Phone Number: 260-481-5707
E-mail: muellerd@lpfw.edu
Campus Address: ET 321 (Fort Wayne Campus)

Course Subject Abbreviation and Number: ECE 60800
Course Title: Computational Models And Methods

For Reviewer's comments only
(Select One)

Reviewer:
Comments:
Course Number: ECE 608
Course Title: Computational Models and Methods
Credits: 3

A. Catalog Description:
Computation models and techniques for the analysis of algorithm complexity. The design and complexity analysis of recursive and non-recursive algorithms for searching, sorting, set operations, graph algorithms, matrix multiplication, polynomial evaluation and FFT calculations. NP-complete problems.

B. Method of Evaluation or Assessment
20% Midterm Exam 1
20% Midterm Exam 2
20% Midterm Exam 3
10% Homework
30% Final exam

C. Prerequisites
Graduate Standing

D. Corequisites
None

E. Course Instructors
Dr. Chao Chen, Dr. Pomalaza-Ráez. Members of the Graduate Faculty. CVs Attached.

F. Course Outline

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Time and space complexity; analysis methods</td>
</tr>
<tr>
<td>2.5</td>
<td>Models of computation Turing mach</td>
</tr>
<tr>
<td>2.5</td>
<td>Recurrence formulas, discrete mathematics</td>
</tr>
<tr>
<td>1.5</td>
<td>Sorting</td>
</tr>
<tr>
<td>1.5</td>
<td>Search; Set Operations</td>
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<tr>
<td>2</td>
<td>Graph Algorithms</td>
</tr>
<tr>
<td>1</td>
<td>Polynomial, matrix and FFT algorithms</td>
</tr>
<tr>
<td>2</td>
<td>NP-complete problems</td>
</tr>
</tbody>
</table>

G. Text
Name: Chao Chen, Ph.D.

Degrees: B.S. in Electronic Engineering, Shanghai Jiao Tong University, China, 1998
M.S. in Electronic Engineering, Shanghai Jiao Tong University, China, 2001
M.S. in Electrical and Computer Engineering, Georgia Institute of Technology
Ph.D. in Electrical and Computer Engineering, Georgia Institute of Technology, 2005

Appointments:
2005-present Assistant Professor, Indiana University – Purdue University Fort Wayne

Selected recent publications related to the proposed courses to be taught (ECE 600 & ECE 608)


**Synergistic Activities**

**Technical Activities:**

- Technical Program Committee (TPC) member for:
  - IEEE International Conference on High Performance Computing and Communications (HPCC 2009 and 2010)
  - International Conference on Network and System Security (NSS 2009 and 2010)
  - International conference on Future Information Technology (FutureTech 2010)
  - International Workshop on Management of Emerging Networks and Services (MENS 2009 and 2010)
  - 2009 World Congress on Computer Science and Information Engineering (CSIE 2009)
  - IASTED International Symposium on Distributed Sensor Networks (DSN 2008)
  - International Conference on Computer Communications and Networks (ICCCN 2008)
  - IEEE Vehicular Technology Conference (VTC 2008 Spring)
  - IASTED International Conference on Sensor Networks (SN 2008)

- Technical Referee for:
  - Conferences: MASS, MobiHoc, Networking, ICC, WCNC, VTC, NSS, ACC, ITRE, QoFIS, BroadWISE, CSIE, HPCC, DSN, SN, EUSIPCO, etc.

**Member:**

- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Communications Society
- American Society for Engineering Education (ASEE)

**Faculty Advisor:**

- IEEE Student Chapter at Indiana University - Purdue University Fort Wayne