TO: The Faculty of the College of Engineering

FROM: The Faculty of the School of Industrial Engineering

RE: Creation of new course – IE 56100: Introduction to Convex Optimization, and cross-listing with AAE course (AAE 56100 – Introduction to Convex Optimization)

The faculty of the School of Industrial Engineering has approved the following new course number, and cross-listing with the previously approved course in AAE. This action is now submitted to the Engineering Faculty with a recommendation for approval.

Course #: IE 56100 – Introduction to Convex Optimization
Term Offered: Sem. 1; Lecture 3, Cr. 3

Prerequisites: Graduate Standing or Instructor Permission
Description: See EFD 75-16

Reason: Convex Optimization courses have been offered within both AAE and IE in recent years. AAE has determined that establishing a permanent course number for a course in convex optimization is prudent and submitted EFD 75-16 to do so. Given that optimization and operations research is a core area within IE, the faculty wish to create a corresponding course number in IE and cross-list the sections when offered. Many IE students have taken the previous offerings of convex optimization in AAE.

Tom I-P. Shih
Professor and Head
School of Aeronautics and Astronautics

Abhijit Deshmukh
Professor and Head
School of Industrial Engineering

Office of the Registrar
FORM 40G REV. 8/16

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

DEPARTMENT: School of Aeronautics & Astronautics | EFFECTIVE SESSION: Fall 2017

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	AAE	Subject Abbreviation	
Course Number	56100	Course Number	
Long Title	Introduction to Convex Optimization		
Short Title	Intro. Convex Opt.		

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

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 ☐
Maximum Repeatable Credit: ☐
4. Credit by Examination ☐
5. Fees ☐ Coop ☐ Lab ☐ Rate Request
Include comment to explain fee
6. Registration Approval Type
Department ☐ Instructor ☐
7. Variable Title ☐
8. Honors ☐
9. Full Time Privilege ☐
10. Off Campus Experience ☐

Schedule Type	Minutes Per Mtg	Meetings Per Week	Weeks Offered	% of Credit Allocated
Lecture	150	2	15	100
Recitation				
Presentation				
Laboratory				
Lab Prep				
Studio				
Distance				
Clinic				
Experiential				
Research				
Ind. Study				
Pract/Observ				

Cross-Listed Courses
IE 56100

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS): (Note: If description will not fit in space provided, please create a separate document and attach it to this form.)

Introduction to convex analysis, convex optimization problems, algorithms of convex optimization and measures of their complexity, and applications of convex optimization in aerospace engineering. Recognition of convex optimization problems that arise in scientific and engineering applications. Introduction to software tools to solve convex optimization problems. (Requisites: Graduate Standing or Instructor Permission)

*COURSE LEARNING OUTCOMES: (Note: If course learning outcomes will not fit in space provided, please create a separate document and attach it to this form.)

Be able to... 1. understand basics of convex analysis and convex optimization problems; 2. understand and develop basic algorithms of convex optimization and their complexities; 3. apply convex optimization to solve engineering problems;

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	IUPUI 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	12/12/2016 Date	West Lafayette College/School Dean	Date	Date Approved by Graduate Council	Date
Graduate Area Committee Convener	Date	Graduate Dean	Date	Graduate Council Secretary	Date
				West Lafayette Registrar	Date

OFFICE OF THE REGISTRAR

Grad Form 40G must include the Graduate Council's supporting document, which is available at http://www.purdue.edu/registrar/forms/form_40_Intro.html

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TERMS OFFERED (Check All That Apply): [x] Fall [ ] Spring [ ] Summer

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CREDIT TYPE
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COURSE ATTRIBUTES: Check All That Apply
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4. Credit by Examination [ ]
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Abhi Deshmukh 2/3/17					
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