

**The University of Michigan
College of Engineering
Curriculum Committee**

Agenda

October 12, 2004

1:30-3:30 p.m.

GM Room

Fourth Floor Lurie Engineering Center

1. Approval of Minutes from September 28, 2004 Meeting
2. Proposal for M.Eng Degree Program in Structural Engineering
3. CoE Requirements for Pass/Fail Courses
4. Revised SGUS Proposal BS BME/M Eng in Pharmaceutical Engineering
5. Course Approval Forms
6. Data to Support Undergraduate Curricular Decision Making
Jeanne Murabito & Honor Passow

**University of Michigan
College of Engineering
Curriculum Committee Meeting
Tuesday September 28, 2004
1:30-3:30 p.m.
Lurie Engineering Center GM Room
Minutes**

Jeff Fessler called the meeting to order at 1:45 p.m.

Members Present: J.Fessler, C.Cesnik, W. Hansen, G. Herrin, S .Holleran, J. Holloway, G. Hulbert, S. Montgomery, M. Parsons, J. Patel, H. Peng, R. Robertson, P. Samson

Members Absent: James Holloway (NERS), S. Pang, S.Takayama (BME), L. Thompson

Guests: Susan Bitzer (for S. Takayama), Kurt Hill, Kathleen Vargo

Motion to approve the minutes of the last meeting

There were two changes to the minutes: Under *ME in Global Automotive and Manufacturing Engr: Passed with the condition that a small modification a global component is added to the curriculum.*

Under *SUGS BME and Pharmaceutical Engineering: Henia stated a precedent from the last meeting in which a similar SGUS was approved.*

The minutes of the last meeting were approved

Discussion of C-/D Rule and 30/36 Credit Hour Rule

This was a continuation of the discussion from the September 14 meeting. A handout regarding this had been passed out in that meeting. This had also been discussed last year.

The Academic Rules Working Group had recommended that the statement that was on page 50 of the 2003-04 CoE Bulletin, Section "C- and D Grades," second sentence that currently reads: "The "D" level of performance is not considered satisfactory for a course that is a prerequisite for a later-elected course..." *not be used in conjunction with the CoE course requirements (required by all degree plans). Specifically: Engr. 100, Engr. 101, Chemistry 130/125/126, Physics 140/141 or 240/241, and Math 115/116/215/216."*

They recommend : *"That a rule be approved that a grade of "C-" or better is required for all CoE core course requirements, Engr. 100, Engr. 101, Chemistry 130/125/126, Physics 140/141 or 240/241, and Math 115/116/215/216, excluding the Humanities/Social Science requirement.*

It is the ARWG's belief that it is important to be consistent among **all** the CoE core course requirements (excluding the Humanities/Social Science requirement).

It was noted that "D" grades are still acceptable for some courses and this Committee controls core courses and departments control their own grades.

Kathleen Vargo stated the program advisor have the ultimate say on this.

Jeff Fessler asked for a straw vote: to no longer allow "D" grades or lower. Only "C" or higher for College core courses not counting Humanities/Social Science courses, regardless of whether or not they are prerequisites. Moved and Seconded. 9 votes for, 2 votes opposed. Jeff said that based on the straw vote, he will come back with specific wording on this.

Regarding the 30/36 credit hour rule, The ARWG recommended increasing the hours from 36 to 38. The 30 of 36 is the last amount of credit hours that a student may transfer into the College at the end of their career here, only 6 credits from outside the University. The ARWG wanted to up that to 8 credits.

Jeff Fessler if someone wanted to make a motion to change this. Since there was not motion, it was decided to leave it at 36.

Kathleen said that the ARWG had recommended 65 hours in their plan that the student had to have on the Ann Arbor campus, but the program advisors said that was too high. They recommended 55. There was to be a subcommittee to look at transfer students being admitted.

Carlos Cesnik made a motion to add a rule that states : *With the exception of Prescribed Programs, students must complete 55 U-M credit hours in their program.* Since there wasn't a second, Jeff Fessler proposed to table this.

Discussion on P/F Policy Regarding Joint LSA/ENGR Degree

There were 3 handouts at the meeting regarding this issue.

Gary Herrin said that the essence of this issue is that when students satisfy the requirements for two different degrees, which schools rules should prevail?

There are two students in question here, who are graduating with 2 degrees in 3 ½ years.

The pass/fail rule which states how many credit hours of pass/fail can be counted in Engineering is 14 and in LSA says 30. These students have 14 credit hours of pass/ fail already and also meet all the Engineering degree requirements (looking at their degree audits).

The question being brought up is does the College still have any control over their Pass/Fail courses at this point.

Kathleen Vargo stated that when a student is in a Multiple Dependent Degree Program (MDDP) they need to follow the policy of their 'home unit' (the school the student is enrolled in). She said that the LSA bulletin states this more clearly than the Engineering bulletin.

She noted that the student can apply for an "exception to college rules" from the Scholastic Standing Committee.

Susan Montgomery made a motion to change the wording. Seconded. Discussion

Jeff Fessler thought that the Academic Rules Working Group should look into this issue, then bring it back to the Committee.

SUGS BME and Pharmaceutical Engineering

Susan Bitzer was there to represent Bio Med. The Committee had met on this at the last meeting and is still waiting for a revised proposal.

BSE Chemical Engineering/MSE Chemical Engineering Engineering Global Leadership Honors Program

Susan Montgomery had turned a proposal for a BSE Chemical Engineering/MSE Chemical Engineering Engineering Global Leadership Honors Program (NOT an SGUS program)

This was sent as an addendum to the September 14 meeting packet.

Susan Montgomery talked about this proposal. This is a Bachelors/Masters Program. The HU/SS requirement goes from 16 to 24 credits because there needs to be enough Language. Discussion

Jeff Fessler made a motion to approve this program. **Motion Carried (approved)**

This will go to the Faculty meeting for approval.

Adjournment: Motion to adjourn was made and seconded
Motion carried (approved)

Next Meeting

Tuesday, October 12, 2004

1:30-3:30 p.m.

GM Room – Fourth Floor LEC

Master of Engineering in Structural Engineering

The Master of Engineering (M.Eng) degree program in Structural Engineering offers students a strong professional degree that is oriented toward structural engineering practice. Students with professional work experience will be encouraged to enter this degree program, but the degree will be open to all B.S.E. (CEE) graduates who intend to enter professional practice after completion of their Master's degree. Students with B.S. degrees from other disciplines will be permitted to enter the M.Eng degree program, but they will probably need to take additional courses to supplement their undergraduate course work. A minimum of 30 credit hours are required to complete the degree, Master of Engineering in Structural Engineering.

One primary feature of the M.Eng (Structural Engineering) will be the requirement to have a minor area of professional emphasis. The minor area may be within or outside the CEE Department. Another feature will be the requirement for a project based on professional practice in structural engineering. Also, students will be expected to take course(s) outside of engineering to develop skills required for the successful practice of engineering in today's society. It is anticipated that students in the M.Eng degree program will consist of a mixture of practicing engineers (part-time students) and regular full-time students. This combination of students should lead to stimulating classroom discussions and add a richness to the professional practice project required for the degree.

Degree Objective

The goal of the Master of Engineering Degree in Structural Engineering is to prepare engineers for practice in structural engineering and for interaction with professionals in related disciplines. It is believed that these goals can best be met by developing a specific program designed to meet the special needs of each student. Students should plan to take courses from as many of the CEE structural engineering faculty as possible.

Program requirements for the Master of Engineering in Structural Engineering are as follows:

1. Major area of professional emphasis: Structural Engineering (≥ 15 hrs.)

Students will be expected to complete at least five structural engineering courses (15 hours) at the 500 or 600 level. Courses offered by other departments may be used if approved by the student's academic advisor. Lower level structural engineering courses may be elected (i.e. CEE 413 and CEE 415), but credit for these courses will not be counted toward either the 30 hour requirement for the M.Eng degree or the 15 hour requirement in the area of major professional emphasis. The five structural engineering courses must satisfy the following requirements:

- a) At least two courses shall be advanced analysis courses selected from CEE 510, CEE 511, CEE 512 or CEE 517.
- b) At least two courses shall be advanced design courses selected from CEE 513, CEE 514, CEE 515, CEE 516 or CEE 618.

Proposal for M.Eng Degree program in Structural Engineering

2. Minor area of professional emphasis (≥ 6 hrs.)

A sequence of at least two courses shall be selected for the minor area of professional emphasis. The second (or third) course in the sequence must be at the 500 level or higher. Any of the other concentration areas in the CEE Department or a technical area from outside the CEE Department will be permitted to satisfy this requirement. The M.Eng student should obtain approval from their faculty advisor before selecting courses for this requirement. Examples of course sequences that would satisfy this requirement are given in the appendix.

3. Structural Engineering Project (3 hrs.)

Students will be required to enroll in the Structural Engineering Project course (CEE 811) and make an oral presentation during that semester. The material for the project must be developed either from the student's prior professional work experience or from a structural engineering project made available to students enrolled in CEE 811. The involvement of a practicing structural engineer in the development of the project is highly recommended and faculty members will facilitate contacts between the students and appropriate structural engineers. Project material can be developed and presented either by an individual student or by a group (two or three) of M.Eng. students in the CEE Department. The project must be approved by the student's faculty advisor during the semester before the student enrolls in the project course. Either the individual student or the student group will be expected to submit a final written report to a faculty review panel and will make an oral presentation of their project. The project course will be graded on a S/U basis. A structural engineering seminar associated with this course will be scheduled on a bi-weekly basis each semester. Seminar speakers will consist of either M.Eng students, structural engineering faculty members, professional engineers or faculty from other institutions.

4. Breadth Beyond Engineering (≥ 3 hrs.)

Areas of emphasis can be Business, Management, Legal, Information Technology, Statistics, Economics or other approved courses of study. These courses must be at the 400 level or above. Students will need to seek formal approval from their academic advisor before enrolling in a course intended to satisfy this requirement. Examples of courses that will satisfy this requirement are listed in the appendix.

5. General Program Requirements and Policies

Credit hours and normal progress:

A minimum of 30 credit hours of acceptable graduate work must be completed for the M.Eng. degree. Twelve hours of credit is the usual full-time graduate load per semester. It is recommended that a student distribute courses over at least two and one-half terms.

Grades:

The grade point average for the 30 hours of courses used to fulfill the credit hour requirement for the M.Eng degree program must be at least B. A grade below C is not acceptable for graduate credit, but it is considered in the computation of the grade point average.

Proposal for M.Eng Degree program in Structural Engineering

Time limit:

A student must complete all work within a period of five consecutive years after first enrollment in the M.Eng program.

Transfer credit:

Transfer of up to nine credit hours required for the M.Eng degree from inter-university and intra-university sources combined is permitted.

Graduate credit: A maximum of six hours of graduate credit may be transferred from another institution. They must be approved graduate level courses taken in residence with a grade of B or better from the graduate school of an accredited institution approved by the Rackham School of Graduate Studies. Graduate extension courses will be considered only from The University of Michigan, Wayne State University, Michigan State University, Michigan Tech University, Lawrence Tech University, Western Michigan University, Central Michigan University, Eastern Michigan University, Northern Michigan University and Oakland University. Credit will be transferred upon written application of the student through the Department of Civil and Environmental Engineering and will be applied after the student has established an overall graduate grade point average of B or better in resident work at the University of Michigan. Courses cannot be transferred for credit if already applied toward a degree or if taken more than five years before beginning graduate study at the University of Michigan.

Pre-graduate credit: Pre-graduate course credit with a grade of B or better earned by the student as an undergraduate at the University of Michigan may be included in the student's graduate study program subject to the following restrictions: (1) credit was not used to meet the bachelor's degree requirement, either required courses or required credit hours, (2) credit was earned no more than two years before formal admission to the M. Eng program and (3) credit was earned in courses approved for graduate credit by the Rackham Graduate School. The student may request the transfer of such credits through the Department of Civil and Environmental Engineering any time after admission.

400 level courses:

A 400 level course that is listed in the Bulletin of the Rackham Graduate School may be elected for graduate credit when approved by the student's advisor, except for those 400 level courses that are required in the current undergraduate degree program of the Department of Civil and Environmental Engineering. No more than a total of 9 hours of 400 level courses will be accepted for graduate credit in this degree program.

Independent study courses:

No more than six credit hours of directed study, including the project course, will be accepted toward the 30 credit hour degree requirement.

Proposal for M.Eng Degree program in Structural Engineering

Appendix

Example sequences of courses that satisfy the requirement for minor professional emphasis:

For construction engineering and management: CEE 534 Construction Engineering, Equipment, and Methods, and CEE 536 Critical Path Methods

For geotechnical engineering: CEE 545 Foundation Engineering, and CEE 544 Rock Mechanics or CEE 546 Stability of Earth Masses or CEE 548 Geotechnical Earthquake Engineering.

For concrete materials: CEE 518 Fiber Reinforced Cement Composites, and CEE 547 Soils Engineering and Pavement Systems or CEE 650 Fracture and Mechanics of Fibrous Composites.

For applied mechanics: ME 412 Advanced Strength of Materials, and ME 512 (CEE 509) Theory of Elasticity or AERO 516 Mechanics of Fibrous Composites.

For architecture: Arch 524 Surface Structures and Arch 544 Wood Structures

Partial list of courses outside of Civil and Environmental Engineering that will satisfy the requirement for breadth beyond engineering:

Accounting 502/3: Principles of Financial Accounting
Accounting 552: Principles of Management Accounting

Architecture 527: Introduction to Building Economics
Architecture 583: Professional Practice

Industrial and Operations Engineering 433: Occupational Ergonomics
Industrial and Operations Engineering 452: Capital Budgeting and Financial Engineering


International Business 510: World Economy

Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department

Home Dept. Nikolaos Katonodes, CEE 

Cross-listed Dept(s). _____

Wolfe, Judy

To: Jeffrey A. Fessler
Subject: 2004-10-12 agenda

>From: Philip Lawrence Roe [mailto:philroe@engin.umich.edu]
>Sent: Tuesday, October 05, 2004 12:18 PM
>To: gdherrin@umich.edu
>Subject: COE Requirements for pass/fail courses

Gary,

The SSC considered at its meeting this morning your request for suggestions to clarify the pass/fail requirements for dual degrees. Our suggestion is the following. Amend the regulation on p 47 of the COE Bulletin to read as follows.

Elective courses in Humanities and Social Sciences, or courses to be used as Unrestricted Electives, or courses taken to satisfy the non-Engineering requirements of a dual-degree program, may be taken pass/fail, subject to the following restrictions.

At least 114 of the credit hours applied to satisfying the requirements of the Engineering program must be taken for grades.

No more than two courses per term, or one course per Spring/Summer half-term may be taken pass/fail. Courses that are only offered pass/fail are exempt from this rule, as are courses taken to satisfy the non-Engineering requirements of a dual-degree program.

Engineering 100, Engineering 101 and Senior Technical Communication courses cannot be elected as pass/fail.

Dual degree students must satisfy any requirements of the partner program.

If more courses are elected pass/fail than are allowed by these rules, they will be automatically revert to being graded. If a course is elected, and allowed, as pass/fail, then it will contribute to the cumulative totals on the transcript only if it is passed. Failed courses will not appear.

If I have understood their situations correctly, these changes would grant approval to the students currently petitioning. The key idea of focussing on the graded rather than the pass/fail courses is due to Wayne Jones. I hope this helps.

Phil Roe

Wolfe, Judy

From: Henia G. Kamil [hek@umich.edu]
Sent: Thursday, October 07, 2004 7:01 AM
To: Fessler, Jeffrey
Cc: jrwolfe@umich.edu; Takayama, Shuichi; Kamil, Henia; Peng, Huei
Subject: Revised SGUS Proposal BS BME/M Eng in Pharmaceutical Engineering



SGUS

Biotech)Pha#13699;

Dear Jeff,

Attached please find the revised SGUS BS BME/ M Eng in Pharmaceutical Engineering proposal. The revision were made based on the recommendation made by the Curriculum Committee at its September 14, 2004 meeting.

The revision based on these recommendations are:

1. BS BME template is current as published in the CoE Bulletin 2004-05 (pg. 96)
2. Unrestricted Free electives are not considered for the 9 credits to be double counted.
3. Credits to be double counted can be considered from the BSE Concentration and Electives. The BSE concentration sample was revised to Biotechnology Concentration (pg. 98 in Bulletin). The listed courses are also integrated in the PharmEng degree template (e.g., ChE 517, BioMedE 584 and ChE 617).

Please let me if the current proposed template will meet with the Curriculum committee recommendations and the proposal can be approved for implementation as of Fall 2004.

If any additional information is required let me know.

I have copied Professor Takayama. I will not be able to attend the meeting until 2:30 pm on Tuesday as I will be at another meeting between 12:00-2:00 pm. I will attend the meeting at 2:30 pm. Professor Peng will not be able to attend the meeting.

Thank you for your consideration and I hope that this proposal will meet the requirements and be approved.

Henia Kamil

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Henia G. Kamil
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BSE Biomedical Eng (Biotechnology)/MEng Pharmaceutical Engineering (Revised)

SGUS PROGRAM

10/6/04

Terms

Required Undergrad CoE Subjects (55)	Course name	number	credits	1	2	3	4	5	6	7	8	9	10
	Math, Calculus I	115	4	4									
	Math, Calculus II	116	4		4								
	Math, Calculus III	215	4			4							
	Math, Intro to Diff. Equations	216	4				4						
	Engr, Intro to Eng.	100	4	4									
	Engr, Intro to Computers	101	4		4								
	Chemistry, General	125	1	1									
	Chemistry, General	126	1	1									
	Chemistry, General	130	3	3									
	Physics, General Physics I	140	4		3								
	Physics, Elem. Lab I	141	1		1								
	Physics, General Physics II	240	4			3							
	Physics, Elem. Lab II	241	1			1							
	Humanities		4		4								
	Humanities		4					4					
	Humanities		4						4				
	Humanities		4							4			
BME Program Subjects (41)	Biology, Intro to Biology	162	5	5									
	Biology, Intro to Biological Chemistry	310	4				4						
	BiomedE, Quantitative Cell Biology	418	4						4				
	Quantitative Physiology	419/519	4					4					
	BiomedE, Bioinstrumentation	458	4					4					
	IOE, Introduction to Statistics	265	4				4						
	EE Circuits	313 or 215	4			4							
Choose two courses			8										
	Mechanical Sciences I		4			4							
	Mechanical Sciences II		4				4						
	BiomedE, Eng. Design	450	4								4		
BME Free Electives 12**			12						8	4			
Biotechnology Concentration Requirements & Electives	ChE, Thermodynamics	330	3					3					
20	ChE, Heat and Mass Transfer or BiomedE, Biotransport**	342 or 479	4							4			
	Chem, Organic Chem I	210	4								4		
	ChE, Reaction Engineering and Design	344	4								4		
	Electives**		5								3	2	
BSE Total Hours			128	18	16	16	16	15	16	15	14		
Required Program Subjects Pharmaceutical Engineering, M Eng Degree*			21						1	1	1	9	9
PharmEng Required	Core Courses		3										
	Advanced BiomedE & Pharm courses		6										
	Legal, regulatory & Business Related		6										
	Advanced Science, engineering and others courses		3										
	Practical Training or Research		3										
B.S.E BiomedE/M. Eng in Pharm Eng. Total			149										

* See BiomedE Department and Pharm Eng for courses that fulfill both requirements

**See BiomedE department to see courses that fulfill requirements

COURSE APPROVAL FORMS

For October 12, 2004 CoE CC Meeting

AOSS 598 New Course

CEE 445 *For information only* Modification – Changing terms from: Fall *to: Winter and Fall*

CEE 519 New Course

CEE 619 New Course

CEE 811 New Course

EECS 527 Modification – Changing description; Changing prerequisites from: EECS 478
to: EECS 281 or EECS 478 or Graduate Standing; adding discussion to class type.

IOE 810 Deletion

IOE 815 Deletion

IOE 825 Deletion

IOE 843 Deletion

IOE 873 Deletion



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

Date 9/20/2004

Effective Winter 2004

A. CURRENT LISTING

B. REQUESTED LISTING

Home Department		Div #	Course Number		Home Department		Div #	Course Number	
					Atmospheric, Oceanic, & Space Sciences		AOSS	598	
Cross Listed Course Information					Cross Listed Course Information				
Course Title					Course Title				
					The Sun and The Heliosphere				
TITLE ABBREVIATION	Time Sched Max = 19 Spaces		TITLE ABBREVIATION	Time Sched Max = 19 Spaces	Sun and Heliosphere				
	Transcript Max = 20 Spaces			Transcript Max = 20 Spaces	Sun and Heliosphere				
Course Description					Course Description for Official Publication (Max = 50 words)				
					A complete description of the physical processes that govern the behavior of the Sun and the heliosphere with emphasis on recent theoretical and observational results.				
PROGRAM OUTCOMES:					PROGRAM OUTCOMES:				
<input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/> f <input type="checkbox"/> g <input type="checkbox"/> h <input type="checkbox"/> i <input type="checkbox"/> j <input type="checkbox"/> k					<input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/> f <input type="checkbox"/> g <input type="checkbox"/> h <input type="checkbox"/> i <input type="checkbox"/> j <input type="checkbox"/> k				
Degree Requirements <input type="radio"/> Degree Requirement <input type="radio"/> Tech Elective <input type="radio"/> Core Course <input type="radio"/> Free Elective <input type="radio"/> Other					Degree Requirements <input type="radio"/> Degree Requirement <input type="radio"/> Tech Elective <input type="radio"/> Core Course <input type="radio"/> Free Elective <input type="radio"/> Other				
Prerequisites <input type="radio"/> Enforced <input type="radio"/> Advised					Prerequisites AOSS 464 & Physics 505 or equivalent <input type="radio"/> Enforced <input type="radio"/> Advised				
Credit Restrictions					Credit Restrictions				
Level of Credit		All Credit types		Credit Hours		Contact Hrs/Wk		Level of Credit	
<input type="checkbox"/> Undergrad only <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Non-Rckhm Grad <input type="checkbox"/> Ugrad or Rckhm Grad <input type="checkbox"/> Ugrad or Non-Rckhm Grad		<input type="checkbox"/> All Credit types <input type="checkbox"/> Rckhm Grad w/add'l Work		Min Max _____		_____ Number of Wks _____		<input type="checkbox"/> Undergrad only <input checked="" type="checkbox"/> Rackham Grad <input type="checkbox"/> Non-Rckhm Grad <input type="checkbox"/> Ugrad or Rckhm Grad <input type="checkbox"/> Ugrad or Non-Rckhm Grad	
								Min Max 3 3 Number of Wks 14	
C. Repeatability (Indi Research, Dir. Study, Dissertation): Is this course repeatable? <input type="radio"/> Yes <input type="radio"/> No Maximum Hours? _____ Maximum Times? _____ Can it be repeated in the same term? <input type="radio"/> Yes <input type="radio"/> No					Printing Information (Optional) <input checked="" type="checkbox"/> Print the course in the Bulletin <input checked="" type="checkbox"/> Print the course in the Time Schedule				
Class Type(s) <input checked="" type="checkbox"/> Lec <input type="checkbox"/> Rec <input type="checkbox"/> Sem <input type="checkbox"/> Lab <input type="checkbox"/> Dis <input type="checkbox"/> Ind <input type="checkbox"/> Other _____					Terms & Freq. of Offering <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> IIIa <input type="checkbox"/> IIIb <input type="checkbox"/> III <input type="checkbox"/> Yearly <input type="checkbox"/> Alter Years <input type="checkbox"/> Even Years <input type="checkbox"/> Odd Years				
Graded Section <input type="radio"/> Lec <input type="radio"/> Rec <input type="radio"/> Sem <input type="radio"/> Lab <input type="radio"/> Dis <input type="radio"/> Ind <input type="radio"/> Other _____					Half term <input type="checkbox"/> 1st <input type="checkbox"/> 2nd				
Grading <input checked="" type="checkbox"/> A-E <input type="checkbox"/> CR/NC <input type="checkbox"/> S/U <input type="checkbox"/> P/F <input type="checkbox"/> Y					Cognizant Faculty Member: Lennard A. Fisk Title Professor				
Location <input checked="" type="checkbox"/> Ann Arbor <input type="checkbox"/> Biological Station <input type="checkbox"/> Camp Davis <input type="checkbox"/> Extension					Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty				

Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department

Home Dept. Perry Samson

Cross-listed Dept(s): _____

SUPPORTING STATEMENT

A significant fraction of the AOSS graduate students pursue research in fields directly related to solar and heliospheric physics. In these fields, new observations and new theoretical approaches are continuously becoming available. This course will be the first taught in AOSS that summarizes the current state of knowledge in solar and heliospheric physics, with particular emphasis on recent work. The course is intended to provide students with a firm basis from which they can pursue their own research in these fields.

Listed below are the topics that will be covered in the course:

- The behavior of magnetic fields in turbulence
- Mean magnetic field dynamo theory applied to the Sun
- Emergence of magnetic fields on the solar surface
- Open and closed magnetic field behavior during the solar cycle
- Acceleration and heating in turbulent magnetic fields
- Heating of coronal loops and loop properties
- Interactions of loops with open magnetic fields
- Diffusion of magnetic fields on the Sun
- Solar cycle variations of the solar magnetic field
- Solar wind acceleration theory
- The solar wind problem with diffusive heating
- Charge states observed in the solar wind and implications for theory
- First-Ionization-Potential enhancement mechanisms
- Release of Coronal Mass Ejections
- Diffusive shock acceleration mechanisms
- Statistical acceleration
- Injection mechanisms
- Acceleration in gradual solar flares
- Acceleration in impulsive solar flares
- Composition anomalies in solar flares

Are any special resources or facilities required for this course? Yes No

Detail the Special requirements

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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

Date 6/8/2004

Effective Winter 2005

A. CURRENT LISTING

B. REQUESTED LISTING

<p>Home Department _____ Div # _____ Course Number _____</p> <p>Cross Listed Course Information _____</p> <p>Course Title _____</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE</td> <td style="width: 15%;">Time Sched</td> <td style="width: 70%;"></td> </tr> <tr> <td>ABBREVIATION</td> <td>Max = 19 Spaces</td> <td></td> </tr> <tr> <td></td> <td>Transcript</td> <td></td> </tr> <tr> <td></td> <td>Max = 20 Spaces</td> <td></td> </tr> </table> <p>Course Description _____</p> <p><input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/> f <input type="checkbox"/> g <input type="checkbox"/> h <input type="checkbox"/> i <input type="checkbox"/> j <input type="checkbox"/> k</p> <p>Degree Requirements <input type="radio"/> Degree Requirement <input type="radio"/> Free Elective <input type="radio"/> Other <input type="radio"/> Core Course <input type="radio"/> Tech Elective</p> <p>Prerequisites <input type="radio"/> Enforced <input type="radio"/> Advised</p> <p>Credit Restrictions</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Level of Credit</td> <td style="width: 20%;">Credit Hours</td> <td style="width: 20%;">Contact</td> <td style="width: 30%;"></td> </tr> <tr> <td><input type="checkbox"/> Undergrad only</td> <td>Min Max</td> <td>Hrs/Wk</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Rackham Grad</td> <td></td> <td>Number</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Non-Rackham Grad</td> <td></td> <td>of Wks</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Ugrad or Rackham Grad</td> <td></td> <td></td> <td></td> </tr> </table>	TITLE	Time Sched		ABBREVIATION	Max = 19 Spaces			Transcript			Max = 20 Spaces		Level of Credit	Credit Hours	Contact		<input type="checkbox"/> Undergrad only	Min Max	Hrs/Wk		<input type="checkbox"/> Rackham Grad		Number		<input type="checkbox"/> Non-Rackham Grad		of Wks		<input type="checkbox"/> Ugrad or Rackham Grad				<p>Home Department CEE Div # 248 Course Number 445</p> <p>Cross Listed Course Information _____</p> <p>Course Title Engineering Properties of Soil</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE</td> <td style="width: 15%;">Time Sched</td> <td style="width: 70%;">Engr Prop Soil</td> </tr> <tr> <td>ABBREVIATION</td> <td>Max = 19 Spaces</td> <td></td> </tr> <tr> <td></td> <td>Transcript</td> <td></td> </tr> <tr> <td></td> <td>Max = 20 Spaces</td> <td>Engr Prop Soil</td> </tr> </table> <p>Course Description for Official Publication (Max = 50 words) Soil classification and index properties; soil structures and moisture, seepage, compressibility and consolidation; stress and settlement analysis; shear strength; applications to foundations, retaining structures, slopes and landfills. Lectures, problems, laboratory, report writing.</p> <p><input checked="" type="checkbox"/> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input checked="" type="checkbox"/> e <input type="checkbox"/> f <input checked="" type="checkbox"/> g <input type="checkbox"/> h <input checked="" type="checkbox"/> i <input type="checkbox"/> j <input checked="" type="checkbox"/> k</p> <p>Degree Requirements <input checked="" type="radio"/> Degree Requirement <input type="radio"/> Free Elective <input type="radio"/> Other <input type="radio"/> Core Course <input type="radio"/> Tech Elective</p> <p>Prerequisites CEE 212 <input checked="" type="radio"/> Enforced <input type="radio"/> Advised</p> <p>Credit Restrictions</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Level of Credit</td> <td style="width: 20%;">Credit Hours</td> <td style="width: 20%;">Contact</td> <td style="width: 30%;"></td> </tr> <tr> <td><input checked="" type="checkbox"/> Undergrad only</td> <td>Min Max</td> <td>Hrs/Wk</td> <td>6</td> </tr> <tr> <td><input type="checkbox"/> Rackham Grad</td> <td></td> <td>Number</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Non-Rackham Grad</td> <td>4 4</td> <td>of Wks</td> <td>14</td> </tr> <tr> <td><input type="checkbox"/> Ugrad or Rackham Grad</td> <td></td> <td></td> <td></td> </tr> </table>	TITLE	Time Sched	Engr Prop Soil	ABBREVIATION	Max = 19 Spaces			Transcript			Max = 20 Spaces	Engr Prop Soil	Level of Credit	Credit Hours	Contact		<input checked="" type="checkbox"/> Undergrad only	Min Max	Hrs/Wk	6	<input type="checkbox"/> Rackham Grad		Number		<input type="checkbox"/> Non-Rackham Grad	4 4	of Wks	14	<input type="checkbox"/> Ugrad or Rackham Grad			
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<p>C. Repeatability (Indi Research, Dir. Study, Dissertation): Is this course repeatable? <input type="radio"/> Yes <input type="radio"/> No Maximum Hours? _____ Maximum Times? _____ Can it be repeated in the same term? <input type="radio"/> Yes <input type="radio"/> No</p> <p><input checked="" type="checkbox"/> Class Type(s) <input checked="" type="checkbox"/> Lec <input type="checkbox"/> Rac <input type="checkbox"/> Sem <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Dis <input type="checkbox"/> Ind <input type="checkbox"/> Other _____</p> <p>Graded Section <input type="radio"/> Lec <input type="radio"/> Rac <input type="radio"/> Sem <input type="radio"/> Lab <input type="radio"/> Dis <input type="radio"/> Ind <input type="radio"/> Other _____</p> <p>Grading <input checked="" type="checkbox"/> A-E <input type="checkbox"/> CR/NC <input type="checkbox"/> S/U <input type="checkbox"/> P/F <input type="checkbox"/> Y</p> <p>Location <input checked="" type="checkbox"/> Ann Arbor <input type="checkbox"/> Biological Station <input type="checkbox"/> Camp Davis <input type="checkbox"/> Extension</p>	<p>Printing Information <input checked="" type="checkbox"/> Print the course in the Bulletin (Optional) <input checked="" type="checkbox"/> Print the course in the Time Schedule</p> <p style="font-size: 2em; text-align: center;">FAYWN</p> <p>Terms & Freq. of Offering <input checked="" type="checkbox"/> I <input checked="" type="checkbox"/> II <input type="checkbox"/> IIIa <input type="checkbox"/> IIIb <input type="checkbox"/> III <input type="checkbox"/> Yearly <input type="checkbox"/> Alter Years <input type="checkbox"/> Even Years <input type="checkbox"/> Odd Years</p> <p>Half term <input type="checkbox"/> 1st <input type="checkbox"/> 2nd</p> <p>Cognizant Faculty Member: _____ Title _____</p> <p>Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty</p>																																																																

Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department
 Home Dept. Nikolaos Katopodes, CEE *Nikolaos Katopodes*

Cross-listed Dept(s): _____

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

Date 4/13/2004

Effective Winter 2005

A. CURRENT LISTING

B. REQUESTED LISTING

<input checked="" type="checkbox"/>	Home Department	Div #	Course Number		Home Department	Div #	Course Number				
					Civil and Environmental Engineering	248	519				
	Cross Listed Course Information				Cross Listed Course Information						
<input checked="" type="checkbox"/>	Course Title				Course Title						
					Hybrid and Composite Structures						
	TITLE ABBREVIATION	Time Sched Max = 19 Spaces			TITLE ABBREVIATION	Time Sched Max = 19 Spaces	Hybrid/Comp Struct				
		Transcript Max = 20 Spaces				Transcript Max = 20 Spaces	Hybrid/Comp Struct				
<input checked="" type="checkbox"/>	Course Description				Course Description for Official Publication (Max = 50 words)						
					Behavior and design of hybrid and composite structural members, connections and systems, including composite frame construction, structural wall systems and braced frames; design of advanced fiber cementitious materials and applications in new and deficient structural systems; Fiber Reinforced Polymers (FRP) for structural repair and retrofit.						
	PROGRAM OUTCOMES				PROGRAM OUTCOMES						
	<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d	<input type="checkbox"/> e	<input type="checkbox"/> f	<input type="checkbox"/> g	<input type="checkbox"/> h	<input type="checkbox"/> i	<input type="checkbox"/> j	<input type="checkbox"/> k
	Degree Requirements				Degree Requirements						
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<input checked="" type="checkbox"/>	Prerequisites				Prerequisites						
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	Credit Restrictions				Credit Restrictions						
	Level of Credit				Level of Credit						
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	<input type="checkbox"/> Non-Rckhm Grad			Number of Wks	<input type="checkbox"/> Non-Rckhm Grad				3	3	14
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<input checked="" type="checkbox"/>	Class Type(s)				Terms & Freq. of Offering						
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	<input type="checkbox"/> Sem		<input type="radio"/> Sem	<input type="checkbox"/> CR/NC							
	<input type="checkbox"/> Lab		<input type="radio"/> Lab	<input type="checkbox"/> S/U							
	<input type="checkbox"/> Dis		<input type="radio"/> Dis	<input type="checkbox"/> P/F							
	<input type="checkbox"/> Ind		<input type="radio"/> Ind	<input type="checkbox"/> Y							
	<input type="checkbox"/> Other		<input type="radio"/> Other								
				Location	<input checked="" type="checkbox"/> Ann Arbor						
					<input type="checkbox"/> Biological Station						
					<input type="checkbox"/> Camp Davis						
					<input type="checkbox"/> Extension						
	Cognizant Faculty Member:				Gustavo Parra-Montesinos				Title Assistant Professor		
	Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty										

Approval

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department

Home Dept. Nikolaos Katonodas, CEE *Nikolaos Katonodas*

Cross-listed Dept(s): _____

Curriculum Comm. _____

Faculty _____

Rackham _____

Cross listed Unit 1 _____

Cross listed Unit 2 _____

SUPPORTING STATEMENT

In most structural engineering programs in the country, including that at UofM, design courses are focused on either concrete or steel structures. During the past two decades, the advantages of combining structural steel and concrete members in single structures have been recognized, leading to the development of a new generation of composite steel-concrete structural systems. Moreover, new high-performance composite materials have been recently developed for application in new and existing structures, which has opened a new range of possibilities for achieving high damage tolerant and reliable structural systems. Thus, this course focuses on bridging the existing gap in the teaching of design courses on steel and concrete structures, as well as on introducing the latest developments in composite materials and structural systems. In order to evaluate how well this new course would be received by the students, it was taught during the 2004 winter term under CEE-810 (Structural Engineering Seminar). A total of 11 graduate students (M.S. and Ph.D.) registered for the course and the proposed outline was satisfactory covered during the semester.

Are any special resources or facilities required for this course? Yes No

Detail the Special requirements

CEE-519: HYBRID AND COMPOSITE STRUCTURES

Outline:

- 1) Introduction
- 2) Material properties
 - a. Concrete (stress-strain response under uniaxial and multiaxial state of stress)
 - b. Fiber Reinforced Concrete (FRC)
 - c. Steel
 - d. Fiber Reinforced Polymer (FRP) Composites
- 3) Hybrid steel-concrete members
 - a. Composite floor systems
 - i. Wide flange beams
 - ii. Trusses
 - b. Steel-reinforced concrete (SRC) flexural members
 - i. Concrete-encased wide flange sections
 - ii. Concrete-encased steel trusses
 - iii. Seismic detailing
 - c. Concrete-filled tube (CFT) columns
 - d. Hybrid concrete-steel coupling beams
 - e. Hybrid walls
 - f. Buckling-restrained braces
- 4) Hybrid steel-concrete structural systems and connections
 - a. Effect of concrete slab on behavior of simple and moment resisting steel connections
 - b. Reinforced concrete column-steel beam (RCS) frames
 - c. SRC frames
 - d. CFT frames
 - e. Hybrid wall and coupled wall systems
 - f. Buckling-Restrained Braced (BRB) frames
 - g. Results from full-scale tests of RCS and BRB frames (NCREE)
- 5) High-Performance Fiber Reinforced Cement Composites (HPFRCCs)
 - a. Definition, fiber types/materials, compression and tensile behavior
 - b. Material selection for seismic applications
 - c. Applications in new construction
 - i. Seismic behavior of HPFRCC members with shear-dominated response
 - ii. Seismic behavior of HPFRCC flexural elements
 - d. Applications in seismic retrofit and repair
- 6) Fiber Reinforced Polymer (FRP) composites for non-seismic and seismic retrofit and repair
 - a. Flexural strengthening

- b. Shear strengthening
 - c. Enhancement of member ductility
- 7) Seismic-resistant precast/prestressed construction, self-centering systems
- a. Systems and connections developed in PRESS program
 - b. Seismic behavior of a full-scale precast structure (PRESS program)
 - c. Precast and monolithic self-centering members and connections
 - d. Hybrid precast frame systems

Grading System:

Homework	30%
Term Project	35%
Final Exam	35%

References:

A large portion of the material covered in this course is based on results from research programs published in technical journals. The instructor will give a list of journal papers for reference at the beginning of each topic. Other references for the course are listed below.

ACI Committee 318. (2002). *Building Code Requirements for Structural Concrete, ACI 318-02*, American Concrete Institute, Farmington Hills, Michigan.

AISC. (2002). *Seismic Provisions for Structural Steel Buildings*, American Institute of Steel Construction, Inc., Chicago, Illinois.

AISC-LRFD. (2001). *Manual of Steel Construction - Load & Resistance Factor Design*, Third Edition, American Institute of Steel Construction, Inc., Chicago, Illinois.

Priestley, M.J.N., Seible, F., and Calvi, G.M. (1996). *Seismic design and retrofit of bridges*, Wiley-Interscience.

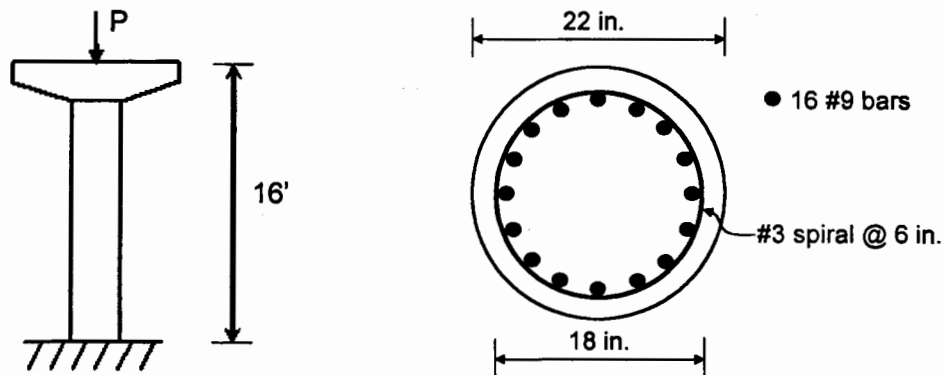
RILEM. (1996; 1999; 2003). *High Performance Fiber Reinforced Cement Composites Proceedings (2, 3 and 4)*, Ed. A.E. Naaman and H.W. Reinhardt, E & FN Spon, London, UK.

Viest, I.V., Colaco, J.P., Furlong, R.W., Griffis, L.G., Leon, R.T., Wyllie, L.A. (1997). *Composite Construction Design for Buildings*, McGraw-Hill, Inc.

CEE – 519: Hybrid and Composite Structures

Sample Homework

As a member of a team in charge of a bridge seismic retrofit project, you are asked to evaluate the design of the piers in a concrete bridge, evaluate their potential behavior during an earthquake, and design a retrofit scheme, if needed, using FRP jacketing. A cross section and an elevation view of the bridge pier is shown in the figure below. Based on the seismicity of the site, a peak displacement demand of 6.5 in. was estimated. The bridge pier is assumed to sustain a permanent axial load corresponding to 10% of its maximum axial load capacity. The specified concrete strength found in the design drawings was 3000 psi, and Grade 40 and 60 steels were used for the transverse and longitudinal reinforcement, respectively. Make any necessary assumptions regarding actual material properties expected in the bridge pier. You are allowed to use Xtract or any other software for nonlinear section analysis.



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

Date 11/3/2003

Effective Fall 2005

A. CURRENT LISTING

B. REQUESTED LISTING

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Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department
 Home Dept. Nikolaos Katonodes, CEE *Nikolaos Katonodes*
 Cross-listed Dept(s): _____

SUPPORTING STATEMENT

A new graduate-level course titled, "CEE 619 - Advanced Structural Dynamics and Smart Structures" is proposed for introduction to the current Civil and Environmental Engineering curriculum. The course represents a continuation of the content covered in "CEE 511 - Dynamics of Structures". Aimed at upper-level graduate students, the course material explores in greater depth the fundamental mathematics used to richly describe dynamic structural systems (a preliminary course outline is attached). In particular, the course will effectively utilize smart structure technologies, such as structural monitoring and control systems, as examples of theory applied to practice. Graduate students will greatly benefit from CEE 619 because the course will better prepare them with a deep understanding of structural behavior under extreme loads such as earthquakes and blasts. Furthermore, practical knowledge can be acquired that permits students to intrepidly apply smart structure technologies within next-generation civil, mechanical and aerospace structures after graduation.

The class will encourage student enrollment from both the Aerospace and Mechanical Engineering Departments since the universality of the course material allows for aerospace and mechanical systems to serve as suitable class and assignment examples. Furthermore, as barriers between engineering disciplines reduce in academia and industry, this interdisciplinary course with student participation from multiple engineering departments will better prepare and encourage all students to collaborate on emerging technologies not contained in any one field of study.

The course is currently being offered as CEE 810 and has an official enrollment of 6 students for credit and an additional 10 students as auditing.

Are any special resources or facilities required for this course? Yes No

Detail the Special requirements

Course Outline for CEE619 – Advanced Structural Dynamics & Smart Structures

Jerome P. Lynch

September 14, 2004

- Linear Algebra Review
 - Applied Definition of Basis, Range, Rank
 - QR and SVD Factorizations
 - Orthogonality

- Domain Transformations:
 - Laplace Transforms
 - Introduction to the Continuous Complex (s) Plane
 - Zero and Pole Analysis for System Stability
 - Linear System Transfer Functions
 - Fourier Transforms
 - Z-Transforms
 - Introduction to the Discrete Complex (z) Plane
 - Anti-aliasing Phenomena
 - s- to z-Plane Conversions
 - Wavelet Analysis

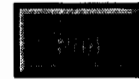
- System Block Analysis
 - Convolution in Complex Domains
 - Dynamic System Block Analysis

- System Observation
 - Fundamentals of Data Acquisition
 - Data processing
 - System Identification Techniques
 - AR, ARX, OE, BJ
 - Data Filtering (Low- and High-Pass Processing)
 - Observer Design
 - Least-squares
 - Recursive least-squares
 - Kalman Filtering

- Dynamic Experimental Analysis Testing
 - Pseudo-Dynamic

- System Control
 - Introduction to Civil Structural Control
 - Technologies (passive, semi-active, active)
 - Examples of Structural Implementations
 - Transfer Function Analysis and Design
 - Root Locus Controller Design

- **Bode Controller Design**
- **LQR Control**
- **Case Study I – Tuned Mass Damper Systems**
- **Case Study II – Variable Damped Building Design (LQR Solution)**



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

Date 6/28/2004

Effective Fall 2005

A. CURRENT LISTING

B. REQUESTED LISTING

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Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department

Home Dept. Nikolas Katonodes, Civil and Environmental Engineering

Cross-listed Dept(s): _____

SUPPORTING STATEMENT

The Structural Engineering Program at the University of Michigan offers design courses in four main areas: reinforced concrete, prestressed concrete, steel, and composite structures. Courses in these areas cover the design of the most common types of members and components, such as beams, columns, walls, and floor systems. However, students pursuing an M.S. degree in Structural Engineering are not exposed to the overall design of structural systems and thus, for their initial structural design projects, they must rely on more experienced engineers for the development of the design concept and structural models, evaluation of pros and cons of potential structural systems, and evaluation of overall system behavior under various loading conditions.

The proposed M.Eng. degree in Structural Engineering includes a Structural Engineering Project. The idea behind this course is to provide students with the necessary tools to lead design projects in reinforced concrete, or prestressed concrete, or steel, or composite steel-concrete structures. Thus, contrary to typical design courses, which are focused on design of individual members and components of structures, this course will focus on structural analysis and design issues at the system level. Material to be covered in this course includes the determination of potential load and displacement demands; selection of foundation and structural system; proportioning of structural elements to sustain gravity loads, wind effects, and displacements imposed by earthquakes; representation of field conditions in structural computer models; and detailing of critical regions, such as connections and member regions where plastic hinges may develop due to earthquake-induced displacements.

Are any special resources or facilities required for this course? Yes No

Detail the Special requirements



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

Date 9/15/2004

Effective Winter 2005

A. CURRENT LISTING

B. REQUESTED LISTING

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Approval

Curriculum Comm. _____

Faculty _____

Rackham _____

Cross listed Unit 1 _____

Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department
 Home Dept. EECS _____
 Cross-listed Dept(s). _____

SUPPORTING STATEMENT

Remove an outdated pre-requisite.
Adjust the course description to better reflect the topics taught in the course in the last 4 years. Add a one-hour discussion to address software projects that have become more difficult in the last 4 years.

Each student can take EECS 527 for 3 or 4 credits which will reflect on their project assignment. Students taking the course for 3 credits will not need to attend discussion sections.

Are any special resources or facilities required for this course? Yes No

Detail the Special requirements



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

Date 9/20/2004

Effective Winter 2005

A. CURRENT LISTING

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Approval

Curriculum Comm. _____

Faculty _____

Rackham _____

Cross listed Unit 1 _____

Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department _____

Home Dept. _____

Cross-listed Dept(s). _____



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

Date 9/20/2004

Effective Winter 2005

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Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department
 Home Dept. _____
 Cross-listed Dept(s). _____

SUPPORTING STATEMENT

~~This seminar course has not been offered since 1980 and there are no plans to offer it in the future.~~

Lined area for supporting statement.

Are any special resources or facilities required for this course? Yes No

Detail the Special requirements

Lined area for special requirements.



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
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Date 9/20/2004

Effective Winter 2005

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Printing Information (Optional) Print the course in the Bulletin
 Print the course in the Time Schedule

Terms & Freq. of Offering I II IIIa IIIb III
 Yearly Alter Years Even Years Odd Years
 Half term 1st 2nd

Cognizant Faculty Member: Walton Hancock Title Professor Emeritus

Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty

Approval

Curriculum Comm. _____

Faculty _____

Rackham _____

Cross listed Unit 1 _____

Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department
 Home Dept. _____
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Home Department IOE</td> <td style="width: 15%;">Div # 272</td> <td style="width: 55%;">Course Number 873</td> </tr> <tr> <td colspan="3">Cross Listed Course Information</td> </tr> <tr> <td colspan="3">Course Title Seminar in Administrative Information Processing Systems</td> </tr> <tr> <td style="width: 15%;">TITLE ABBRE- VIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces Transcript Max = 20 Spaces</td> <td style="width: 70%;">Sem Info Proc Sys Sem Info Proc Sys</td> </tr> <tr> <td colspan="3">Course Description Recent developments, case studies, and individual or group development projects in administrative information processing systems.</td> </tr> <tr> <td colspan="3" style="text-align: center;">PROGRAM OUTCOMES:</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/> f <input type="checkbox"/> g <input type="checkbox"/> h <input type="checkbox"/> i <input type="checkbox"/> j <input type="checkbox"/> k </td> </tr> <tr> <td colspan="3"> Degree Requirements <input type="radio"/> Degree Requirement <input type="radio"/> Tech Elective <input type="radio"/> Core Course <input type="radio"/> Other <input type="radio"/> Free Elective </td> </tr> <tr> <td colspan="3">Prerequisites IOE 575 <input type="radio"/> Enforced <input checked="" type="radio"/> Advised</td> </tr> <tr> <td colspan="3">Credit Restrictions</td> </tr> <tr> <td style="width: 15%;">Level of Credit</td> <td style="width: 15%;">All Credit types <input type="checkbox"/> Rckhm Grad w/add'l Work</td> <td style="width: 70%;">Credit Hours Min Max 1 3 Contact Hrs/Wk 1-3 Number of Wks 14</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> Undergrad only <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Non-Rckhm Grad <input checked="" type="checkbox"/> Ugrad or Rckhm Grad <input type="checkbox"/> Ugrad or Non-Rckhm Grad </td> </tr> </table>	Home Department IOE	Div # 272	Course Number 873	Cross Listed Course Information			Course Title Seminar in Administrative Information Processing Systems			TITLE ABBRE- VIATION	Time Sched Max = 19 Spaces Transcript Max = 20 Spaces	Sem Info Proc Sys Sem Info Proc Sys	Course Description Recent developments, case studies, and individual or group development projects in administrative information processing systems.			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<p>C.</p> <p>Repeatability (Indi Research, Dir. Study, Dissertation): Is this course repeatable? <input type="radio"/> Yes <input type="radio"/> No Maximum Hours? _____ Maximum Times? _____ Can it be repeated in the same term? <input type="radio"/> Yes <input type="radio"/> No</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Class Type(s)</td> <td style="width: 15%;">Lec Rec Sem Lab Dis Ind Other</td> <td style="width: 15%;">Graded Section <input type="radio"/> Lec <input type="radio"/> Rec <input type="radio"/> Sem <input type="radio"/> Lab <input type="radio"/> Dis <input type="radio"/> Ind <input type="radio"/> Other</td> <td style="width: 15%;">Grading <input type="checkbox"/> A-E <input type="checkbox"/> CR/NC <input checked="" type="checkbox"/> SAJ <input type="checkbox"/> P/F <input type="checkbox"/> Y</td> <td style="width: 40%;">Location <input checked="" type="checkbox"/> Ann Arbor <input type="checkbox"/> Biological Station <input type="checkbox"/> Camp Davis <input type="checkbox"/> Extension</td> </tr> </table>	Class Type(s)	Lec Rec Sem Lab Dis Ind Other	Graded Section <input type="radio"/> Lec <input type="radio"/> Rec <input type="radio"/> Sem <input type="radio"/> Lab <input type="radio"/> Dis <input type="radio"/> Ind <input type="radio"/> Other	Grading <input type="checkbox"/> A-E <input type="checkbox"/> CR/NC <input checked="" type="checkbox"/> SAJ <input type="checkbox"/> P/F <input type="checkbox"/> Y	Location <input checked="" type="checkbox"/> Ann Arbor <input type="checkbox"/> Biological Station <input type="checkbox"/> Camp Davis <input type="checkbox"/> Extension	<p>Printing Information (Optional) <input type="checkbox"/> Print the course in the Bulletin <input type="checkbox"/> Print the course in the Time Schedule</p> <p>Terms & Freq. of Offering <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> IIIa <input type="checkbox"/> IIIb <input type="checkbox"/> III <input type="checkbox"/> Yearly <input type="checkbox"/> Alter Years <input type="checkbox"/> Even Years <input type="checkbox"/> Odd Years</p> <p>Half term <input type="checkbox"/> 1st <input type="checkbox"/> 2nd</p> <p>Cognizant Faculty Member: _____ NONE _____ Title _____</p> <p>Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty</p>																																																																			
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Approval

- Curriculum Comm. _____
- Faculty _____
- Rackham _____
- Cross listed Unit 1 _____
- Cross listed Unit 2 _____

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department _____
 Home Dept. _____
 Cross-listed Dept(s). _____

