Office of the Registrar
FORM 40G REV. 1/07

PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF A GRADUATE COURSE
(500-600 LEVEL)

EFD 9-05

DEPARTMENT ECE EFFECTIVE SESSION F07

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:		EXISTING:	
Subject Abbreviation		Subject Abbreviation	ECE
Course Number		Course Number	663
Long Title	Advanced Optimizing Compilers		
Short Title			

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

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.
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	☐	7. Registration Approval Type	
2. Satisfactory/Unsatisfactory Only	☐	Department ☐	Instructor ☑
3. Repeatable	☐	8. Variable Title	☐
Maximum Repeatable Credit:	☐	9. Remedial	☐
4. Credit by Examination	☐	10. Honors	☐
5. Designator Required	☐	11. Full Time Privilege	☐
6. Special Fees	☐	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)
Lecture						
Recitation						
Presentation						
Laboratory						
Lab Prep						
Studio						
Distance						
Clinic						
Experiential						
Research						
Ind. Study						
Pract/Observ						

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES):

From: ECE 663 Compiler Code Generation, Optimization, and Parallelization

To: ECE 663 Advanced Optimizing Compilers

Calumet Department Head	Date	Calumet School Dean	Date	Calumet Undergrad Curriculm Committee	Date
Fort Wayne Department Head	Date	Fort Wayne School Dean	Date	Fort Wayne Chancellor	Date
				Michael Johnson 3/9/07	
Indianapolis Department Head	Date	Indianapolis School Dean	Date	Undergrad Curriculm 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	Date

OFFICE OF THE REGISTRAR

Engineering Faculty Document No. 9-05

March 3, 2006

TO: The Faculty of the College of Engineering

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

RE: Title Changes to Graduate-Level Course ECE 663

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

From: ECE 663 Compiler Code Generation, Optimization, and Parallelization

To: ECE 663 Advanced Optimizing Compilers

ECE 663 Advanced Optimizing Compilers
Class 3, Lab 0, Credit 3
Sem. 1 (odd years)
Prerequisites: ECE 573 and ECE 565

Course Description: This course presents the concepts and techniques to design and implement advanced, optimizing compilers. The course includes topics in program parallelization and scalar optimizations.

Reason: The title of this course was changed to better reflect the evolving course content.

Course History: The course has been and continues to be offered every two years.

Mark J.T. Smith

Professor and Head

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON
FACULTY RELATIONS

CFR Minutes 13

Date 1/18/07

Chairman CFR Michael J. Thouchette

Text: (Optional) Fischer and LeBlanc, Crafting a Compiler with C, Benjamin/Cummings, 1991, ISBN 0-8053-2166-7. Course notes and research papers will be used. Background texts: Michale Wolfe, High Performance Compilers for Parallel Computing, Addison-Wesley, ISBN 0-8053-2730-4. Utpal Banerjee, Dependence Analysis, Kluwer, ISBN 0-7923-9809-2. Ken Kennedy and John R. Allen, Optimizing Compilers for Modern Architectures: A Dependence-based
Approach, Morgan Kaufmann Publishers, ISBN 1558602860. Cooper and Torczon, Engineering a Compiler, Morgan Kaufmann, 2004, ISBN 1-55860-698-X.

Course Outcomes:

A student who successfully fulfills the course requirements will have demonstrated an ability to understand and use

- concepts and techniques of advanced optimizing compilers. In particular,
- the various passes of an optimizing compiler, including program analysis, dependence analysis, enabling transformations, loop restructuring, instruction level parallelism, parallel code generation, and issues in the compilation of object oriented languages,
- program analysis techniques used to determine the legality and profitability of transformations,
- open research issues related to these techniques, known solutions, and differences between alternative solutions,
- implementation methods and performance characteristics of these concepts and techniques.

Assessment Methods:

There will be at least one midterm and a final exam. 50% of the final grade will reflect the performance on a class project that each student will propose and conduct.