

Minutes of the I.T. Curriculum Committee
February 3, 2003

Present: D. Boley (CSci), P. Cushman (Phys), Santhi Elayaperumal (ITSB), D. Frank (Math/Chair), G. Gray (Chem), L. Gray (Math), L. Kinney (EE), P. Hudleston (ITSA), T.J. Jones (Astro), D. Odde (BMEn), D. Shores (CEMS), J. Stout (Geol)

Visitor: A. McCormick (CEMS)

1. Minutes of Dec. 2, 2002 meeting APPROVED
2. Actions on courses were taken; see chart below:
3. Program Changes:
 - Chemical Engineering: Proposal involving several changes to required courses and electives (see material from Alon McCormick at end of these minutes). APPROVED
 - Biomedical Engineering: Require both Chem 3501 and Biol 3021 (currently students select one of these two). APPROVED
 - Computer Engineering: The following minor changes were APPROVED: Remove EE 3601 (3cr) Transmission Lines as a required course; add EE 4363/Csci 4203 (4cr) Computer Architecture as a required course; reduce the non-major technical elective requirement from 7 to 6 credits. (The total credit requirement remains at 126.)

SP = Semester Prerequisite

Course	Title	Current	Proposed	Approved/ Comments
BMEn 5201	Advanced Biomechanics	3-4 cr	3 cr "This course no longer has a 4 credit option."	Approved
BMEn 5444	Muscle		New Course: 3 cr, Opt Grade Base, Lect; Muscle structure/function: molecular mechanism by which force is generated. SP: None	Tabled twice at previous mtgs; Tabled again; in response to request for more specific title, Odde says "Muscle" is appropriate

Course	Title	Current	Proposed	Approved/ Comments
ChEn 3701	Introduction to Biomolecular Engineering		New Course: 3 cr, A-F grade base, Lect, Disc; The objective of this course is to introduce the students to the fundamentals of biological systems, from biomolecules to the interplays of biomolecules which give rise to the “processes” of life. Going beyond the delivery of knowledge on the molecular mechanism, this course will teach students to apply chemical engineering principles to the analysis of living systems. SP: Chem 2302. or concurrent registration, Math 2373, ChEn 4001	Approved. Part of new program for ChemE majors; elective in F03, F04; required for F03 freshmen, who would normally take it in F05.
ChEn 4501W	Chemical Engineering Process Design	SP: 4003, [4004 or &4004], 4102, [upper div ChEn major or ?]	SP: 4003, [4004 or concurrent 4004], 4102, [upper div ChEn major or department consent], Freshman Writing requirement satisfied [adding Freshman Writing prerequisite]	Approved. Will look into making Freshman Writing a global req for IT upper division
ChEn 5104	Coating Process Fundamentals	3 cr SP: ChEn 4003, ChEn 4102	2 cr SP: ChEn 4003, ChEn 4102, instructor permission	Approved.
Chem 1021	Chemical Principles I	SP: Primarily for science or engineering majors; 1011 or passing placement exam	SP: Primarily for science or engineering majors; grade of C+ or better in 1011 or passing placement exam	Approved. Change “C+” to “C-” (Prov Approv 1/23/03)
EE 5364	Advanced Computer Architecture	EE 8365, Cross-listed CSci 8203 SP: =CSci 8203, 5361 or CSci 5201 or #	EE 5364, Cross-listed CSci 5204 SP: =EE 8365, =CSci 8203, =CSci 5204, EE 4363 or CSci 4203	Withdrawn Already approved 12/2/02
Geo 1901	Freshman Seminar		New topic: Climate change and history	Approv 2/2/03
CSci 5109	Visualization	Language changed (12/9/02) Fundamental theory and practice in data visualization, aimed at a wide audience including CS and non-CS majors alike. To: Fundamental theory and practice in data visualization, with an emphasis on programming applications.	New Course: 3 cr; Opt Grade Base, Lect. Fundamental theory and practice in data visualization, aimed at a wide audience including CS and non-CS majors alike. Topics include: volume visualization, vector field visualization, information visualization, multivariate visualization, visualization of large datasets, visualization in immersive virtual environments, and perceptual issues in effective data representation. Projects will be implemented in C++ using VTK or a similar visualization API. SP: CSci 1902 and CSci 4041 or equivalent, or #.	Approved. Prov Approv 12/9
Math 3574H	Honors Mathematics IV (Advanced Placement)		Deactivate: replaced by Math 3584H (same course, different number)	Approved

Course	Title	Current	Proposed	Approved/ Comments
Math 5248	Cryptology and Number Theory	SP: Soph math course	SP: 2 semesters sophomore math	Withdrawn
Math 5251	Error-Correcting Codes, Finite Fields, Algebraic Curves	SP: Soph math course	SP: 2 semesters sophomore math	Withdrawn
Math 5378	Differential Geometry	SP: [2263 or 2374 or 2573], [2283 or 2574 or 3283 or 5345] QP: [3252 or 3355], 3262]	SP: [2263 or 2374 or 2573], [2243 or 2373 or 2574], [2283 or 3283 recommended] QP: #	Approved
Math 5385	Introduction to Computational Algebraic Geometry	SP: 2263 or 2374 or 2573 QP: 3251 or 3354 or 3551	SP: [2263 or 2374 or 2573],[2243 or 2373 or 2574] QP: #	Approved
Math 5485	Introduction to Numerical Methods I	SP: 2243 or 2373 or 2573; some computer skills recommended	SP: 2243 or 2373 or 2573; familiarity with some programming language	Approved
Math 5583	Complex Analysis	SP: 2263 or 2374 or 2573	SP: 2 semesters sophomore math, including [2263 or 2374 or 2573], [2283 or 3283] recommended	Approved
Math 5588	Elementary Partial Differential Equations II	SP: [2243 or 2373 or 2573], [2263 or 2374 or 2574]; 5587 not a prereq but see instructor	SP: [2243 or 2373 or 2573], [2263 or 2374 or 2574]; 5587 or #	Approved
Math 5651	Basic Theory of Probability and Statistics	SP: =Stat 5101; [2263 or 2374 or 2573]; [[2243 or 2373], [2283 or 2574 or 3283]] recommended	SP: =Stat 5101; [2263 or 2374 or 2573], [[2243 or 2373]; [2283 or 2574 or 3283]] recommended	Approved. Larry Gray has clarified prereqs: [2243 or 2373], [2263 or 2374]; [2283 or 3283W] recommended.
Math 5652	Introduction to Stochastic Processes	SP: [2243 or 2373 or 2573], [5651 or Stat 5101]	SP: [5651 or Stat 5101]	Approved
Math 5654	Prediction and Filtering	SP: [2243 or 2373 or 2573], [5651 or Stat 5101]	SP: [5651 or Stat 5101]	Approved
Math 5711	Linear Programming and Combinatorial Optimization	SP: 2243 or 2373 or 2573	SP: 2 semesters sophomore math, including [2243 or 2373 or 2573]	Approved
ME 3031	Basic Mechanical Measurements Laboratory	SP: 3321, &3322, IE 4521, upper div ME	SP: 3322, IE 4521, upper div ME	Approved
ME 3080	Topics in Mechanical Engineering		New Topic Title: The Ascent of British Technology Global Seminar, Summer 2003	Approved 1/21/03
Phys 1012	Elementary Physics	Lecture	Independent Study Changed, for Distance Education use only:	Approved

Course	Title	Current	Proposed	Approved/ Comments
Phys 1111	Basic Physics I	Lecture	Independent Study Designed for and offered Distance Education only. Cr changed from 4 to 3 beginning Fall, 2001. Lab component was removed. Corrected LEC to IND	Approved
Phys 1112	Basic Physics II	Lecture	Independent Study Designed for and offered Distance Education only. Cr changed from 4 to 3 beginning Fall, 2001. Lab component was removed. Corrected LEC to IND	Approved
Phys 2303	Physics III: Physics of Matter	Title: Physics of Matter SP: =2403,=2601; 1302, [Math 1272 or Math 1372 or Math 1572]	Title: Physics III: Physics of Matter SP: =2403,=2503,=2601; 1302, [Math 1272 or Math 1372 or Math 1572]	Approved. Delete "=2601"
Phys 2311	Modern Physics	Lecture	Independent Study Designed for and offered through Distance Education only. Corrected LEC to IND	Approved
Phys 2403H	Honors Physics III	SP: =2303, selection for IT honors or consent of IT honors office	SP: =2303,=2503, 1402V, selection for IT honors or consent of IT honors office	Approved
Phys 2503	Physics III: Foundations of Modern Physics	Title: Modern Physics Principles SP: =2403V; 1302W, [Math 1272 or Math 1372 or Math 1572]	Title: Physics III: Foundations of Modern Physics SP: =2303,=2403H; 1302W, [Math 1272 or Math 1372 or Math 1572]	Approved
Phys 2601	Quantum Physics	SP: [2403H or 2503 or #], [&Math 2263 or &Math 2374 or &Math 3574]	SP: Credit will not be granted if credit received for: 2303; [2403H or 2503 or #], [&Math 2263 or &Math 2374 or &Math 2573H]	Approved. Delete "Credit will not be granted if credit received for: 2303"
Phys 3071W	Laboratory-Based Physics for Teachers	SP: College algebra	SP: no IT credit, College algebra	Approved
Phys 4001	Analytical Mechanics	SP: 2601, Math 2263 or Math 2374 or Math 3574	SP: 2601 or 2303 or Chem 3501 or Chem 3502, Math 2263 or Math 2374 or Math 2573	Approved. Change Math prereq to "2 sem soph math".
Phys 4002	Electricity and Magnetism	SP: 4001	SP: 2601 or 2303 or Chem 3501 or Chem 3502, Math 2263 or Math 2374 or Math 2573H	Approved. Change Math prereq to "2 sem soph math".
Phys 4101	Quantum Mechanics	SP: 2601	SP: 2601 or 2303 or Chem 3502, Math 2263 or Math 2374 or Math 2573H	Approved. Change Math prereq to "2 sem soph math".

Course	Title	Current	Proposed	Approved/ Comments
Phys 4911	Introduction to Biopolymer Physics		Deactivate course	Approved
Phys 4940H	Senior Honors Seminar	S-N grade base	Optional grade base;	Approved
Phys 4950H	Senior Thesis		New course? 1 cr, S-N, repeatable once; Lect. Independent project in the senior year with an advisor. Senior Thesis is required for the honors physics degree. SP: instructors consent	Approved. "New Course" OK. Delete "Lect".
Phys 5001	Quantum Mechanics I	SP: 4101 or equiv	SP: 4101 or equiv or inst consent	Approved
Phys 5011	Classical Physics I	SP: 4001, 4002 or #	SP: 4001 or equiv. or #	Approved

CDTL (Professional Masters) Courses

SEng 5131	Network Programming: Distributed Objects	2-3 cr	3 cr	Approved 2/3/03
SEng 5199	Topics in Software Engineering	2-3 cr	3 cr	Approved 2/3/03

New ChEn course plan as presented by Alon McCormick and approved by the committee:

ChEn DUS RECOMMENDED COURSE PLAN – NEXT YEAR's(Fall 03) FRESHMEN

** means not prerequisite for anything following, so can be rescheduled easily
superscript, if present, denotes expected MWF lecture time*

FRESHMAN YEAR

Fall 03 semester 16 credits Very important to start Physics in time for PChem sequence!

**(Optional) ChEn 1001 Seminar- advances in ChEn and MatS - 1cr*

Chem 1021 General Principles of Chemistry I with Lab - 4 cr

EngC 1011 Writing and Critical Reading - 4 cr

Math 1371 IT Calculus I - 4 cr (1271 can substitute)

Phys 1301 General Physics I - 4 cr

Spring 04 semester 16 credits

Chem 1022 General Principles of Chemistry II with Lab - 4 cr

Math 1372 IT Calculus II - 4 cr (1272 can substitute)

Phys 1302 General Physics II - 4 cr

LIB ED (Biol 1009) - 4cr

SOPHOMORE YEAR

Fall 04 semester 16 credits CSci no longer REQUIRED (but still good as elective)

Chem 2301 Organic Chemistry I - 3 cr

Chem 3502 Physical Chemistry II - 3 cr PChem II recommended before PChem I per Blank/Hillmyer

Math 2374 IT Multivariable Calculus and Vector Analysis - 4 cr (2263 can substitute)

*MatS 3011 Introduction to the Science of Materials - 3 cr

* LIB ED (e.g., Soc. Sci-I) - 3 cr

Spring 05 semester 17credits

Chem 2302 Organic Chemistry II - 3 cr

Chem 3501 Physical Chemistry I - 3cr

ChEn 4001 Material and Energy Balances - 4 cr Only minor modifications from old 4001

Math 2373 IT Linear Algebra and Differential Equations - 4 cr (2243 can substitute)

* LIB ED (e.g., Literature) - 3 cr

UD ChEn requires 2.6 technical GPA, Math 2263/2374, Math 2243/2373, Chem 2302, Phys 1302, EngC 1011, Chem 3501.

JUNIOR YEAR

Fall 05 semester 15 credits

Chem 2311 Elementary Organic Chemistry Lab I - 4 cr

ChEn 3701 Intro to Biomolecular Engineering – 3 cr New requirement

ChEn 4005 Momentum and Heat Transport - 4 cr New course (combo of DEFUNCT 4002/4003)

ChEn 4101 Chemical Engineering Thermodynamics - 4 cr

Spring 06 semester ~17 credits

Chem 4121 Process Analytical Chemistry - 3 cr

Course	Title	Current	Proposed	Approved/ Comments
ChEn 4006	Mass Transfer and Separations-	4 cr	<u>New course (combo of DEFUNCT 4003/4004)</u>	
ChEn 4201	Computational Methods in ChEn –	3 cr	<u>New course (combo of old 4001/DEFUNCT 4003)</u>	
ChEn 4102	Reaction Kinetics and Reactor Engineering -	4 cr		
LIB ED	(e.g., History) -	3cr		

SENIOR YEAR

Fall 06 semester ~15 credits

ChEn 4401 Chemical Engineering Lab I - 3 cr

ChEn 4501 Chemical Engineering Process Design I - 3 cr

ChEn 4214 Polymers – 3 cr (11:15)

Tech Elective 1 – 3 cr

* LIB ED (e.g., Soc. Sci-II) - 3 cr

Spring 07 semester ~16 credits

ChEn 4402 Chemical Engineering Lab II - 2 cr

ChEn 4502 Chemical Engineering Design II - 2 cr

ChEn 4601 Process Control - 3 cr

Tech Elective 2 - 3cr

Tech Elective 3 - 3cr

LIB ED (e.g., Humanities) - 3cr

Total Credits: 128