Cilice of the Registrer FORM 40G REV. 12/09

# PURDUE UNIVERSITY REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE

Graduate Council Doc. No. 12-34f

	ON OF A GRADUATE COURSE 50000-60000 LEVEL)	EFD 16-09
DEPARTMENT Mechanical Engineering	EFFECTIVE SESSION Spring 2013 2014	201420)
INSTRUCTIONS: Please check the items below which describe the purpose		
1. New course with supporting documents (complete     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  PROPOSED: Subject Abbreviation  ME  Subject Abbreviation  Subject Abbreviation	proposal form)  7. Change in course a  8. Change in instruction  9. Change in course of  10. Change in course of  11. Change in semeste  12. Transfer from one of  TERI  Check	onel hours escription equisites rs offered repartment to another MS OFFERED K AI That Appy:
Course Number 50280 52200 Course Number  Long Tille Indoor Environmental Analysis & Design		Fall Spring  S(ES) INVOLVED  N. Central  Tech Statewide  W. Lefayate
Short Title Enviro Analysis/Design 3 Design Abbreviated title will be entered by the Cities of the Registral it omitted, (30 CHAI	RACTERS ONLY) Indianapolis	
CREDIT TYPE  1. Fixed Credit Cr. Hrs. 3 1. Pass/Not Pass Only 2. Variable Credit Range: 3. Repeatable Maximum Cr. Hrs 3. Repeatable Maximum Cr. Hrs 4. Credit by Examination 5. Equivatent Credit Yes No 2. Special Fees	7. Verlable Title abla Credit: 8 Honors	nucter
Schedulo Typo Minutes Meetings Per Westes % of Cre Per Mig Weste Offered Allocate Lecture 75 2 16  Recitation Presentation Laboratory Lab Prep Studio Distance Clinic Experien9al Research Ind. Study Pract/Observ		Cross-Listed Courses 25 AM 9:
COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):		30 3
ME 50200 Indoor Environmental Analysis and Design, Sem Review of current trend of building and indoor environmental and acoustic comfort. Introduction of experimental technic design. Professor Chen.	at design. Theory of thermal comfort, Indoor air qua	lity, visual comfort,
Calumet Department Head Date Celtimet School Dean	Date Calumet Undergred Curriculm	Committee Date
Fort Wayne Department Head Date Fort Wayne School Dea	n Data Fort Wayne Chancelor	Date
indianépells Department Heed Date Indianepells School Dea	In Date Undergrad Curticulm Commit	7/21/13
North Central Faculty Senate Chair Date Vice Chancellor for Acer    Date   Date		
OFF (Grad Form 40G [Excel format] - Does not include the Gradu	FICE OF THE REGISTRAR nate Council's required supporting document. See pdf	'version of Form 40G)

TO: The Engineering Faculty

FROM: The Faculty of the School of Mechanical Engineering

RE: New Course - ME 502 Indoor Environmental Analysis and Design

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

### ME 502 Indoor Environmental Analysis and Design

Sem. 2 (alternate years), Class 3, cr. 3

Prerequisite: ME 315

Review of current trend of building and indoor environment design. Theory of thermal comfort, indoor air quality, visual comfort, and acoustic comfort. Introduction of experimental techniques and advanced computer tools for indoor environment analysis and design.

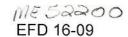
**Reason:** This course has been taught three times on an experimental basis with the following enrollments: spring 04 - 9 students, spring 06 - 7 students, and spring 2008 - 9 students. This course provides students with the basic theory of thermal comfort, indoor air quality, visual comfort, acoustics comfort and HVAC systems as well as state-of-the-art on indoor environment design. This course will also attract students from architectural engineering.

James D. Jones, Associate Head/Professor School of Mechanical Engineering APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes

Date

Chairman ECC



1288 ME/ ME room 2008B

### **Supporting Document for a New Graduate Course**

For Reviewer's comments only To: Purdue University Graduate Council (Select One) Choose an item. From: Faculty Member: Yan Chen Reviewer: Click here to enter text. Department: **Mechanical Engineering** Campus: West Lafayette Comments: Date: 7/20/2012 Click here to enter text. Proposal for New Graduate Course-Subject: Documentation Required by the Graduate Council to Accompany Registrar's Form 40G Contact for information if questions arise: Name: James D. Jones Phone Number: 494-5691 E-mail: jonesjd@purdue.edu

Course Subject Abbreviation and Number:

Course Title:

ME 50200

Campus Address:

Indoor Environmental Analysis & Design

### A. Justification for the Course:

- This course has been taught two times on an experimental basis with the following enrollments: spring 2010 – 13 students and then in spring 2012 – 19 students. This course teaches students to use computer tools to design a comfortable, healthy and safe building.
- The propsed ME 50200 course is a review of current trend of building and indoor environment design, theory of thermal comfort, indoor air quality and air distribution, introduction of experimental techniques and advanced computer tools for indoor environment analysis and design. The course will be offered in the spring with an anticipated enrollment of 15-20 students.

### B. Learning Outcomes and Methods of Evaluation or Assessment:

- Students in this course will: 1) Provide an introduction into and practical examples of indoor
  environment (1 week), 2) Present the basic theory ofthermal comfort, indoor air quality, visual
  comfort, acoustics comfort and HVAC systems (4 weeks), 3) Introduce advanced tool to analyze
  and design indoor environment and energy use in buildings (6 weeks), & 4) Conduct indoor
  environment analysis and design for a challenging problem (4 weeks).
- There will be a term paper, design project report and presentations.

•	1. Engine	ering	Topics: Engineeri	ng Scier	nce – 1.5 cre	dits (5	50%) & Engineering D	esign – 1.5 credits
	(50%)							
	o <u>Cr</u>	iteria	<u>:</u>					
		Ex	ams and Quizzes				Papers and Projects	
		Ho	mework	-			Laboratory Exercises	5
		At	tendance and Cla	ss Parti	cipation		Extra Credit Policies	
•	This cours	se is ta	aught by lecture a	ind cove	ers the prog	ram o	utcomes described in	the program map
			of Instruction:					The state of the s
			Lecture		Recitation			
	L	Ш	Presentation		Laboratory	'		
			Lab Prep	Ш	Studio			
		Ш	Distance		Clinic			
			Experimental		Research			
			Ind. Study		Pract/Obse	rve		
			Seminar					
Prere	quisite(s):	400						
	•							
•	Must have	take	n ME 31500 – Hea	at and N	Aass Transfe	er		
•	ME 31500	is the	only prerequisite	e neede	d for this co	urse.		
Course	e Instructor	(s):						
•	Qingyan (Y	/an) C	hen, Reilly Profes	sor of N	/lechanical E	ngine	ering	
•	Is the instr		currently a mem	ber of t	he Graduate	Facu	lty? 🛛 Yes	No Click here
	(If the answ	wer is	no, indicate whe	n it is e	pected that	a rec	quest will be submitte	d.)
Course	e Outline:							
•	1.Provide	an int	roduction into inc	loor en	vironment (1	l wee	k), 2. Present the basi	ic theory of
							comfort, acoustics co	
							and design indoor en	
							nvironment analysis a	-

C.

D.

E.

challenging problem (4 weeks).

### F. Reading List (include course text):

- No textbook required, lecture notes handed out in class.
- No textbook required.

### G. Library Resources:

No resources needed.

## H. Example of a Course Syllabus:

Week 1: Overview of Indoor Environment

Weeks 2-5: Theory

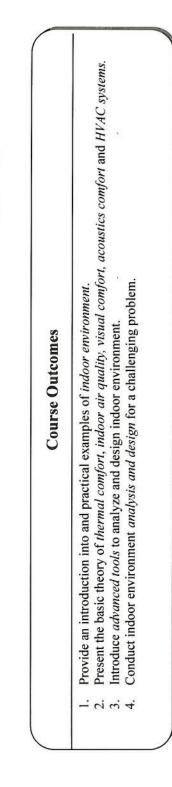
Weeks 5-10: Tools for Indoor Environment Analysis

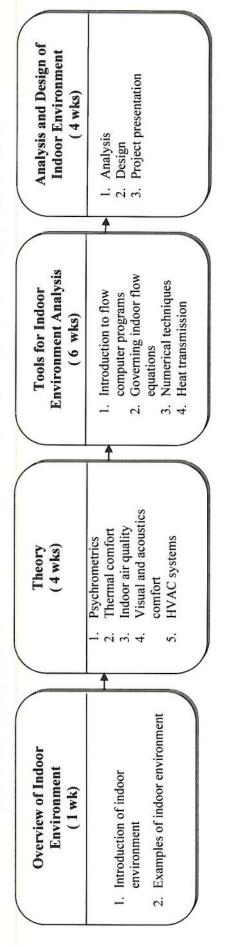
Weeks 11-14: Analysis and Design of Indoor Environment

Week 15: Final project presentations

# ME52200 EFD 16-09

# ME 502 INDOOR ENVIRONMENT ANALYSIS AND DESIGN





COURSE NUMBER: ME 502	COURSE TITLE: Indoor Environment Analysis and Design
REQUIRED COURSE OR ELECTIVE COURSE: Elective	TERMS OFFERED: Spring
TEXTBOOK/REQUIRED MATERIAL: None - Lecture notes handed out in class.	PRE-REQUISITES: ME 315 Heat and Mass Transfer
COORDINATING FACULTY: Q. Yan Chen	
COURSE DESCRIPTION: Review of current trend of building and indoor environment design. Theory of thermal comfort, indoor air quality, visual comfort, acoustic comfort, and HVAC systems. Introduction of experimental techniques and advanced computer tools for indoor environment analysis and design.	COURSE OUTCOMES:  1. Provide an <i>introduction</i> into indoor environment.  2. Present the <i>basic theory</i> of psychrometrics, thermal comfort,
ASSESSMENTS TOOLS:  1. Term paper. 2. Design project report. 3. Presentations.	indoor air quality, visual comfort, acoustics comfort, and HVAC systems.  3. Introduce advanced tools to analyze and design indoor environment.
	4. Conduct indoor environment analysis and design for a
PROFESSIONAL COMPONENT:  1. Engineering Topics: Engineering Science – 1.5 credits (50%)  Engineering Design – 1.5 credits (50%)	challenging problem.  RELATED ME PROGRAM OUTCOMES: N/A
NATURE OF DESIGN CONTENT: Use computer tools to design a comfortable, healthy, and safe building.	
COMPUTER USAGE: Several building simulation programs.	
COURSE STRUCTURE/SCHEDULE:  1. Lecture – 2 days per week at 75 minutes.	
PREPARED BY: Q. Yan Chen	REVISION DATE: January 17, 2008

Supporting Documentation December 12, 2008 Page 2 of 2