EFD 01-02

Office of the Registrar
FORM 40 REV. 9/06

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

RTMENT: ECE EFFECTIVE SESSION: Summer 2008

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

- [x] 1. New course with supporting documents
- [ ] 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 (department head signature only)
- [ ] 8. Change in instructional hours
- [ ] 9. Change in course description
- [ ] 10. Change in course requisites
- [ ] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

PROPOSED:		EXISTING:	
Subject Abbreviation		Subject Abbreviation	ECE
Course Number		Course Number	435
Long Title	Object-Oriented Design Using C++ and Java		
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 [x] Spring

CAMPUS(ES) INVOLVED
- [ ] Calumet
- [ ] Cont Ed
- [ ] Ft. Wayne
- [ ] Indianapolis
- [ ] N. Central
- [ ] Tech Statewide
- [x] W. Lafayette

CREDIT TYPE
1. Fixed Credit: Cr. Hrs. 3.0
2. Variable Credit Range: Minimum Cr. Hrs ____ (Check One) To [ ] Or [ ] Maximum Cr. Hrs ____
3. Equivalent Credit: Yes [ ] No [x]
4. Thesis Credit: Yes [ ] No [x]

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 [x]
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)
Lecture	50	3	16			
Recitation						
[illegible]ation						
L[illegible]tory						
Lab Prep						
Studio						
Distance						
Clinic						
Experiential						
Research						
Ind. Study						
Pract/Observ						

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES):

Prerequisite: ECE 462 and consent of instructor. Review of OO design with C++ and Java. Difficulties caused by multiple inheritance in C++. Taking advantage of Run-Time Identification in C++. Multi-threading, AWT, and Network Programming in Java. Discussion of Java applets, beans, and servlets. Unified modeling language. Use-case analysis. Constructing conceptual models. System sequence diagrams. "Gang of Four" design patterns. Case studies.

Calumet Department Head	Date	Calumet School Dean	Date
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
M R Mallett 5/2/08		[signature] 5/27/08	
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date

West Lafayette Registrar [signature] 5/30/08 Date

OFFICE OF THE REGISTRAR

5/29/08


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ENGINEERING
ADMINISTRATION
Roxanne

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(100-400 LEVEL)

DEPARTMENT: ECE
EFFECTIVE SESSION: Summer 2008

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Maximum Repeatable Credit:	[ ]	9. Remedial	[ ]
4. Credit by Examination	[ ]	10. Honors	[ ]
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Indianapolis Department Head	Date	Indianapolis School Dean	Date
North Central Department Head	Date	North Central Chancellor	Date
W. Lafayette Department Head: W R Mallett 5/2/08	Date	West Lafayette College/School Dean: 5/27/08	Date
		West Lafayette Registrar	Date

OFFICE OF THE REGISTRAR

Engineering Faculty Document No. 01-02
August 19, 2002

TO: The Faculty of the College of Engineering
FROM: The Faculty of the School of Electrical and Computer Engineering
RE: New Undergraduate Level Course ECE 435

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 435 **Object-Oriented Design Using C++ and Java**

Sem. 2, Class 3, cr. 3.
Prerequisite: ECE 462 and Consent of Instructor

Review of Object Oriented design with C++ and Java. Difficulties caused by multiple inheritance in C++. Taking advantage of Run-Time Identification in C++. Multi-threading, Abstract Windowing Toolkit, and Network Programming in Java. Discussion of Java applets, beans, and servlets. Unified modeling language. Use-case analysis. Constructing conceptual models. System sequence diagrams. "Gang of Four" design patterns. Case studies.

Reason: It is now widely recognized that just knowing Object Oriented (OO) languages and having access to a library of classes is not sufficient for creating OO designs. This realization has led to the emergence of a "patterns movement" in the OO community. Patterns are the "best practice" designs that have evolved over the years for tackling issues such as how to make objects sharable; how and when to assign responsibilities to objects; how to make the OO design reusable in other similar contexts, etc.

Mark J. T. Smith, Head
School of Electrical and Computer Engineering

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

ECC Minutes #9

Date 11/26/07

Chairman ECC

Supporting Documentation

Level: Undergraduate Level
Course Instructor: Avinash C. Kak

Course Outline:

	Topics	*Lectures*
1.	Course Introduction	1
2.	Software Development Process for Large OO Programs	1
3.	Use Cases, Class Diagrams	1
4.	Class Diagrams (Advanced Concepts)	1
5.	Interaction, Package, State, and Activity Diagrams	3
6.	Extending Classes in C++ and Java	5
7.	OO Design using Multiple Inheritance in C++	4
8.	Design Patterns	6
9.	OO for GUI Design with Java , C++, and C (AWT/Swing in Java, Qt in C++, and GNOME/GTK+ in C)	7
10.	OO Design using Multithreading	4
11.	OO Design in Network Programming	4
12.	Design for Database Programming	3
13.	OO Design for Web Sevices Programming	2
14.	Exams 2	2
	Total	**44**

Text(s):

1. UML Distilled, Applying the Standard Object Modeling Language, Martin Fowler and Kendall Scott, Addison-Wesley, 1997, ISBN 0-201-32563-2.

2. Java Design Patterns, James Cooper, Addison-Wesley, 2000, ISBN 0-201-48539-7.

Recommended Reference(s):

CoreJava: Volumes I and II, Cay Horstman and Gary Cornell, Sun Microsystems, 1997, ISBN No: 0-13-766965-8.

C++ Programming Language, 3rd edition, B. Stroustrup, Addison-Wesley, 1997,

ISBN No: 0-201-88954-4.

Design Patterns: Elements of Reusable Object-Oriented Software, Erich Gamma, et. al., Addison-Wesley, 1994, ISBN No: 0-201-63361-2.

Outcomes:

A student who successfully fulfills the course requirements will have demonstrated:

i. a knowledge of the Unified Modeling Language for the conceptual design of object-oriented programs. [3,4;e,k]

ii. an ability to design object-oriented solutions to programming problems using previously developed "best practice" design components. [3,4;e,k]

iii. an understanding of the pros and cons associated with multiple inheritance in C++. [3,4;e,k]

iv. a knowledge of graphics and user interface programming with Java. [3,4;c,e,k]

v. an ability to carry out databases programming in Java. [3,4;e,k]

vi. an understanding of multithreading issues in Java. [3,4;e,k]

Assessment Methods for Course Outcomes: Each of the outcomes will be assessed by giving the students appropriate C++ and Java programming assignments.