

Wolfe, Judy

To: Murabito, Jeanne
Subject: RE: EE degree program changes

On Tue, 28 Jan 2003, Jeffrey A. Fessler wrote:

>
> Jeanne and Armin,
>
> Today the ECE faculty approved two "program changes" for the EE degree
> that will affect footnotes in the bulletin:
>
> 1. We eliminated EECS 497 from the long list of MDE courses in
> footnote 6 since it has turned out to be just a software course.
>
> 2. We added the restriction:
> "At most 4 credits of undergraduate probability may be
> applied to the EE degree."
>
> We chose to go the latter route because trying to preclude EECS 401 /
> Math 425 / IOE 265 / etc. via the course approval form was too
> painful. So we just put it in the degree requirements.
>
> My understanding is that since these are both "details" in the
> footnotes, they don't need to be approved by the CoE CC. But if you
> feel otherwise, then consider this email my request to be on the next
> agenda. Otherwise, Jeanna will see this (if she looks) in the edited
> bulletin our staff are preparing.
>
> jf
>

> ---
> Jeff Fessler, Assoc. Prof. 734-763-1434
> 4240 EECS Bldg., 1301 Beal Ave. FAX: 734-763-8041
> University of Michigan fessler@umich.edu
> Ann Arbor, MI 48109-2122
> <http://www.eecs.umich.edu/~fessler/>

COURSE APPROVAL FORMS

February 11, 2003

AERO 285	Modification – Changing Course Title; Changing Description; Changing Pre-Requisites; Changing Contact Hours
AERO 483	Modification – Changing Pre-Requisites
BIOMED E 548 (X-listed with EECS 548)	Deletion
CHEM E 557 (X-listed with MSE 557)	New Course
EECS 401	Modification – Changing Pre-Requisites
EECS 501	Modification – Changing Pre-Requisites
ENGR 4XX	New Course
TECH COMM 400	Deletion
TECH COMM 450	Modification – Changing Course Description
TECH COMM 475	Modification – Changing Course Description
TECH COMM 486	Deletion
TECH COMM 490	Deletion
TECH COMM 497	Deletion
TECH COMM 499	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 1/22/2003
 Effective Fall 2003

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. Iain Boyd Iain Boyd, Aerospace Engineering
 Cross-listed Dept(s): _____

SUPPORTING STATEMENT

The present AE 285 curriculum was put into effect in Winter 1999 in connection with the CoE 2000 curriculum reform... Faculty members in the structural and solid mechanics (SSM) group revisited the contents of the advertised curriculum over the past several semesters and felt that the course needed reorganization... It was felt that the advertised curriculum is not focused and distracted students from the process of learning fundamental aspects of solid mechanics and structures as it relates to Aerospace structures... In particular, it was felt that the present offering (as it is currently being taught) was not reflective of what appears in the College bulletin... The faculty members of the SSM group therefore request that changes be made to remedy this situation... Thus, the present request to modify includes a more coherent and streamlined curriculum aimed at introducing the subject of solid and structural mechanics to "first timers" in a methodical manner... Since AE 285 is a prerequisite for AE 315, it was strongly felt that the students be properly equipped with fundamental knowledge to tackle the more advanced structures concepts that are delivered in AE 315... With the requested modification, students will be properly equipped to understand and resolve structural mechanics issues that are relevant to Aerospace engineers.

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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

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Date 1/23/2003

Effective Fall 2003

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Includes a lecture phase that covers mission planning, launch vehicle integration, propulsion, power systems, communications, budgeting, and reliability. Subsequently, students experience the latest practices in space-systems engineering by forming into mission- component teams and collectively designing a space mission. Effective team and communication skills are emphasized. 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Preceded or accompanied by Aero 315, 325, and 335 <input type="checkbox"/> Enforced <input checked="" type="checkbox"/> Advised </td> </tr> <tr> <td colspan="3">Credit Restrictions</td> </tr> <tr> <td colspan="3">Level of Credit</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> Undergrad only <input type="checkbox"/> All Credit types <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Rckhm Grad w/add'l Work <input type="checkbox"/> Non-Rckhm Grad <input checked="" type="checkbox"/> Ugrad or Rckhm Grad <input type="checkbox"/> Ugrad or Non-Rckhm Grad </td> </tr> <tr> <td colspan="2"></td> <td>Credit Hours Min Max</td> </tr> <tr> <td colspan="2"></td> <td>Contact Hrs/Wk Number of Wks</td> </tr> <tr> <td colspan="2"></td> <td>term</td> </tr> </table>	Aerospace Engineering	235	483	Cross Listed Course Information			Course Title Space System Design			TITLE ABBREVIATION	Time Sched Max = 19 Spaces Transcript Max = 20 Spaces	Space System Design	Course Description Introduction to the engineering design process for space systems. 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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. Iain Boyd Iain Boyd, Aerospace Engineering

Cross-listed Dept(s): _____

1019

SUPPORTING STATEMENT

Aero 483 is one of two capstone design courses that our students can choose from in which they apply the ideas learned in the required 200- and 300-level Aero courses. It, therefore, is logical to have the 300-level courses (315, 325, 335, 345) as prerequisites for this course. These are already required by the other capstone design course, Aero 481.

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

Detail the Special requirements

The design facilities in Room 1008, EXB, the Lockheed Design Room.



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 1/22/2003

Effective Winter 2003

A. CURRENT LISTING

B. REQUESTED LISTING

Home Department			Div #	Course Number	Home Department			Div #	Course Number
					Biomedical Engineering			242	548
Cross Listed Course Information					Cross Listed Course Information				
					Electrical Engineering and Computer Science				
Course Title					Course Title				
					Advanced Bioinstrumentation and Computation				
TITLE ABBRE- VIATION	Time Sched Max = 19 Spaces		TITLE ABBRE- VIATION	Time Sched Max = 19 Spaces	Adv Bioin & Comp		TITLE ABBRE- VIATION	Time Sched Max = 20 Spaces	Adv Bioin Comp
Course Description			Course Description for Official Publication (Max = 50 words)						
			Application of computer hardware and software to acquisition, pattern recognition, analysis, and diagnosis of physiological signals. These include, but are not restricted to, the electrocardiogram, the electroencephalogram, the electromyogram, and blood pressure measurement. This course will teach skills required for computer-based analysis of clinical signals, and computer modelling of physiological systems. Lecture and laboratory.						
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Location			Cognizant Faculty Member:			Half term <input type="checkbox"/> 1st <input type="checkbox"/> 2nd			
<input type="checkbox"/> Ann Arbor <input type="checkbox"/> Biological Station <input type="checkbox"/> Camp Davis <input type="checkbox"/> Extension			Daniel Green			Title Professor			
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. Biomedical Engineering *Matt O'Donoghue*
 Cross-listed Dept(s). Electrical Engineering *Jeffrey Jones* 2003-1-28

SUPPORTING STATEMENT

The faculty member supporting this course has retired, and there is no one identified currently to take it over.....

Approved by ECE Faculty 2003-1-28

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 2/4/2003

Effective Fall 2003

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 ABBREVIATION</td> <td style="width: 35%;">Time Sched Max = 19 Spaces</td> <td style="width: 50%;"></td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td></td> </tr> </table> <p>Course Description _____</p> <p>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</p> <p>Degree Requirements <input type="checkbox"/> Degree Requirement <input type="checkbox"/> Tech Elective <input type="checkbox"/> Core Course <input type="checkbox"/> Other <input type="checkbox"/> Free 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: 40%;"> Level of Credit <input type="checkbox"/> Undergrad only <input type="checkbox"/> All Credit types <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Rackhm Grad w/add'l Work <input type="checkbox"/> Non-Rackhm Grad <input type="checkbox"/> Ugrad or Rackhm Grad <input type="checkbox"/> Ugrad or Non-Rackhm Grad </td> <td style="width: 10%;"> Credit Hours Min _____ Max _____ </td> <td style="width: 10%;"> Contact Hrs/Wk _____ Number of Wks _____ </td> </tr> </table>	TITLE ABBREVIATION	Time Sched Max = 19 Spaces			Transcript Max = 20 Spaces		Level of Credit <input type="checkbox"/> Undergrad only <input type="checkbox"/> All Credit types <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Rackhm Grad w/add'l Work <input type="checkbox"/> Non-Rackhm Grad <input type="checkbox"/> Ugrad or Rackhm Grad <input type="checkbox"/> Ugrad or Non-Rackhm Grad	Credit Hours Min _____ Max _____	Contact Hrs/Wk _____ Number of Wks _____	<p>Home Department <u>Chemical Engineering</u> Div # _____ Course Number <u>557</u></p> <p>Cross Listed Course Information <u>Materials Science Engineering</u> <u>557</u></p> <p>Course Title <u>Computational Nanoscience of Soft Matter</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 35%;">Time Sched Max = 19 Spaces</td> <td style="width: 50%;"><u>Computational Nano</u></td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td><u>Computational Nano</u></td> </tr> </table> <p>Course Description for Official Publication (Max = 50 words) <u>Provides an understanding of strategies, methods, capabilities, and limitations of computer simulation as it pertains to the modeling and simulation of soft materials at the nanoscale. The course consists of lectures and hands-on, interactive simulation labs using research codes and commercial codes. Ab initio, molecular dynamics, Monte Carlo and mesoscale methods.</u></p> <p>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</p> <p>Degree Requirements <input type="checkbox"/> Degree Requirement <input type="checkbox"/> Tech Elective <input type="checkbox"/> Core Course <input type="checkbox"/> Other <input type="checkbox"/> Free Elective</p> <p>Prerequisites <u>Differential equations course, and a statistical thermodynamics or statistical mechanics</u> <input type="radio"/> Enforced <input checked="" type="radio"/> Advised</p> <p>Credit Restrictions <u>course</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"> Level of Credit <input type="checkbox"/> Undergrad only <input checked="" type="checkbox"/> All Credit types <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Rackhm Grad w/add'l Work <input type="checkbox"/> Non-Rackhm Grad <input type="checkbox"/> Ugrad or Rackhm Grad <input type="checkbox"/> Ugrad or Non-Rackhm Grad </td> <td style="width: 10%;"> Credit Hours Min <u>3</u> Max <u>3</u> </td> <td style="width: 10%;"> Contact Hrs/Wk _____ Number of Wks <u>3</u> </td> </tr> </table>	TITLE ABBREVIATION	Time Sched Max = 19 Spaces	<u>Computational Nano</u>		Transcript Max = 20 Spaces	<u>Computational Nano</u>	Level of Credit <input type="checkbox"/> Undergrad only <input checked="" type="checkbox"/> All Credit types <input type="checkbox"/> Rackham Grad <input type="checkbox"/> Rackhm Grad w/add'l Work <input type="checkbox"/> Non-Rackhm Grad <input type="checkbox"/> Ugrad or Rackhm Grad <input type="checkbox"/> Ugrad or Non-Rackhm Grad	Credit Hours Min <u>3</u> Max <u>3</u>	Contact Hrs/Wk _____ Number of Wks <u>3</u>
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Approval

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

Submitted By: Home Dept. Cross-listed Dept.

Name, Signature & Department
 Home Dept. Ronald Larson
 Cross-listed Dept(s). John Halloran

SYLLABUS (AS OF 09/02/02: SUBJECT TO CHANGE)

<u>Week</u>	<u>Dates</u>	<u>Topic</u>
1	9/3-9/5	Introduction and overview of computer simulation of soft materials, including: role of simulation; applications of soft materials simulations; examples from computational nanoscience; simulation models and methods for soft matter; spanning the scales from molecular processes to macroscopic phenomena. Ab initio methods. Force fields.
2	9/10-9/12	Force fields and molecular dynamics (MD) methods <i>Examples: Structure and dynamics of polymeric, molecular and atomic liquids; dynamics of supercooled liquids and glasses; phase separation in polymer melts and blends; assembly of nanostructured organic/inorganic materials, viscosity of lubricants in nanoscale gaps, glass transition of nanoparticle-filled polymers; etc.</i>
3	9/17-9/19	MD methods for soft materials
4	9/24-9/26	Advanced MD methods (continued)
5	10/1-10/3	Collision dynamics and models for hard spheres <i>Examples: Structure and dynamics of colloidal liquids, glasses, and granular materials</i> Brownian dynamics <i>Examples: Diffusion in colloidal suspensions, DNA-mediated assembly of nanoparticle arrays; DNA flow in microfluidic devices, etc.</i>
6	10/8-10/10	10/8 – NO CLASS. 10/10: Monte Carlo methods Off-lattice models. <i>Examples: Phase separation in polymer melts and blends, nanoscale assembly of hybrid organic/inorganic materials, etc.</i>
7	10/15-10/17	10/15: No class – Fall study break 10/17: Monte Carlo methods Lattice models <i>Examples: Phase behavior of polymer solutions, melts and blends. Structure and dynamics of</i>

polymer/nanoparticle systems. Physical and chemical gelation. Assembly processes in soft materials: surfactants, micelles, nanostructured hybrid materials.

	10/22-10/24	Advanced MC methods for macromolecular materials. Acceleration algorithms and smart MC moves.
9	10/29-10/31	Overview of mesoscale methods in soft matter: cellular automata, lattice Boltzmann, dissipative particle dynamics, etc. <i>Examples: Diffusion in colloids and nanoparticle suspensions, pattern formation in nanostructured polymer materials; predicting structure of blends under shear.</i>
10	11/5 - 11/7	11/5 – No class (AIChE meeting) 11/7 – No class (AIChE meeting)
11	11/12-11/14	Field theoretic/continuum methods for multicomponent soft materials: Time-dependent Ginzburg Landau: Cahn-Hilliard and Cahn-Allen. Conserved and non-conserved order parameters. <i>Examples: Spinodal decomposition in polymer blends, block copolymers and reactive mixtures, nanofilled blends, and on nanopatterned surfaces; phase ordering in liquid crystals.</i>
12	11/19-11/21	Field theoretic/continuum methods (cont.) Dynamic density functional theory/OCTA
13	11/26-11/28	11/26 – No class. Lab open for homework and project work. 11/28 – No class - Thanksgiving
14	12/3-12/5	12/3 – Field theoretic/continuum methods (cont.) 12/5 – Field theoretic/continuum methods (cont.)
15	12/10	Last day of class. Multiscale simulation; bridging methods. The future of computational nanoscale and mesoscale science. <i>Projects due electronically; no late projects will be accepted. Take-home exam handed out.</i>

COMPUTATIONAL NANOSCIENCE OF SOFT MATTER

Course number: ChE 696-008 Fall 2002
Instructor: Professor S. C. Glotzer
3014 H.H. Dow, 615-6296 sglotzer@umich.edu
Office hours: M 3:00 – 5:00 and by appointment
Meeting time: Tuesday 4:30 - 6:00/6:30 Thursday 4:30 - 6:00/6:30
Location: Mac Advanced Graphics Room, Media Union

Course objectives: The aim of this course is to provide the student with an understanding of the strategies, methods, capabilities, and limitations of computer simulation as it pertains to the modeling and simulation of soft materials at the nanoscale. Students completing the course will learn to (i) appreciate the role of computer simulation in modern research and development, and understand the relationship between theory, simulation and experiment; (ii) assess the relevance and quality of molecular and mesoscale simulation studies reported in the literature; (iii) judge which simulation models and methods are useful for describing processes and phenomena on different length and time scales; (iv) ascertain which, if any, simulation methods are relevant to their research, and if so, how to develop or find codes and how to use them; and (v) understand the workings and limitations of commercial molecular and mesoscale simulation software. As simulation methods will be taught in the context of physical phenomena of soft matter, in particular as applied to current problems in nanoscience and engineering, it is expected that students will gain a deeper understanding of the behavior of soft materials and their potential application to nanotechnology.

Course structure: The course will consist of lectures and hands-on, interactive simulation labs using both research codes and commercial codes. During class, students will run simulation codes interactively in both individual and group modes using state-of-the-art Mac G4s in a fully networked, theater-style classroom. Grades will be assessed as follows: homeworks (10%), one exam (40%), and two projects (40% and 10%). Programming of simulation code will NOT be required. Homeworks will involve running class codes and performing data analysis, reading articles critically, etc. Homeworks will not be graded, but full credit will be assigned for turning in completed homeworks.

The first term project (40% of final grade) will involve the writing of a 10-page proposal to a fictitious group leader, project manager, agency program director, etc. to perform a detailed simulation study of a problem important to nanoscience and nanotechnology. Each student will choose a problem of interest to them, describe its importance and relevance, and discuss the open questions they wish to address with simulation. He/she will then describe which simulation methods they propose to use to address the problem and why, how they will be implemented, and what the limitations, challenges, and possibilities, pros and cons are to using these methods to address the problem(s) of interest. An estimate of what computational resources and time will be required should also be included. The student will describe what will be learned from such a simulation study, and what the importance of that knowledge or understanding is in the context of the problem. The student will be graded on the depth of their understanding of the problem and the simulation approach, the appropriateness of the proposed method for the problem described, the thoroughness of the project description, and how convincing their proposal is.

For the second term project (10% of final grade), each student will be given another student's proposal to review. The review will be anonymous, in that the reviewers will not know whose proposal they're reviewing nor will the reviewee's know who reviewed their proposal. The student will be graded on the thoroughness and correctness of their review.

Who should take this class: Graduate and advanced undergraduate students from any department or discipline doing research involving materials simulation; students interested in or doing materials research who'd like to understand what simulations can teach them about the materials and processes they study; students who'd like to learn more about molecular processes in soft materials.

Course content:

- Ab initio methods.
- Classical molecular dynamics (MD) methods for soft materials.
- MD of hard spheres; Brownian dynamics method for suspensions.
- Off-lattice and on-lattice Monte Carlo (MC) methods for macromolecular materials.
- Lattice Boltzmann and cellular automata methods for soft materials.
- Dissipative particle dynamics method for complex fluids and soft materials.
- Field-theoretic methods for multicomponent and anisotropic complex fluids and soft materials.
- Multiscale simulation strategies for bridging molecular processes to macroscopic phenomena.

Simulation methods will be taught in the context of soft materials problems such as nanopatterning of polymer melts, blends, and block copolymers; structure and dynamics of polymeric, molecular and atomic liquids, including supercooled liquids and glasses; directed self-assembly of nanostructured organic/inorganic materials, surfactants, and micelles; DNA-mediated assembly of nanoscale building blocks; viscosity of lubricants in nanoscale gaps; structure and dynamics of polymer/nanoparticle systems; glass transition of nanoparticle-filled polymers; structure and dynamics of colloids and nanoparticle suspensions; pattern formation in nanostructured polymer materials; physical and chemical gelation; and phase behavior of soft materials.

Texts:

Frenkel and Smit, *Understanding Molecular Simulation: From Algorithms to Applications*, 2nd Edition, Academic Press, 2002.

Leach, *Molecular Modeling: Principles and Applications*, 2nd Ed., Prentice Hall, 2001.

Additional reading:

Allen and Tildesley, *Computer Simulation of Liquids*, Clarendon Press, Oxford, 1987.

Landau and Binder, *A Guide to Monte Carlo Simulations in Statistical Physics*, Cambridge University Press, 2000.

Gershenfeld, *The Nature of Mathematical Modeling*, Cambridge University Press, 1999.

Larson, *The Structure and Rheology of Complex Fluids*, Oxford University Press, 1999.

CACHE Molecular Modeling Web Book: temporarily unavailable.

Additional reading material to be supplied by instructor.

DETAILED OUTLINE OF COURSE CONTENT

- Overview of ab initio methods for soft materials: Schrodinger's equation. Born-Oppenheimer approximation. Molecular orbital theory and density functional theory. VASP, CASTEP, Gaussian98, SIESTA.
- Force fields for classical molecular and mesoscale simulations. Explicit atom, united atom, and coarse-grained force fields for hard and soft matter, including molecular and polymeric materials.

- Molecular dynamics (MD) methods for soft materials. Basic method: initialization, force calculation, integration of equations of motion. Boundary conditions. Equilibration issues. Interrogating molecular simulation data: correlation functions; probing structure and dynamics. Data averaging.
- Advanced MD methods: Statistical mechanics review. MD in different ensembles. Tricks of the trade. Neighbor lists. Long-range interactions. Integration schemes. Multiple time-stepping vs. constraints. Parallel MD. Acceleration algorithms. Non-equilibrium MD. LAMMPS, DPOLY, Cerius2.
- Hard sphere models and collision dynamics.
- Brownian dynamics for colloidal suspensions.
- Monte Carlo (MC) methods for soft materials. Basic method for off-lattice MC: Metropolis method. Detailed balance. Trial moves. Acceptance ratios. Ensembles. Parallel MC. Cluster moves. Advanced Metropolis methods.
- Lattice MC and coarse-grained lattice models. Smart and biased MC for macromolecular systems. Cluster moves. Parallel tempering. Histogram reweighting techniques.
- Dissipative particle dynamics and other mesoscale methods for soft materials. Implementation and application. DPD for fluids, colloids, polymers and polymer/particle systems. Comparison with MD. Parallel DPD. Cerius2.
- Field-theoretic methods for multicomponent soft materials. Time-dependent Ginzburg Landau methods. Parallel TDGL. Dynamic density functional theory: OCTA and Mesodyn. Application to polymer blends and liquid crystals.
- Scale bridging methods: off-line vs integrated multiscale methods for soft materials. From molecular processes to macroscopic properties.





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 1/29/2003

Effective FA03

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. Jeff Fessler EECS *[Signature]* 2003-1-30
 Cross-listed Dept(s). _____

SUPPORTING STATEMENT

This restriction was added erroneously by last year's curriculum committee. Students who do both a BS and an MS in EE (or in some areas of BME) need to take 401 for their BS and 501 for their MS, so the existing restriction is illogical. The appropriate place for this restriction is in graduate degree requirements. The EE Systems MS degree already has a policy that precludes students from taking 401 for their MS degree. Other graduate degrees that allow 401 or 501 should also probably impose a "but not both" restriction in their graduate degree requirements. This change was approved 2003-1-28 by the ECE faculty. We had previously also tried to impose credit restrictions between EECS 401 and Math 425 and IOE 265, but this seemed to be too complicated logistically. Instead, we have chosen to make that exclusion in the EE degree requirements.

Approved by ECE Faculty 2003-1-28

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 1/29/2003

Effective FAK Winter 2003

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. Jeff Fessler EECS 2003-1-30 *JF*

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 2/4/2003
 Effective Fall 2003

A. CURRENT LISTING

B. REQUESTED LISTING

Home Department		Div #	Course Number	Home Department		Div #	Course Number
				ENG		252	4XX
Cross Listed Course Information				Cross Listed Course Information			
Course Title				Course Title			
				Patent Fundamentals for Engineers			
TITLE	Time Sched			TITLE	Time Sched	Patent Fund Eng	
ABBRE-	Max = 19 Spaces			ABBRE-	Max = 19 Spaces	Patent Fund Eng	
VIATION	Transcript			VIATION	Transcript	Patent Fund Eng	
	Max = 20 Spaces				Max = 20 Spaces		
Course Description				Course Description for Official Publication (Max = 50 words)			
				This course covers the fundamentals of patents for engineers. The course focuses on the rules and codes that govern patent prosecution, and claim drafting and amendment writing. Other topics include litigation, ethics and licensing.			
PROGRAM OUTCOMES:				PROGRAM OUTCOMES:			
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Credit Restrictions		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		Credit Hours Min Max _____		Contact Hrs/Wk _____ Number of Wks _____	
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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 course was piloted in Fall 2002 as an EECS 498 special topics course. The course had 19 students, and it went quite well. The students were somewhat overwhelmed by the amount of material, but this will be trimmed in the future. Patent Fundamentals are a significant part of any well-rounded engineering curriculum, and we should offer such a course here at the UM. In addition to being a full professor in EECS, I am also a Registered Patent Agent in the USPTO and have authored over 97 patents. Hence, I feel that I have the credentials to teach the course. I have developed a full set of notes for the course, as well as problems (materials were provided to Professor Herrin). Whereas the first half of the course is more lecture plus problems oriented, the second half is more workshop oriented, with the students working in teams to do claim drafting or amendment writing. This course does not describe why the law is what it is (that is left for Law School), but just takes the law as a given and applies it to patents. The first part of the course focuses on the rules and regulations by which a patent is judged by the USPTO. The second half of the course gives guidelines for claim drafting and amendment writing, and then the students work in teams on various patent exercises. Finally, other topics are covered such as litigation, licensing and ethics.

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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 1/31/2003
 Effective Fall 2003

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. Leslie A. Olsen, Technical Communication

Cross-listed Dept(s). _____

SUPPORTING STATEMENT

This class is no longer offered. It has been replaced by other Communication Across the Curriculum courses.....
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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 1/31/2003

Effective Fall 2003

A. CURRENT LISTING

B. REQUESTED LISTING

<input type="checkbox"/> Home Department _____ Div # _____ Course Number _____ Cross Listed Course Information _____ <input type="checkbox"/> Course Title _____ <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> <input checked="" type="checkbox"/> Course Description Students will learn both practical skills & theoretical principles necessary to design effective WWW pages & Sites. Practical skills include HTML, tools for creating Web pages, graphics, scripting, animation, & multi-media. Theory includes information design, visual design, & theoretical principles. Students will both design & analyze websites.	TITLE	Time Sched		ABBREVIATION	Max = 19 Spaces			Transcript			Max = 20 Spaces		Home Department _____ Div # _____ Course Number _____ Technical Communication _____ Div # 291 Course Number 450 Cross Listed Course Information _____ Course Title Web Page and Site Design <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%;">WWW Page Design</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>WWW Design</td> </tr> </table> Course Description for Official Publication (Max = 50 words) Practical skills and theoretical principles necessary to design effective WWW pages and sites, including HTML, tools for creating Web pages, graphics, scripting, animation, and multimedia (practical skills) and information design, visual design, and theoretical principles (theory). Design and analysis of websites.	TITLE	Time Sched	WWW Page Design	ABBREVIATION	Max = 19 Spaces			Transcript			Max = 20 Spaces	WWW Design
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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. Leslie A. Olsen, Technical Communication

Cross-listed Dept(s): _____



Action Requested

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- Modification of Existing Course
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A. CURRENT LISTING

B. REQUESTED LISTING

<input type="checkbox"/> Home Department _____ Div # _____ Course Number _____ Cross Listed Course Information _____ Course Title _____ <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>ABBRE-</td> <td>Max = 19 Spaces</td> <td></td> </tr> <tr> <td>VIATION</td> <td>Transcript</td> <td></td> </tr> <tr> <td></td> <td>Max = 20 Spaces</td> <td></td> </tr> </table> Course Description Conferences and tutorial sessions for students with special interests May be taken for 1-4 credit hours as arranged by the instructor.	TITLE	Time Sched		ABBRE-	Max = 19 Spaces		VIATION	Transcript			Max = 20 Spaces		<input type="checkbox"/> Home Department Technical Communication Div # 291 Course Number 475 Cross Listed Course Information _____ Course Title Directed Study <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>ABBRE-</td> <td>Max = 19 Spaces</td> <td></td> </tr> <tr> <td>VIATION</td> <td>Transcript</td> <td></td> </tr> <tr> <td></td> <td>Max = 20 Spaces</td> <td></td> </tr> </table> Course Description for Official Publication (Max = 50 words) Conferences and tutorial sessions that provide opportunities for students with special interests to work on a tutorial basis with a member of the Technical Communication faculty. Not intended as substitutes for regularly scheduled courses. Conferences and signed contract required with an instructor about the proposed study before enrollment possible. (Directed study contract forms and additional information available from the Technical Communication Office.)	TITLE	Time Sched		ABBRE-	Max = 19 Spaces		VIATION	Transcript			Max = 20 Spaces	
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Cognizant Faculty Member: _____ Title: _____ 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. Leslie A. Olsen, Technical Communication

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 1/31/2003
 Effective Fall 2003

A. CURRENT LISTING

B. REQUESTED LISTING

<input type="checkbox"/> Home Department: Technical Communication Div #: 291 Course Number: 486 Cross Listed Course Information: Course Title: Design of Computer Documentation <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td style="width: 70%;">Design Computer Doc</td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td>Computer Doc</td> </tr> </table> Course Description: Application of theories of documentation to actual development and testing of computer documentation. Brief review of documentation theory and current industry guidelines for producing documentation, audience analysis, task analysis, writing, and testing of an actual piece of documentation.	TITLE ABBREVIATION	Time Sched Max = 19 Spaces	Design Computer Doc		Transcript Max = 20 Spaces	Computer Doc	<input type="checkbox"/> Home Department: Div #: Course Number: Cross Listed Course Information: Course Title: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td style="width: 70%;"> </td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td> </td> </tr> </table> Course Description for Official Publication (Max = 50 words):	TITLE ABBREVIATION	Time Sched Max = 19 Spaces			Transcript Max = 20 Spaces	
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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: Leslie A. Olsen, Technical Communication
 Home Dept. Leslie A. Olsen, Technical Communication
 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 1/31/2003

Effective Fall 2003

A. CURRENT LISTING

B. REQUESTED LISTING

<input type="checkbox"/> Home Department: Technical Communication Div #: 291 Course Number: 490 Cross Listed Course Information: Course Title: Technical Information Resources and Research <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td style="width: 70%;">Tech Info Res</td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td>Tec Info Res</td> </tr> </table> Course Description: This course describes and demonstrates all forms of technical information resources now available to engineers. It provides access to a wide variety of resources and systems, with primary emphasis on online networks, and uses conferencing, and database system.	TITLE ABBREVIATION	Time Sched Max = 19 Spaces	Tech Info Res		Transcript Max = 20 Spaces	Tec Info Res	<input type="checkbox"/> Home Department: Div #: Course Number: Cross Listed Course Information: Course Title: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td style="width: 70%;"></td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td></td> </tr> </table> Course Description for Official Publication (Max = 50 words):	TITLE ABBREVIATION	Time Sched Max = 19 Spaces			Transcript Max = 20 Spaces	
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Cognizant Faculty Member: _____ Title: _____ 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. Leslie A. Olsen, Technical Communication

Cross-listed Dept(s): _____

SUPPORTING STATEMENT

This class is no longer offered. It has been replaced by other Communication Across the Curriculum courses.

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
 Deletions - A & C completely

Date 1/31/2003
 Effective Fall 2003

A. CURRENT LISTING

B. REQUESTED LISTING

<input type="checkbox"/> Home Department: Technical Communication Div #: 291 Course Number: 497 Cross Listed Course Information: Course Title: Argument and Persuasion <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td>Argument An Pers.</td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td>Argumnt & Prs.</td> </tr> </table> Course Description: A course in logical argument and its role in persuasive discourse, especially writing. The course focuses on the nature of a reasoned argument, the formulation and analysis of problems, and methods of selecting, arranging, writing, and editing information on the basis of the intended effect on a particular audience.	TITLE ABBREVIATION	Time Sched Max = 19 Spaces	Argument An Pers.		Transcript Max = 20 Spaces	Argumnt & Prs.	<input type="checkbox"/> Home Department: Div #: Course Number: Cross Listed Course Information: Course Title: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td></td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td></td> </tr> </table> Course Description for Official Publication (Max = 50 words):	TITLE ABBREVIATION	Time Sched Max = 19 Spaces			Transcript Max = 20 Spaces	
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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. Leslie A. Olsen, Technical Communication
 Cross-listed Dept(s): _____

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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 1/31/2003

Effective Fall 2003

A. CURRENT LISTING

B. REQUESTED LISTING

<input type="checkbox"/> Home Department: Technical Communication Div #: 291 Course Number: 499 Cross Listed Course Information: Course Title: Scientific and Technical Communication <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td style="width: 70%;">Sctfc & Tech Comm</td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td>Sci/Tech Comm</td> </tr> </table> Course Description: Conferences and tutorial sessions that provide opportunities for students with special interest to work on a tutorial basis with a member of the Technical Communication faculty. These courses are not intended as substitutes for regularly scheduled courses. Students who wish to select Directed Study must confer with an instructor about the proposed study. If the instructor agrees to accept the student for this study, the two prepare a contract and submit it for approval. (Directed study contract forms and additional information are available from the Technical Communication Office.)	TITLE ABBREVIATION	Time Sched Max = 19 Spaces	Sctfc & Tech Comm		Transcript Max = 20 Spaces	Sci/Tech Comm	<input type="checkbox"/> Home Department: Div #: Course Number: Cross Listed Course Information: Course Title: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TITLE ABBREVIATION</td> <td style="width: 15%;">Time Sched Max = 19 Spaces</td> <td style="width: 70%;"></td> </tr> <tr> <td></td> <td>Transcript Max = 20 Spaces</td> <td></td> </tr> </table> Course Description for Official Publication (Max = 50 words):	TITLE ABBREVIATION	Time Sched Max = 19 Spaces			Transcript Max = 20 Spaces	
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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. Leslie A. Olsen, Technical Communication

Cross-listed Dept(s): _____

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SUPPORTING STATEMENT

We would like to delete the 499 course and offer it as TechCom 475 Directed Study. Both courses are similar and we feel it is redundant and confusing to the student to offer both courses.

[Dotted lines for supporting statement text entry]

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

Detail the Special requirements

[Dotted lines for special requirements text entry]