THE UNIVERSITY OF MICHIGAN - COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building

 _	Form Number
	1322

Action Requested

New Course Modification of Existing Course
 Deletion of Course

Complete the following sections:

New Courses - B & C completely

Modifications - A modified information, B & C completely Deletions - A & C completely

Effective Fall 2004

Date 2/10/2004

		URRENT LISTIN	G	· · · · · · · · · · · · · · · · · · ·	·	B. RI	EQUESTED LISTI	NG		
	Home Department Div # Course Number			Home Department			Div #	Course Number		
Ш	·	<u> </u>				Engineeri	ng		258	110
	Cross Listed	Course Information				Cross Listed	Course Information			
	Course Title			<u> </u>		Course Title				
	•						neering Professior	n		
	TITLE	Time Sched			· · · · · · · · · · · · · · · · · · ·		Time Sched	T		
	ABBRE-	Max = 19 Spaces				TITLE ABBRE-	Max = 19 Spaces	The Engr. Pro	fession	
_	VIATION	Transcript Max = 20 Spaces				VIATION	Transcript Max = 20 Spaces	The Engr. Pro	fession	
		GRAM OUTCOM	e f g			This cour helps und engineeri engineeri first year choices o	iption for Official Publication reprovides exposed decided students sing discipline are ping problems. Thr students will make of a major. PAM OUTCOME:	sure to each enselect a major. provided through this appropriate better, more in	Fundamenta h formulating bach, it is exp nformed and	lls from each and solving ected that
	Prerequisites	○ Enforced ○ Advise	d			Prerequisites	0-1			
\Box	Credit	C ELITOROGI O AUVISE	<u> </u>			Credit	○ Enforced ○ Advised	d		
ш	Restrictions Level of Cred	II.A				Restrictions				
	Undergrad	only Ugrad or	Non-Rokhm Grad	Credit Hours	Contact Hrs/Wk	Level of Cred		on-Rickhm Grad	Credit Hours	Contact
Ш	☐ Rackham (☐ Non-Rckhr	arad 🗌 All Credi	types Grad w/add1 Work	Min Max	Number	Rackham G	irad 🔲 All Credit ty	pes	Min Max	Hrs/Wk 2
	Ugrad or R		arao wadan work		of Wks	☐ Non-Rekhm		ad w/add'i Work	2 2	Number of Wks13
C.	Is this course Maximum	peatability (Indi Research perepeatable? Yes Hours? Ma. repeated in the same ten	○ No kimum Times?	n:	,	Printing Int		ourse in the Bulletin ourse in the Time Sched	dule	
	Class Type(s) ⊠	Graded (Lec Gradi				I ■ II □ IIIa □ IIIb [I III	Ha	If term 🔲 1st
		Rec Sem)Rec)Sem ⊠A-E)Lab □ CR/f		cation on Arbor	Freq. of Offering	Yearly 🗖 Alter Years 🗖	Even Years 🗖 Odd	Years	2nd
		Lab Dis Ind) Dis	□ c	iological Station amp Davis Idension	Cognizant Facu Member:	Rone	Meadows ald Gibala	Title Profes Profes	
	Annroyal					Grad Course: At	tach nomination if Cognizar	nt Faculty is not a regula	ar graduate faculty	
	Approval Curriculu	m Comm				Su Name, Signature	•	_		2/
П	Faculty					Home Dep		Engineering Divis	sion	
	Rackham	_		 _		Cross-listed Dep	t(s)		<u> </u>	
	Cross list	ed Unit 1 —	 					·· ·· ·· ·	-,	
	Cross list	ed Unit 2		 ,						8 0

see attached documentation	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	. 24 24 4

	,
	100(0::::::::::::::::::::::::::::::::::
\$\ \0. \0. \0. \0. \0. \0. \0. \0. \0. \0	, 184 185 185 185 185 185 185 185 185 185 185
1 415 \$17 \$17 \$17 \$41 \$41 \$11 \$17 \$17 \$17 \$17 \$17 \$17 \$17 \$17 \$1	201 81:
· · · · · · · · · · · · · · · · · · ·	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	å 00 v v0 00 ú v0 D0 ú v0 D0 ú v0 00

Are any special resources or facilities required for this course?	☐ Yes ⊠ No
Detail the Special requirements	

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

Background for Requested Change

Engineering 195 (Engineering the Future) was originally created by Professor Semyon Meerkov of the EECS Department. Prof. Meerkov assembled a team of senior faculty from each engineering department, the Vice President of Research and a past President of the University to create this course. The course was first offered Winter 2001 and has been offered semesters I and II, ever since.

The original impetuous for the course was to provide a service to the first year and undecided students of the college to make better and more informed decisions as to a major within engineering. As of now, the current undecided undergraduate student population is greater than 1600. Eng 195 has consistently enrolled greater than 100 students in the fall semester and approximately 70 students in the winter semester. Current enrollments are 192 Fall (2003) and 152 (Winter 2004).

Beginning Fall 2003, Prof. Meerkov handed off the coordination of Eng 195 to Profs Gibala (MSE) and Meadows (NA & ME). They have continued with the same basic format of the course as originally developed. The first week and last week of the course are handled by Gibala and Meadows which serve as an introduction to the profession of engineering and the professional responsibilities of engineers. Each intermediate week of the semester is devoted to one engineering department within the College. Weekly homework assignments are given from each respective engineering department. Hence, students are exposed to a description of each engineering discipline as well as a fundamental concept underlying that discipline.

Student response has been excellent to this course. Elective enrollments have continued to rise. Instructor evaluations have consistently ranged between 3.8 to 4.3 for Q1 and Q2. Student open form responses have also been very good. College of Engineering support for this course now appears to have stabilized.

Hence, it is now requested that this course be given a permanent Engineering course number and become a formal but elective part of the first year program.

Current Listing:

Engineering the Future

ENG 195

Course description and organization (from current web site)

The goal of this course is two-fold: First, it is intended to expose students to all twelve engineering disciplines available at the College of Engineering and, thus, help undecided students to select a major in engineering. Second, is to teach fundamentals from each discipline by formulating and solving one of the central problems available in the field and, thus, provide the students with some knowledge in every engineering discipline.

Accordingly, each week will be devoted to a particular engineering field, and two lectures will be presented. The first one will provide a general description of the field, including its intellectual and technological foundations, job opportunities, course requirements, etc. The second lecture will be devoted to a specific problem from this discipline, including the problem formulation, methods for solution, and practical applications. Based on the second lecture, homework assignments will be made.

All lectures will be given by senior faculty from each Department at the College of Engineering. No exams are planned. Grades will be assigned based on homework performance and attendance.

Homework sets will be assigned each Thursday and are due in class the following Thursday. Homework problems should be worked individually by each student.

The course will be letter-graded, based on the average number of points over all homework sets times the fraction of the lectures attended by the student. The grade assigning scheme is as follows.

[97,100]	A+
[90,97)	A
[85,90)	А-
[75,85)	В
[65,75)	С
Below 65	D

For more information, please contact Professor Ronald Gibala (rgibala@umich.edu). or Professor Guy Meadows (gmeadows@engin.umich.edu).

The lectures are held on Tuesdays and Thursdays, 3:30pm - 4:30pm in Room 1013 H. H. Dow Building, North Campus.

Office hours will be held by the course GSI on Mondays, 3:30pm-5:30pm, in room 1210 Lurie Engineering Center, North Campus, and on Wednesdays, 5:00pm-7:00pm, in the basement of the UGLI, unless announced otherwise (tentative).

The course website will be maintained by the course GSI. If you have any questions regarding the website, please e-mail him.

SYLLABUS FOR WINTER 2004 (revised, Jan. 12, 2004) From Current Web site:

Lecture 1 (January 6): Introduction, Course Overview, and a Common Problem of Engineering (Profs. Ron Gibala and Guy Meadows)

Lecture 2 (January 8): How to become a successful engineer? (Professor Fawwaz Ulaby, Vice-President for Research, University of Michigan)

Lectures 3 and 4 (January 13 and 15): Naval Architecture and Marine Engineering (Professor Guy A. Meadows)

Lectures 5 and 6 (January 20 and 22): Material Science and Engineering (Professor Joanna Mirecki-Millunchick)

Lectures 7 and 8 (January 27 and 29): Civil Engineering (Professor Andrzej S. Nowak)

Lectures 9 and 10 (February 3 and 5): Nuclear Engineering and Radiological Sciences (Professor Ronald Gilgenbach)

Lectures 11 and 12 (February 10 and 12): Chemical Engineering (Professor H. Scott Fogler)

Lectures 13 and 14 (February 17 and 19): Atmospheric, Oceanic and Space Sciences (Professor Tony England)

Spring Recess

Lectures 15 and 16 (March 2 and 4): Aerospace Engineering (Professor Pierre T. Kabamba)

Lectures 17 and 18 (March 9 and 11):

Dean Stephen Director---Tentative
Professor Larry Hench

Lectures 19 and 20 (March 16 and 18): Industrial and Operations Engineering (Professor Romesh Saigal)

Lectures 21 and 22 (March 23 and 25): Mechanical Engineering (Professor: Panos Papalambros)

Lecture 23 and 24 (March 30 and April 1): Electrical Engineering (Professor TBA)

Lectures 25 and 26 (April 6 and 8): Computer Science and Engineering (Professor Elliot Soloway)

Lecture 27 (April 13): A View from Industry (Dr. Jody Hall, Manager, General Motors)----Tentative

Lecture 28 (April 15): The Future of Engineering (Professor James J. Duderstadt, President Emeritus, University of Michigan)----Tentative

Lecture 29 (April 20): Summary (Professors Ron Gibala and Guy Meadows)

Proposed Course Description:

ENG 110. Introduction to the Engineering Profession I, II (2 credits)

This course provides exposure to each engineering discipline and helps undecided students select a major. Fundamentals from each engineering discipline are provided through formulating and solving engineering problems. Through this approach, it is expected that first year students will make better, more informed and more stable choices of a major.

THE UNIVERSITY OF MICHIGAN — COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building



Form Number

Action Requested

New CourseModification of Existing CourseDeletion of Course

Complete the following sections:

New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

Date 1/30/2004

Effective Fall 2004

	A. CI	JRRENT LISTI	ING			B. R i	EQUESTED LIST	ING		
_	Home Depa	utment		Div#	Course Number	Horne Dep		·	Div #	Course Number
						IOE			272	265
	Cross Listed	Course Information		1		Cross Listed Stats	Course Information		489	265
	Course Title					Course Title	BILITY AND STAT	ISTICS FOR EN	IGINEERS	
	TITLE	Time Sched				TITLE	Time Sched	PROB/STAT F	OD ENGDS	
	ABBRE- VIATION	Max = 19 Spaces Transcript				ABBRE-	Max = 19 Spaces Transcript	FROD/STATE	On ENGINE	· · · · · · · · · · · · · · · · · · ·
	VIATION	Max = 20 Spaces				VIATION	Max = 20 Spaces			
	PROGRAM OUTCOMES:				Condition Binomial, Weibull) Hypothes Populatio	al Representation on the control of	em; Discrete Dis uous Distributior Estimation, Like irances, and Pro	stributions (C ns (Normal E elihood Func	Reometric, Exponential, tions, Test of	
	□a □!	b 🗌 c 🗌 d	☐e ☐f ☐g	_h _			b c d	e df dg	□h □i	□j
	Degree Requ		pree Requirement O Free e Course O Tech	Elective O Ot t Elective	her	Degree Req	uirements	equirement O Free El		
Х		Math 116 and Engr ○ Enforced ○ Advi		-		Prerequisites	Math 116 and Engr 101; C ⊕ Enforced ⊕ Advise			
Х	Credit M Restrictions E	No credit to those who Econ 405	have completed or are enr	olled in Stats 311	, 400, 405 or 412 or	Credit Restrictions	No credit granted to those v 412, or Econ 404, 405 or E	who have completed or	are enrolled in Stat	s 350, 400, 405, or
	Level of Cred		or Non-Rickhm Grad	Credit Hours	Contact	Level of Cred			Credit Hours	Contact
	☐ Rackham © ☐ Non-Rckhrr ☐ Ugrad or Re	àrad ☐ All Cre n Grad ☐ Rokhr		Min Max	Number of Wks		Grad ☐ All Credit ty n Grad ☐ Rickhm Gra	on-Rickhm Grad rpes ad w/add'l Work	Min Max	Hrs/Wk 4 Number of Wks 14
C.	Is this course Maximum	repeatable? O Yes	Maximum Times?	-			formation ⊠ Print the co (Optional) ⊠ Print the co		lule	
	Class Type(s)	Graded Lec Section			cation	Freq. of	I ■ II 🔲 IIIa 🔲 IXIb			If term 1st 2nd
	<u> </u>	Sem	Sem □ A-E □ CR/N □ CR/N		nn Arbor	Offering	Yearly Alter Years	Even Years Odd	Years	
	□ Lab □ Dis □ S/U □ Biological Station □ Dis □ Ind □ P/F □ Camp Davis □ Ind □ Other □ Y □ Extension			Cognizant Facu Member:		ry Herrin	Title Profes	sor		
Į	Approval					J	ttach nomination if Cognizar			·
	Curriculu	m Comm.				Name, Signature	44	t. D Orbss-listed Dent		
	Faculty Rackham Cross list			 .		Home Dep Cross-listed Dep		CS.	Tulian	Fa Muse
	Cross list									86

Fub-10-04 11:32am From-UM-10E Course Approval Request

+17347643451

F-355 P.02/03



1311

Action Requested

○ New Course
 ② Modification of Existing Course
 ○ Datetion of Course

Complete the following sections:

New Courses - B & C completely

Modifications - A modified information, 8 & C completely

Deteriors - A & C completely

College Curriculum Committee 1420 Lune Engineering Center Building

Effective Fall 2004

Date 1/30/2004

Δ Δ	URRENT LISTING		B. RE	QUESTED LISTING		
A CI		Div # Course Number	nama Dap IOE	g/I/Tip(N	0.v # 272	Course Number 265
Cioss suitod	Course injurnation		Cross desired State	Coules Intarnation	489	265
Cours) AN	4		Course Tale	BILITY AND STATISTICS FOR	ENGINEERS	
TITLE ABBRE- VIATION	Timo Scheu Man = 19 Speco: Tianscrpt Man = 20 Specoe		TITLE ABBRE VIATION	I me senea PROBISTA Mail = 19 Spaces Transcript Mail = 20 Spaces	T FOR ENGRS	
Course De	_ ' _, _ \ . ,		Graphic Condition Binomia	Appresentation of Data; Axio at Representation of Data; Axio ining, Bayes Theorem, Discrete I, Poisson); Continuous Distrib Point and Interval Estimation, isses for Means, Vairances, and	oms of Probabili Postributions (C utions (Normal E Likelinood Fund	seometric, Exponential tions, Test 01
<u> </u>	Requirements O Dourse Requiement O From	h i j k	□ a □	Anutrements & Degree Reductement O	g h l	
Piéiedus	HOS MAIN 116 AND ENUT 101 C ENUCCO : AQUICO			Main 116 2/10 Engr 101, C. or Deller (1) Enforced Auri680 No Linds Quanted to Unosa and nave Curtali	day was appropriate Signature	at: 350 400 405 01
Use of Concern	No credit to those who have completed or are en- credit. Frequency The Gradith Complete Com	Credit Hours Cariaci Historia Cariaci Historia Cariaci Historia Cariaci Cariaci Historia Cariaci Cariaci Historia Cariaci Cariac	Sever of C Si Undergr Section Non-For	412 or Ecun 404 405 or English NASA 438 redit sa only Usyriku or Nori-Rohm Grad ni Giad	Cieus rious Min Maa	Conlect PID/Wk 4 Nyrigidi Qi Mko 14
Wasi	Repealability lind, Respect Dis Study, Discellate outside (operations 7 - Yes (17 No mainting Tymos 7 - Mainting Tymos 7 - No No No No No No No No		Printin	A Philips course in the Bust (Optional) Philips (Optional) Philips course in the Tick	e <u>Sche</u> 0ul9	
Chase Typo(s)	M be repeated in the same term? Yes No Straped S be: Gree Rec Section C Rec Sen C Lab C De C Section C De C Section C De C Section C De C Section C Section C Section C Section C Section C Section C De C Section C De C Section C De C Section C De C Section C Secti	NC X ANN AFROIT	Terre & Fro., ol Dilanna Cugnisani Mamner			•
Approv	culum Comm.		Name, Signa Home	stura & Department	100 01	***
	ity		— Cuorrielas		_	Julian F

SUPPORTING STATEMENT	
This change will make the course prerequisites "mandatory".	
Prerequisite: Math 116 and Engr. 101; C- or better	***************************************
Prerequisite long description:	
(Math 116 or Math 121 or Math 156 or Math 176 or Math 286 or Math 296); C- or better	
and	***************************************
(Engr. 101 or Engr. 104 or Engr. 101X or EECS 100 or EECS 183 or Cmptrsc 100 or Cmptrsc 183);	C- or better

Are any special resources or facilities required for this course?	
The any openial resources of facilities required for this course? ☐ Yes ☒ No	
Detail the Special requirements	

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING **Course Approval Request**

College Curriculum Committee, 1420 Lurie Engineering Center Building

_	Form Number
	1326

Action Requested

New CourseModification of Existing CourseDeletion of Course

Complete the following sections:

New Courses - B & C completely
Modifications - A modified information, B & C completely Deletions - A & C completely

Date 2/11/2004

Effective Fall 2004

	A. CURRENT LISTING	B. REQUESTED LISTING	
	Home Department Div # Course Number	l om	urse Number
	Cross Listed Course Information	IOE 272 421 Cross Listed Course Information	
	Course Title	Course Title WORK ORGANIZATIONS	
	TITLE Time Sched Max = 19 Spaces	TITLE Time Sched WORK ORGANIZATIONS	
	ABBRE-VIATION Transcript Max = 20 Spaces	ABBRE- VIATION Transcript Max = 20 Spaces WORK ORGANIZATIONS	
	Course Description	Course Description for Official Publication (Max = 50 words) Applications of organizational theory to the analysis and de work organizations is taught through lectures, projects in re organizations, experiential exercises, and case studies. To include: open-systems theory, organizational structure, cult power. A change strategy: current state analysis, future st vision, and strategies for organizational transformation.	eal opics ture and
	PROGRAM OUTCOMES:	PROGRAM OUTCOMES: ☐ ☐ a ☐ b ☒ c ☒ d ☐ e ☐ f ☒ g ☐ h ☐ i ☒ j	⊠k
	Degree Requirements O Degree Requirement O Free Elective O Other O Tech Elective	Degree Requirements	
	Prerequisites © Enforced © Advised	Prerequisites IOE 201, 202 and Senior Standing O Enforced O Advised	<u> </u>
	Credit Restrictions	Credit Restrictions	
X	Level of Credit ☑ Undergrad only ☐ Ugrad or Non-Rokhm Grad ☑ Rackham Grad ☐ All Credit types ☐ Non-Rokhm Grad ☐ Rokhm Grad Wadd'l Work 4 4 Number ☐ Ugrad or Rokhm Grad ☐ Of Wks 14	Level of Credit ☑ Undergrad only ☐ Ugrad or Non-Rickhm Grad ☑ Rackham Grad ☐ All Credit types ☑ Non-Rickhm Grad ☐ Rickhm Grad Wadd'l Work ☐ 3 3 Num	Wk <u>3</u>
C.	Repeatability (Indi Research, Dir. Study, Dissertation: Is this course repeatable?	Printing Information (Optional) Print the course in the Bulletin Print the course in the Time Schedule	
	Class Cla	Terms &	1 St 2nd
	□ Lab □ Dis □ S/U □ Biological Station □ Dis □ Ind □ P/F □ Camp Davis □ Ind □ Other □ Y □ Extension	Cognizant Faculty Jeff Liker Title Professor Member:	
ļ	Approval	Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty Submitted By: Home Dept. Cross-listed Dept.	
	Faculty	ame, Signature & Department Home Dept. Cross-listed Dept(s).	
	Rackham Cross listed Unit 1 Cross listed Unit 2		

orm	Nh	ım	ha
UIII	INI	4111	υe

This change will increase the flexibility and breadth of exposure to advanthe IOE undergraduate program.	ced Industrial and Operations Engineering elective subjects in

	>>>====================================

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

***************************************	***************************************

Are any special resources or facilities required for this course?	☐ Yes ☐ No
Detail the Special requirements	

THE UNIVERSITY OF MICHIGAN - COLLEGE OF ENGINEERING **Course Approval Request**

College Curriculum Committee, 1420 Lurie Engineering Center Building



Form	Number
1325	

Action Requested

O New Course

☐ Cross listed Unit 2

Complete the following sections:

New Courses - B & C completely

Date 2/11/2004

 Modification of Existing Course O Deletion of Course Modifications - A modified information, B & C completely Effective Fall 2004 Deletions - A & C completely A. CURRENT LISTING **B. REQUESTED LISTING** Course Number Home Department Div # Home Department Div # Course Number IOE 272 422 Cross Listed Course Information Cross Listed Course Information Course Title Course Title **ENTREPRENEURSHIP** Time Sched Time Sched TITLE TITLE ENTREPRENEURSHIP Max = 19 Spaces Max = 19 Spaces ABBRE-ABBRE-Transcript Transcript VIATION VIATION ENTREPRENEURSHIP Max = 20 Spaces Max = 20 Spaces Course Description Course Description for Official Publication (Max = 50 words) Engineering students will learn the dynamics of turning an innovative idea into a successful commercial venture, including the role of e-commerce. By creating an actual business plan they will learn about innovation and creativity, risk management, stress and failure, ethics and other necessary business skills. PROGRAM OUTCOMES: PROGRAM OUTCOMES: □a □b □c □d □e □f □g □h □i □j □k 🛛 a 🗌 b 🖂 c 🖂 d 🗍 e 🖂 f 🖂 g 🖂 h 🚫 i 🖂 j 🖂 k O Free Elective O Tech Elective Degree Requirements O Degree Requirement O Degree Requirement O Free Elective O Other
O Core Course O Tech Elective Degree Requirements O Core Course Prerequisites Prerequisites Senior Standing ○ Enforced ○ Advised ○ Enforced Advised Credit Restrictions Restrictions Level of Credit Level of Credit Contact Credit Hours Credit Hours Contact ☐ Ugrad or Non-Rickinm Grad Undergrad only Hrs/Wk Undergrad only Ugrad or Non-Rickhm Grad Min Max All Credit types Min Max Rackham Grad Rackham Grad All Credit types
Rickhm Grad w/add'l Work Non-Rickhm Grad Non-Rokhm Grad Rokhm Grad w/add'l Work Number _3_ 3 Number Ugrad or Rokhm Grad Ugrad or Rickhm Grad of Wks of Wks Repeatability (Indi Research, Dir. Study, Dissertation. ☑ Print the course in the Bulletin
 ☑ Print the course in the Time Schedule Printing Information Is this course repeatable? O Yes O No (Optional) Maximum Hours? Maximum Times? Can it be repeated in the same term? O Yes O No Lec
 Rec
 Sem
 Lab
 Dis
 Ind
 Other Half term ☐ 1st ☐ 2nd Class 翼 I ■ If □ IIIa □ HIb □ III Grading Type(s) Location Freq. of Rec Sem Rec
Sem
Lab
Dis
Ind
Other ☑ A-E Offering Yearly After Years D Even Years D Odd Years CR/NC Ann Arbor Biological Station Camp Davis ☐ Biological
☐ Camp Dav
☐ Extension Cognizant Faculty Jeffrey Liker Title Professor Member Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty Submitted By: Home Dept. ____Cross-listed Dept Curriculum Comm. Name, Signature & Departme Home Dept. ☐ Faculty Cross-listed Dept(s). □ Rackham Cross listed Unit 1

This change will increase the flexibility and breadth of exposure to advar	nced Industrial and Operations Engineering elective subjects in
he IOE undergraduate program.	
Are any special resources or facilities required for this course?	☐ Yes ☐ No
Detail the Special requirements	

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building

Form Numbe
1327

Action Requested

New CourseModification of Existing CourseDeletion of Course

Complete the following sections:

New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

Date 2/11/2004

				A & C complet		, b a c completi	Eff	ective <u>Fall</u>	2004		
	A. CURRENT LIS	TING			B. RI	EQUESTED LIS	TING				
	Home Department		Div#	Course Number	Home Dep	extrnent		Div # 272	Course Number		
	Cross Listed Course Information				Cross Listed	Course Information	10010				
	Course Title				Course Title	Fnaineering Ins	strumentation Met	thods			
-	TITLE Time Sched Max = 19 Space	s			TITLE	Time Sched Max = 19 Spaces	IE Instrumenta				
	ABBRE- VIATION Transcript Max = 20 Spaces				ABBRE- VIATION	Transcript Max = 20 Spaces	IE Instrumenta	ation Meth	·		
	Course Description					Course Description for Official Publication (Max = 50 words) The characteristics and use of analog and digital instrumentation applicable to industrial engineering problems. Statistical methods f developing system specifications. Applications in physiological, human performance, and production process measurements are considered.					
	Degree Requirements O (d e f g	h is Elective O Oth	□j □k ner	PROC 2 2 Degree Req		e Requirement O Free E	lective O Other	□j⊠k		
	Prerequisites C Enforced C A	Advised			Prerequisites	IOE 265 C Enforced Adv	rised				
	Credit Restrictions				Credit Restrictions						
х	🛛 Rackham Grad 🔲 All	rrad or Non-Rickhm Grad Credit types khm Grad w/add1 Work	Credit Hours Min Max 4 4	Contact Hrs/Wk4 Number of Wks14	Level of Cred ☐ Undergrad ☐ Rackham C ☐ Non-Rckhn ☐ Ugrad or R	only ☐ Ugrad o Grad ☐ All Cred n Grad ☐ Rckhm	ir Non-Rickhm Grad lit types Grad w/add'l Work	Credit Hours Min Max 3 3	Contact Hrs/Wk3 Number of Wks14		
C.	Repeatability (Indi Res Is this course repeatable? Maximum Hours? Can it be repeated in the sar	Maximum Times?	n: -				e course in the Bulletin e course in the Time Sche	dule			
	Class Grad		Lox NC ⊠ Ar □ Bi □ Ca	cation on Arbor ological Station amp Davis dension	Freq. of Offering Cognizant Face Member:	ulty Y	b IIII	Years Title Profe			
	Approval Curriculum Comm.				Name, Signature Home Dep	& Department ot.	Dept. Cross-ister Dep	ot			
	Faculty Rackham Cross listed Unit 1 Cross listed Unit 2				Cross-listed De	pt(s).			0		

SUPPORTING STATEMENT

I fils change will increase the flexibility and breadth of exposure to advi the IOE undergraduate program.	anced Industrial and Operations Engineering elective subjects in

are any special resources or facilities required for this course?	☐ Yes ⊠ No
Detail the Special requirements	
- state the opening requirements	

THE UNIVERSITY OF MICHIGAN - COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building



Form	Number
1328	

Action Requested

○ New Course⑥ Modification of Existing Course○ Deletion of Course

Complete the following sections:

New Courses - B & C completely Modifications - A modified information, B & C completely

Deletions - A & C completely

Date 2/11/2004

Effective Fall 2004

	A. CL	JRRENT LISTIN	G			B. RI	EQUESTED LIST	ΓING				
 -	Home Depa	rtment		Div #	Course Number	Home Dep	Div#	Course Number				
	Cross Listed	Course Information				IOE 272 436 Cross Listed Course Information						
	Course Title	<u></u>				Course Title Human Factors in Computer Systems						
	TITLE ABBRE-	Time Sched Max = 19 Spaces				TITLE ABBRE-	Time Sched Max = 19 Spaces	Human Factors	s			
	VIATION	Transcript Max = 20 Spaces				VIATION	Transcript Max = 20 Spaces	Human Factors	S			
	Course Desc	prigition				Course Description for Official Publication (Max = 50 words) This course discusses how to design and evaluate computer systems for ease of use. Topics to be covered include keyboards and how people type, vision and video display design, human body size and computer furniture, regulations concerning working conditions, software issues, methods for studying user performance, documentation, and information systems of the future.						
		eramioutcon b □c □d	/ES: - e f g	□h □i	i	RROGRAM OUTCOMES: Silver						
	Degree Req	ulrements O Degr	ee Requirement O Free	Elective O Ot	her	Degree Requirements O Degree Requirement O Free Elective O Other O Core Course O Tech Elective						
	Prerequisites	C Enforced () Advis	ed			Prerequisites IOE 333 © Enforced © Advised						
	Credit Restrictions					Credit Restrictions						
Х	Level of Crec Undergrad Rackham Non-Rckhi Ugrad or F	loniy ☐ Ugrad o Grad ☐ All Creo m Grad ☐ Rckhm	or Non-Rickhm Grad dit types Grad w/add'i Work	Credit Hours Min Max 4 4	Contact Hrs/Wk 4 Number of Wks 14	Level of Cre ☑ Undergrad ☑ Rackham ☑ Non-Rickh ☐ Ugrad or F	lonly ☐ Ugrad or Grad ☐ All Credi m Grad ☐ Rckhm (r Non-Rokhm Grad t types Grad w/add'l Work	Credit Hours Min Max 3 3	Contact Hrs/Wk 14 Number of Wks 14		
C.	is this cours Maximun	se repeatable? O Yes	aximum Times?	-		Printing Information						
		Graded Lec Section Rec Serm	● Lec Gradii ○ Rec ○ Sem ☑ A-E	Lo	cation	Freq. of	II ■ II □ IIIa □ IIIIk Yearly □ Alter Years	□ IIII □ Even Years □ Odd		alfterm ☐ 1st ☐ 2nd		
		□ Sem □ Lab □ CR/NC □ Ann Arbor □ Lab □ Dis □ Dis □ Dis □ Ind □ P/F □ Camp Davis					Cognizant Faculty Yili Liu Title Assoc. Professor Member:					
	Cither Cother						Attach nomination if Cogni	izant Faculty is not a regul	ar graduate faculty			
Γ.	Approval Curriculu	ım Comm.				Name, Signatur		Dept. Cross-listed Dep	7			
] Faculty] Rackhar] Cross lis	- -				Home De Cross-listed De	pt.					

328	

					SI				

This change will increase the flexibility and breadth of exposure to adva the IOE undergraduate program.	anced Industrial and Operations Engineering elective subjects in

·	
	1414414444

1934/4444	***************************************

······································	
)	

***************************************	***************************************

Are any special resources or facilities required for this course?	☐ Yes ☐ No
Detail the Special requirements	

	•

THE UNIVERSITY OF MICHIGAN - COLLEGE OF ENGINEERING **Course Approval Request**

College Curriculum Committee, 1420 Lurie Engineering Center Building



Form	Number
1329	

Action Requested

○ New Course⑥ Modification of Existing Course○ Deletion of Course

Complete the following sections:

New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

Date 2/11/2004

					A & C complet		, B & C complete	Effe	ective <u>Fall</u>	2004			
	A. CI	URRENT LIST	ΓING			B. RI	EQUESTED LIS	TING					
	Home Depa	ırtment		Div#	Course Number	Home Dep	artment		Div #	Course Number			
	Cross Listed	Course Information				IOE 272 441 Cross Listed Course Information Mfg 275 441							
	Course Title						Course Title PRODUCTION AND INVENTORY CONTROL						
	TITLE ABBRE-	Time Sched Max = 19 Spaces				TITLE ABBRE-	Time Sched Max = 19 Spaces	PROD & INV	CONTROL				
	VIATION	Transcript Max = 20 Spaces				VIATION	Transcript Max = 20 Spaces	PROD & INV	CONTROL				
	Course Desc	cription				Basic mo for plann probabilis	ing production.	ques for managing Topics include de dels, production p	eterministic	and			
	a Degree Req	uirements O D	egree Requirement O Free	h in the Elective O Oth	i	PROC ⊠ a ⊠ Degree Rec		e f g		⊠j⊠k			
	Prerequisites	S Enforced ○ Ac	dvised			Prerequisites	OE 310 and IOE 316 O Enforced Advi	ised					
	Credit Restrictions					Restrictions	Not for IOE Graduate Cr	edit					
Х	Level of Crec Undergrad Rackham (Non-Rckhr Ugrad or F	lonly ☐ Ugra Grad ☐ All C m Grad ☐ Rok	ad or Non-Rickhm Grad Credit types hm Grad w/add'l Work	Credit Hours Min Max 4 4	Contact Hrs/Wk 4 Number of Wks 14	Level of Creation Control of Creation Control of Creation Control of Control	only Ugrad or Grad All Credi n Grad Rickhm	r Non-Rickhm Grad it types Grad w/addT Work	Credit Hours Min Max 3 3	Contact Hrs/Wk 3 Number of Wks 14			
C.	Is this cours Maximum	e repeatable? 🔘 ` i Hours?	arch, Dir. Study, Dissertation Yes O No Maximum Times? e term? O Yes O No	n: -				e course in the Bulletin e course in the Time Sched	dule				
		Lec Section Rec Sem	df	Č ∐A	cation nn Arbor iological Station	Freq. of Offering		☐ Even Years ☐ Odd	Years	aff term 1st 1st 2nd			
		Dis Ind Other	Ond P/F Other Y	□ c	amp Davis oxtension	Cognizant Face Member:		Goker Aydin ,		tant Professor			
_	Approval					J		izant Faculty is not a regulation. Dept. Dept. Cross-listed Dep					
] Faculty] Rackhan	ım Comm. n ted Unit 1				Name, Signature Home Dep Cross-listed Dep	ot.	Ala	nh sa	1 PIM			
Ē		ted Unit 2					*******************************	***************************************					

SUPPORTING STATEMENT	
This change will increase the flexibility and breadth of exposure to advanc the IOE undergraduate program.	ed Industrial and Operations Engineering elective subjects in

***************************************	***************************************
10411/4441410000144400101010101010101010	

	······································

Are any special resources or facilities required for this course?	□ Yes ⊠ No
Detail the Special requirements	

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING **Course Approval Request**

College Curriculum Committee, 1420 Lurie Engineering Center Building



Form	Number
1330	

Action Requested

O New Course

Modification of Existing Course

O Deletion of Course

Complete the following sections:

New Courses - B & C completely

Modifications - A modified information, B & C completely Deletions - A & C completely

Date 2/11/2004

Effective Fall 2004

A. CURRENT LISTING **B. REQUESTED LISTING** Home Department Course Number Div # Home Department Course Number Div # IOF 272 447 Cross Listed Course Information Cross Listed Course Information Mfg 275 447 Course Title Course Title **FACILITY PLANNING** Time Sched TITLE Time Sched TITLE FACILITY PLANNING Max = 19 Spaces Max = 19 Spaces ABBRE ABBRE-Transcript VIATION VIATION FACILITY PLANNING Max = 20 Spaces Max = 20 Spaces Course Description for Official Publication (Max = 50 words) Course Description Fundamentals in developing efficient layouts for single-story and multi-story production and service facilities. Manual procedures and microcomputer-based layout algorithms. Algorithms to determine the optimum location of facilities. Special considerations for multi-perios, dynamic layout problems. PROGRAM OUTCOMES: PROGRAM OUTCOMES: _a _b _c _d _e _f _g _h _i _j _k ⊠a □b ⊠c □d ⊠e □f □g □h □i ⊠j ⊠k O Degree Requirement O Free Elective O Other
O Core Course O Tech Elective Degree Requirements O Degree Requirement O Free Elective O Other O Core Course O Tech Elective Degree Requirements O Tech Elective Prerequisites Prerequisites IOE 310 and IOE 316 ○ Enforced ○ Advised Credit Credit Restrictions Restrictions Level of Credit Ugrad or Non-Rokhm Grad Level of Credit Contact Credit Hours Credit Hours Contact ☑ Undergrad only
☑ Rackham Grad ☑ Undergrad only
 ☑ Rackham Grad
 ☑ Non-Rokhm Gra Hrs/Wk Ugrad or Non-Rickhm Grad ☐ All Credit types
☐ Rckhm Grad w/add'i Work Min Max Min Max All Credit types
Rokhm Grad w/add'l Work Non-Rickhm Grad Number Non-Rickhm Grad 3___ Number Ugrad or Rickhrin Grad of Wks Ugrad or Rokhm Grad of Wks Repeatability (Indi Research, Dir. Study, Dissertation: ☑ Print the course in the Bulletin☑ Print the course in the Time Schedule Printing Information Is this course repeatable? O Yes O No (Optional) Maximum Hours? Maximum Times? Can it be repeated in the same term? O Yes O No Lec
Rec
Sem
Lab
Dis
Ind
Other Half term ☐ 1st ☐ 2nd Class ■ I □ II □ IIIa □ IIIb □ III Grading Type(s) Location Freq. of Rec Sem Ø A-E ☐ CRVNC ☐ S/U ☐ P/F ☐ Y ■ Yearly □ Alter Years □ Even Years □ Odd Years Offering Ann Arbor Biological Station Camp Davis ☐ Biological :
☐ Camp Dav
☐ Extension Cognizant Faculty Yavuz Bozer Title Professor Ind Other Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty Approval Submitted By: Home Dept. Cross Curriculum Comm. Name, Signature & Department (IOE Home Dept. ☐ Faculty Cross-listed Dept(s). □ Rackham Cross listed Unit 1 ☐ Cross listed Unit 2

			MENT

This change will increase the flexibility and breadth of exposure to adva- the IOE undergraduate program.	nced Industrial and Operations Engineering elective subjects in

)	

	B)####################################

Are any special resources or facilities required for this course?	☐ Yes ⊠ No
Detail the Special requirements	

	>***

THE UNIVERSITY OF MICHIGAN - COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building

Form	Number
1331	

Action Requested

○ New Course⑥ Modification of Existing Course○ Deletion of Course

Complete the following sections:

New Courses - B & C completely

Modifications - A modified information, B & C completely

Deletions - A & C completely

Date 2/11/2004

Effective Fall 2004

	A. CL	JRRENT LISTI	NG			B. RI	EQUESTED LIST	TING			
	Home Depai	rtment		Div#	Course Number	Home Dep	partment		Div # 272	Course Number 461	
	Cross Listed	Course Information				Cross Listed Mfg	Course Information		275	461	
	Course Title					Course Title Quality E		iples and Analysis	<u> </u>		
	TITLE ABBRE-	Time Sched Max = 19 Spaces				TITLE ABBRE-	Time Sched Max = 19 Spaces	Qual Engin Pri	n		
	VIATION	Transcript Max = 20 Spaces				VIATION	Transcript Max ≠ 20 Spaces	Qual Engin Pri	n Anal		
	Course Desc	npoon				This cou tools ned impleme custome process experime	cessary to solve r nt effective qualit r analysis, the Si capability analysi ents, statistical pr	ion (Max ± 50 words) dents with the ana manufacturing qua ty systems. Topic x Sigma problem : is, measurement s rocess control, fail deployment and re	ality problen cs include v solving met system anal lure mode a	ns and oice of the hodology, ysis, design of and effects	
			e f g	h i		PROGRAM OUTCOMES: \[\text{\tint{\text{\tint{\text{\te}\text{\texi{\texi{\text{\texi{\texi{\texi{\texi{\texi{\texi\texi{\texi{\texi{\texi{\texi{\texi{\texi}\texi{\texi{\texi{\texi{\texi{\texi{\texi{\ti}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}					
	Prerequisites	○ Enforced ○ Adv	rieori			Prerequisites IOE 366 (C) Enforced (C) Advised					
	Credit Restrictions	O Ellidod O Adv	1390			Credit Not for IOE Graduate Credit Restrictions					
х	Level of Cred ☑ Undergrad ☑ Rackham (☐ Non-Rekhr ☐ Ugrad or R	only ☐ Ugrad Grad ☐ All Cr n Grad ☐ Rokhi	d or Non-Rickhm Grad edit types m Grad w/add'i Work	Credit Hours Min Max 4 4	Contact Hrs/Wk 4 Number of Wks 14	Level of Cre ☑ Undergrad ☑ Rackham ☑ Non-Rickh ☐ Ugrad or F	l only Ugrad or Grad All Credi m Grad Rokhm	r Non-Rickhm Grad it types Grad w/add'l Work	Credit Hours Min Max 3 3	Contact Hrs/Wk 3 Number of Wks 14	
C.	is this cours Maximum	e repeatable? O Ye Hours?	rch, Dir. Study, Dissertation as () No Maximum Times? term? () Yes () No			Printing I	nformation Print the (Optional) Print the	e course in the Bulletin e course in the Time Sched	l kule	•	
	Class Type(s)	Graded Lec Section	○ Rec		ation	Freq. of				lalf term	
	Rec						Offering Yearly Alter Years Even Years Odd Years Cognizant Faculty Gary Hemin Title Professor Member: Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty				
	Approval Curriculu	ım Comm.				S Name, Signature	· -	Dept.			
	-	n ted Unit 1 ted Unit 2				Home De Cross-listed De	•	Haip,	H.	PIM	

SUPPORTING STATEMENT	
This change will increase the flexibility and breadth of exposure to advance the IOE undergraduate program.	ed Industrial and Operations Engineering elective subjects in

······································	

***************************************	***************************************

	······································

Are any special resources or facilities required for this course?	☐ Yes ⊠ No
Detail the Special requirements	

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building



Form Number 1332

Action Requested

O New Course

Cross listed Unit 2

Modification of Existing Course

Deletion of Course

Complete the following sections:

New Courses - B & C completely

Modifications - A modified information, B & C completely

Date 2/11/2004

Effective Fall 2004 Deletions - A & C completely A. CURRENT LISTING В. **REQUESTED LISTING** Course Number Home Department Div # Home Department Div # Course Number IOE 272 465 Cross Listed Course Information Cross Listed Course Information Course Title Design and Analysis of Experiments Time Sched Time Sched TITLE TITLE Design of Experiments Max = 19 Spaces Max = 19 Spaces ARRRE. ABBRE-Transcript Max = 20 Spaces Transcript VIATION VIATION Design of Experiments Max = 20 Spaces Course Description Course Description for Official Publication (Max = 50 words) Linear models, Multi-collinarity and rogust regression, comparative experiments, randomized blocks and latin squares, factorial designs, confounding, mixed level fractional factorials, random and mixed models, nesting and split plots, response surface methods, Taguchi contributions to experimental design. PROGRAM OUTCOMES: PROGRAM OUTCOMES:]a □b □c □d □e □f □g □h □i □j □k O Degree Requirement O Free Elective O Other O Tech Elective O Degree Requirement O Free Elective O Other O Tech Elective Degree Requirements Degree Requirements Prerequisites (OE 366 ○ Enforced ○ Advised ○ Enforced Advised Credit Credit Pactrictions Restrictions Level of Credit Level of Credit Contact Credit Hours Credit Hours Contact ☑ Undergrad only
☑ Rackham Grad ☑ Undergrad only
 ☑ Rackham Grad
 ☑ Non-Rickhm Gra Ugrad or Non-Rickhm Grad
All Credit types
Bickhm Grad w/add'l Work Ugrad or Non-Rickhm Grad
I All Credit types
Rickhm Grad w/add'i Work Ugrad or Non-Rokhm Grad Min Max Min May Non-Rckhm Grad
 Ugrad or Rckhm Grad Number 3 3 Number of Wks Ugrad or Rickhm Grad of Wks Repeatability (Indi Research, Dir. Study, Dissertation: ☑ Print the course in the Bulletin
 ☑ Print the course in the Time Schedule Printing Information C. (Optional) Is this course repeatable? O Yes O No Maximum Hours? Maximum Times? Can it be repeated in the same term? O Yes O No Lec
 Rec
 Sem
 Lab
 Dis
 Ind
 Other ■ I ■ II 🗖 IIIa 🗖 IIIb 🗖 III Half term 🗖 1st Grading ⊠ Lec □ Rec Location Freq. of ☐ 2nd A-E
CR/NC
S/U
P/F
Y Yearly Alter Years Even Years Odd Years Offering Sem Lab Ann Arbor Biological Station Camp Davis Cognizant Faculty Gary Herrin Title Professor Ind ☐ Ind ☐ Other Extension Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty Submitted By: Home Dept. Cross-li Curriculum Comm. Name, Signature & Department Home Dept. ☐ Faculty Cross-listed Dept(s). ☐ Rackham □ Cross listed Unit 1

SUPPORTING STATEMENT	
This change will increase the flexibility and breadth of exposure to advance the IOE undergraduate program.	ed Industrial and Operations Engineering elective subjects in

	(*************************************

	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Are any special resources or facilities required for this course?	[]Yes ⊠ No
Detail the Special requirements	

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING Course Approval Request

College Curriculum Committee, 1420 Lurie Engineering Center Building

Form Number
1334

Date 2/11/2004

Action Requested

New CourseModification of Existing CourseDeletion of Course

Complete the following sections:

New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

Effective Fall 2004

	A. CI	JRRENT LISTING			•	B. RI	EQUESTED LISTI	NG		
_	Home Depa	rtment		Div #	Course Number	Home Dep	partment		Div#	Course Number
						IOE			272	466
	Cross Listed	Course Information				Cross Listed Stats Mfg	Course Information		489 275	466 466
	Course Title					Course Title	TCAL QUALITY CO	ONTROL		
	TITLE ABBRE-	Time Sched Max = 19 Spaces				TITLE ABBRE-	Time Sched Max = 19 Spaces	STAT QUALIT	Y CONTRO	L
	VIATION	Transcript Max = 20 Spaces				VIATION	Transcript Max = 20 Spaces	STAT QUALIT	Y CONTRO	Ĺ
	Course Desc	ription				Quality Ir Statistica Attributes Quality C Economi Schemes Capability	iption for Official Publication mprovement Philos al Process Control, s, CUSUM and EW control, Auto Corre c Design of Charts s, Process Capabil y Studies, Accepta s, International Qu	sophies; Modelii Control Charts /MA, Short Prod lation, Engineer , Fill Control, Pi ity, Specification nce Sampling b	for Variable duction Runs ring Process recontrol, Achs and Toler by Attributes	s and s, Multivariate Control, laptive ances, Gage
	PROG a Degree Requ		e f g	h [] Elective O Ot	i 🔲 j 🔲 k her	PROG		e _ f 🖂 g	h i	□j⊠k
	Prerequisites —.	○ Enforced ○ Advised				Prerequisites IOE/STATS 265 and IOE 366 or Stat 403 C Enforced Advised				
Ш	Credit Restrictions					Credit Restrictions				
Х	Level of Cred ☑ Undergrad ☑ Rackham G ☐ Non-Rekhm ☐ Ugrad or Re	only Ugrad or No Grad All Credit ty or Grad Rickhm Gre		Credit Hours Min Max 4 4	Contact Hrs/Wk 4 Number of Wks 14	Level of Cred Undergrad Rackham C Non-Rokhn Ugrad or R	only Ugrad or No Grad Ali Credit ty n Grad Rockhm Gra	on-Rokhm Grad pes ad w/add1 Work	Credit Hours Min Mex	Contact Hrs/Wk 3 Number of Wks 14
C.	is this course Maximum	peatability (Indi Research, Di e repeatable? Yes O Hours? Maxim repeated in the same term?	No num Times?					ourse in the Bulletin ourse in the Time Sched	kule	
	Class Type(s)				cation	Terms & E	I 📕 II 🗖 IIIa 🔲 IIIb I	1 III	H	alf term 1st 2nd
İ	<u> </u>	Sem Ö	Sem ⊠A-E Lab ⊡CR/N		nn Arbor	Offering II	Yearly 🗖 Alter Years 🗖	Even Years 🗖 Odd	Years	
		Dis O	Dis S/U Ind P/F Other Y	□ c	iological Station amp Davis atension	Cognizant Facu Member: Grad Course: A	ulty	an Shi nt Faculty is not a regula	Title Profes	William Park
Į	Approval						ubmitted By: Home Dept			
	Curriculu	m Comm.				Name, Signature	· · · · · · · · · · · · · · · · · · ·			
	Faculty Rackham Cross list Cross list	ed Unit 1				Home Dep Cross-listed Dep	cardy	J. Ell.	Mati	9 PIM

^	. 1	-	-	_		_	-	SI	 	 _		_
-		_	_	r	_					 -	B. II -	г

This change will increase the flexibility and breadth of exposure to advanced Industrial and Operations Engineering elective subjects in the IOE undergraduate program.	
	(1)

);- - - - - - - - - - - - - - - - - - -	
***************************************	() #
	««»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»»
Are any special resources or facilities required for this course?	☐ Yes ⊠ No
Detail the Special requirements	

