Office of the Registrar
FORM 40 REV. 11/09

PURDUE UNIVERSITY

REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

Print Form

DEPARTMENT School of Engineering Education EFFECTIVE SESSION Fall 2016

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	IDE	Subject Abbreviation	
Course Number	48300	Course Number	
Long Title	Multidisciplinary Engineering Analysis & Decision Making		
Short Title	MDE ENGR Analysis/Decision		

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

TERMS OFFERED
Check All That Apply:
[ ] Summer [X] Fall [ ] Spring

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

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

COURSE ATTRIBUTES: Check All That Apply

1. Pass/Not Pass Only	[ ]	6. Registration Approval Type: Department	[X]
2. Satisfactory/Unsatisfactory Only	[ ]	Instructor	[ ]
3. Repeatable	[ ]	7. Variable Title	[ ]
Maximum Repeatable Credit:	[ ]	8. Honors	[ ]
4. Credit by Examination	[ ]	9. Full Time Privilege	[ ]
5. Special Fees	[ ]	10. Off Campus Experience	[ ]

ScheduleType	Minutes Per Mtg	Meetings Per Week	Weeks Offered	% of Credit Allocated
Lecture	50	1	16	100
Recitation				
Presentation				
Laboratory				
Lab Prep				
Studio				
Distance				
Clinic				
Experiential				
Research				
Ind. Study				
Pract/Observ				

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Application of product evaluation, cost estimating, and product/project feasibility and viability analysis from multidisciplinary perspectives in the context of new product development. Topics include exposure to company success measures, quantitative and qualitative analysis; sensitivity analysis; cost-benefit analysis, project comparisons; new product life-cycle analysis and related engineering decisions. Topics are explored through case-based, industrially focused examples. The course centers on the creation and use of analytical spreadsheets with computer tools/software for routine engineering analysis and decision making.

*COURSE LEARNING OUTCOMES:

This course is one method by which Multidisciplinary Engineering students can satisfy the engineering economics portion of the MDE core. The following ABET/ Multidisciplinary Engineering outcomes are assessed in IDE 48300: Application math, science and engineering, Analyze and interpret data, Ability to design, subject to economic constraints, Identify, formulate, and solve engineering problems, Impact engineering in global, economic, environmental & societal context, Use the techniques, skills, and modern engineering tools necessary for engineering practice

	Date		Date
Calumet Department Head		Calumet School Dean	
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
West Lafayette Department Head	1/26/16 Date	West Lafayette College/School Dean	5/26/15 Date

West Lafayette Registrar Date

OFFICE OF THE REGISTRAR

TO: The Engineering Faculty

FROM: The Faculty of the School of Engineering Education

RE: New Undergraduate Course IDE 48300 **Multidisciplinary Engineering Analysis & Decision Making**

The Faculty of the School of Engineering Education has approved the new course listed below. This action is now submitted to the Engineering Faculty with a recommendation for approval.

IDE 48300 Multidisciplinary Engineering Analysis & Decision Making
Sem. 1, Lecture 1, Credit 1
Pre-or co-requisite: MA 16200/16600. Authorized equivalent courses or consent of instructor may be used in satisfying course pre- and co-requisites.
Course Attribute: Approval by Department

Course Description:
Application of product evaluation, cost estimating, and product/project feasibility and viability analysis from multidisciplinary perspectives in the context of new product development. Topics include exposure to company success measures, quantitative and qualitative analysis; sensitivity analysis; cost-benefit analysis, project comparisons; new product life-cycle analysis and related engineering decisions. Topics are explored through case-based, industrially focused examples. The course centers on the creation and use of analytical spreadsheets with computer tools/software for routine engineering analysis and decision making.

Reason:
The Multidisciplinary Engineering program seeks to provide students as much academic flexibility as possible while meeting ABET requirements. This engineering analysis and decision making course will be taught in the context of new product development. This aligns with the MDE capstone design course (IDE 49500) in the following semester. The proposed course emphasizes the application of concepts through the extensive use of computer spreadsheets, that will assist MDE students in satisfying ABET criterion 3k. Providing IDE 48300 will help achieve this goal. MDE students who wish to enlarge their knowledge of classic engineering economics topics will be advised to take IE34300, especially those undertaking the Engineering Management plan of study.

David Radcliffe, Kamyar Haghighi Head
School of Engineering Education

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

ECC Minutes 11 Date 1-26-16
Chairman ECC

IDE 48300 Multidisciplinary Engineering Analysis & Decision Making

Sem. 1, Lecture 1, Credit 1
Pre-or co-requisite: ENGR 12600, MA 16200/16600. Authorized equivalent courses or consent of instructor may be used in satisfying course pre- and co-requisites.
Course Attribute: Approval by Department

Course Description:

Application of product evaluation, cost estimating, and product/project feasibility and viability analysis from multidisciplinary perspectives in the context of new product development. Topics include exposure to company success measures, quantitative and qualitative analysis; sensitivity analysis; cost-benefit analysis, project comparisons; new product life-cycle analysis and related engineering decisions. Topics are explored through case-based, industrially focused examples. The course centers on the creation and use of analytical spreadsheets with computer tools/software for routine engineering analysis and decision making.

Course Outcomes:
This course is one method by which Multidisciplinary Engineering students can satisfy the engineering economics portion of the MDE core. The following ABET/Multidisciplinary Engineering outcomes are assessed in IDE 48300:

ABET	MDE	Program Outcomes
3a	1	Application math, science and engineering
3b	2b	Analyze and interpret data
3c	3	Ability to design, subject to economic constraints
3e	5	Identify, formulate, and solve engineering problems
3h	8	Impact engineering in global, economic, environmental & societal context
3k	11	Use the techniques, skills, and modern engineering tools necessary for engineering practice

Proposed Course Schedule:

High-Level Topic Area	Discussion topics
Company & Engineering Performance Metrics	Engineering, Accounting, & application of Project Cost Estimation (Class 1-3)
Base Case Product/Project Financial Modeling	Investment considerations; confluence of project cost, investment incentives (payouts), New product launch schedules, and the impact of process life-cycles.(Class 4-6)
Project Assessment & Competing Alternatives	Project/Product Break even analysis and Cost/Benefit analysis. (Class 7-9)
Project Uncertainty	New product uncertainty & Risk considerations; sensitivity analysis (Class 10-12)
Large scale Project Considerations	Asset acquisition, Make/Buy analysis, (Class 13-15)

Total 16 class sessions

Required and Supplementary Text:
There is no required textbook. Multiple sources of supplemental and online materials will be provided.

Grading: Application in practice/Homework 40%; Quizzes 20%; Exam 10%; Attendance & In-Class Activities (including Discussion & Demonstration) 30%.