

**Institute Undergraduate Curriculum Committee
Appeals and Academic Matters (Full Committee)
Tuesday, April 17, 2012**

Present: Goodsiman (BIOL), Isbell (CoC), Smith (ME), Yaszek (LCC), Seitzman (AE), Hollengreen (ARCH), Walker (PSYC), Conte (CoC), Pikowsky (REG)

Visitors: Laros (REG), Howson (REG), Ferri (ME), Gibson (BIOL), Halka (Honors Program), Moore (Provost's Office), Parsons (COM), Zhou (ISyE), Oldham (MGT), Kavadias (MGT), Shook (ModLangs), Masuda (ModLangs), Johnson-Marshall (ODOS), Drummond (CP), Sharp (COA), Herndon (COM), White (CoC)

Note: All action items in these minutes require approval by the Academic Senate. In some instances, items may require further approval by the Board of Regents or the University System of Georgia. If the Regents' approval is required, the change is not official until notification is received from the Board to that effect. Academic units should take no action on these items until USG and/or BOR approval is secured. In addition, units should take no action on any of the items below until these minutes have been approved by the Academic Senate or the Executive Board.

Academic Matters

1. A motion was made to approve a request from the School of Biology for a new course. The motion was seconded and approved.

New Course

BIOL 4545: Human Genetics 3-0-3

2. A motion was made to acknowledge a request from the School of Industrial and Systems Engineering for **prerequisite modifications**. The motion was seconded and approved.

Stewart School of Industrial and Systems Engineering
Chen Zhou, Associate Chair, Undergraduate Programs

The ISyE undergraduate curriculum committee and faculty revisited the prerequisites and suggested the following modifications. The course number, current requirement, changes and comments are below.

ISyE undergraduate curriculum committee and faculty revisited the prerequisites and suggested the following modifications. The course number, current requirement, changes and comments are below.

Course Number	Course Title	Prior Pre-reqs.	New Pre-reqs.	Comments
ISYE 3104	Supply Chain Modeling: Manufacturing & Warehousing	ISYE 2028 and ISYE 3232	ISyE 2028 and ISYE 3232 and co-requisite ISYE 3133	The second half of 3104 requires optimization knowledge. Most students take 3133 together or earlier but some do not.
ISYE 3133	Engineering Optimization	ISYE 2027 and CS 1316 or CS 1322 and MATH 2602	ISYE 2027 and MATH 2602 and CS 2316, or MATH 3215-C or MATH 3225-C	CS 1316 is evolved into 2316 The added MATH 3215 and 3225 are for DMTH majors
ISYE 3232	Stochastic Manufacturing & Service Systems	ISYE 2027	ISYE 2027 or MATH 3215-C or MATH 3225-C	The additions are for DMTH majors
ISYE 3770	Statistics & Applications	MATH 2401 or MATH 2411 or MATH 24X1	MATH 2401 or MATH 2411 or MATH 24x1 or MATH 2605	The addition is for CS majors
ISYE 4106	Senior Design	ISYE 3133 and ISYE 3232 and ISYE 3044	ISYE 3025 and ISYE 3133 and ISYE 3232 and ISYE 3044	ISYE 3025 Engineering Economy is added because it is useful in all projects.
ISYE 4311	Capital Investment Analysis	ISYE 3232	ISYE 3025 and ISYE 3133 and ISYE 3232	This class will require knowledge in 3205 Engineering Economy and 3133 Optimization

3. A motion was made to approve a request from the School of Modern Languages for Certificate modification, a new course, and a course deactivation. The motion was seconded and approved.

Certificate Modification – Linguistics Certificate

Rationale for Modification:

Due to the departure of the former advisor and other faculty members previously involved in teaching LING courses, the desire of current ML faculty to create new courses to update the LING offerings, as well as a need to clarify the inventory of courses that students can use to

complete a certificate in LING, the linguistics certificate program needs to be revised to accommodate such changes.

Note to Reviewers: The proposed program changes are shown as changes to the current program, with ~~strike throughs~~ representing deletions, and *italics* representing additions/replacements.

The Linguistics Certificate

ADD: **Track A: General Linguistics** consists of 12 credit hours ADD: *LING 2100 + 9 additional hours of LING/ML/PSYCH courses.*

The courses that the School will accept for the 12 hours of the certificate are as follows:

1. ~~LING 2001 Introduction to Linguistics-I~~ REPLACE WITH: *LING 2100: Introduction to Linguistics REQUIRED*
2. *9 hours chosen from:*
3. ~~LING 3010 Language Evolution~~ ADD: *LING 3813/4813 Special Topics**
4. ~~LING 4002 Current Trends in Linguistics~~
5. ~~SPAN 3170 Spanish Phonetics and Phonology~~
6. ~~SPAN 4170 Spanish Applied Linguistics~~
7. ~~PSYC 2760 Human Language Processing~~ REPLACE WITH: *PSYC/LING 2760 Human Language Processing*
8. PSYC 3011 Cognitive Psychology
9. PSYC 3790 Introduction to Cognitive Science
10. PSYC 4200 Advanced Topics in Cognitive Psychology
11. ADD: FREN 3030 French Phonetics
12. ADD: JAPN 4750 Japanese Discourse and Grammar
13. ADD: JAPN 4780 Japanese Applied Linguistics
14. ADD: SPAN 4165 Bilingualism in the Spanish-Speaking World
15. ADD: SPAN 4170 Spanish Applied Linguistics

~~One LING 3813/4813 course may also count towards the certificate;~~ ADD: **Students can only count 3 credits of LING 3813/4813 towards Track A. Special Topics courses taught in the languages offered in the School of Modern Languages should be approved by the Linguistics advisor; these courses should have a focus on the linguistic systems of selected languages in order to be considered for Track A.*

~~One LING 3813/4813 course may also count towards the certificate; in addition, the School of Modern Languages will also accept one linguistics course on the 3000 or 4000 level taken at Emory University or Georgia State University. Students wanting to take such a course at either university need to clear its acceptability with the linguistics advisor at Georgia Tech. All courses counting toward a certificate must be taken on a letter grade basis, and a grade of C or better must be received in each course. Students who wish to use a course taken abroad to obtain credit towards the Linguistics certificate must submit a copy of the syllabus of the course and petition to obtain approval from the Advisor prior to travelling abroad. Some ML courses (FREN,~~

SPAN, JAPN, etc.) may have language prerequisites. All courses counting toward a certificate must be taken on a letter grade basis, and a grade of C or better must be received in each course.

ADD: **Track B, The Linguistics Certificate in Language Processing** ADD: , is a joint collaboration between the School of Modern Languages and the College of Computing (~~Interactive Computing Division and Artificial Intelligence~~). The twelve-credit certificate is designed with computer science majors in mind who have an interest in linguistics and natural language processing ADD: , and consists of LING 2100 + 9 credit hours of CS/LING/PSYC courses. The requirements of the certificate may be fulfilled by completing the following courses:

~~Required Course (3 credits):~~

- ~~1. LING 2001— Study of Language— Introductory course that consists of a survey of fields in linguistics: phonetics/phonology, morphology/syntax, semantics/pragmatics, language variation, and computational linguistics/natural language processing. REPLACE WITH: LING 2100: Introduction to Linguistics REQUIRED~~
- ~~2. 9 hrs chosen from:~~

~~Electives Chosen from the Open Course List/Thread* (9 credits)~~

- ~~1. CS 3240 – Languages and Computation~~
- ~~2. CS 3600 – Introduction to Artificial Intelligence~~
- ~~3. CS/PSYC 3790 – Introduction to Cognitive Psychology~~
- ~~4. CS 3804/3/4803/LING ADD: 3813/4813 Special Topics* —Students can only count 3 credits of towards the certificate.~~

~~CS 4634— Knowledge-based AI REPLACE WITH: CS 4635 Knowledge-based AI~~

- ~~5. CS 4641 – Machine Learning~~
- ~~6. CS 4650— Natural Language Understanding CS 4650 Natural Language~~
- ~~7. CS 4625— Intelligent and Interactive Systems~~
- ~~8. CS 4610— Knowledge Systems~~
- ~~9. CS 8803— Natural Language Processing— This is a graduate level course that only some pre-approved undergraduates can take (with prior approval of the NLP professor).~~
- ~~10. LING 3/4XXX— Linguistics Elective~~
- ~~11. ADD: LING/PSYC 2760 Human Language Processing~~

ADD: *Students can only count 3 credits of LING 2813/3813/4813 and/or CS 3803/4803 towards Track B; students need to seek prior approval from the Linguistics Advisor.

‡ADD: For Track B students, ~~Other~~ courses listed under the **AI (change to Intelligence)** thread or in Linguistics may also count with prior approval from the

linguistics advisor. ~~Some of the CS courses may have prerequisites established by the College of Computing. Consult the Georgia Tech catalog and the College of Computing website (AI Thread).~~ ADD: *All courses counting toward a certificate must be taken on a letter grade basis, and a grade of C or better must be received in each course.*

ADD: In addition, the School of Modern Languages will also accept one linguistics course on the 3000- or 4000-level taken at other accredited universities. Students wanting to take such a course need to clear its acceptability with the linguistics advisor at Georgia Tech. A 2000-level course may be accepted by the GT linguistics advisor if its contents are based upon examples from Chinese or Korean, given the extra difficulty involved in having enough command of one of these languages to deal with more complex materials. Students who wish to use a course taken abroad to obtain credit towards the Linguistics certificate must submit a copy of the syllabus of the course and petition to obtain approval from the Advisor prior to travelling abroad. Some CS and ML courses may have language prerequisites. All courses counting toward a certificate must be taken on a letter grade basis, and a grade of C or better must be received in each course.

Note: The Committee asked the School of Modern Languages to note that the Special Topics courses have to be approved by the advisor. Since there is no way for students to know which Special Topics courses might meet the requirement, it will be necessary for them to be approved by the advisor.

New Course

LING 2100: Introduction to Linguistics 3-0-3

(Note: This course proposal requested the HUM attribute. The proposal will be referred to the General Education Subcommittee for review.)

Course Deactivation

LING 2001

4. A motion was made to acknowledge a request from the School of Materials Science and Engineering for **prerequisite modifications**. The motion was seconded and approved.

School of Materials Science and Engineering
Fred Cook, Associate Chair, Undergraduate Programs

MSE undergraduate curriculum committee and faculty reviewed the prerequisites currently shown in the 'Detailed Course Information' and are requesting the following changes. The course number, course title, current requirement, and changes are shown below.

For all courses the minimum grade = D.

Highlighted in yellow = ADD

Strikethrough = Delete

Course Number	Course Title	Current Prerequisite Information	Requested Change
MSE 2001	Principles & Applications - Engineering Materials	CHEM 1310	CHEM 1310 or CHEM 1102 or CHEM or CHEM 12X1 or CHEM 1211K
MSE 3002	Structural Transformation - Metals, Ceramics and Polymers	MSE 3000	MSE 3000 , MSE 3001 and MSE 3210
MSE 3005	Mechanical Behavior – Materials	MSE 2001 and ME 2211 or AE 2120	MSE 2001 and ME 2211 or AE 2120
MSE 3210	Transport Phenomena	MATH 2401 or MATH 2411 and MATH 2403 or MATH 2413 and MSE 3001	MATH 2401 or MATH 2411 and MATH 2403 or MATH 2413 and MSE 3001 w/concurrency
PTFE 2200	Structure & Properties –Fibers & Polymers	CHEM 1310 or CHEM 1212K and CHEM 1315 or CHEM 2312	CHEM 1310 or CHEM 1211K and CHEM 1315 or CHEM 2312 w/concurrency
PTFE 3200	Yarn & Fabric Formation	CEE 2020 and PTFE 2200	CEE 2020 and PTFE 2200 , COE 2001 and PTFE 2200 or PTFE 3720
PTFE 3230	Polymer & Fiber Processing	CHBE 4775 or CHEM 4775 or ME 4775 or MSE 4775 or PTFE 4775 and ME 3340 and PTFE 3210	CHBE 4775 or CHEM 4775 or ME 4775 or MSE 4775 PTFE 4775 and ME 3340 and PTFE 3210 w/concurrency

- A motion was made to approve a request from the School of Architecture for a new course. The motion was seconded and approved.

New Course

ARCH 4135: City Literacy 3-0-3

(Note: Also requesting Global Perspective Attribute. The General Education Subcommittee will consider and report back to the IUCC. If approved, the request would be sent to the General Education Council with the next batch of courses.)

- A motion was made to approve a request from the School of City and Regional Planning for a new course. The motion was seconded and approved.

New Course

CP 4190: Introduction to Climate Change Planning 3-0-3

(Note: The Graduate Committee at its April 12 meeting approved a graduate-level version of this course, CP 6190. Students may not get credit for both.)

7. A motion was made to approve a request from the College of Computing for a degree modification, a name change for the Platform Thread, and new courses. The motion was seconded and approved.

Degree Modification – BS in Computer Science

Rationale for changing the approved program:

The Faculty of the College of Computing submits for your information that CS4641 Machine Learning be added to the Modeling and Simulation Thread – Computational Science and Engineering Pick and remove CS4245 Introduction to Data Mining and Analysis from the aforementioned pick in the BSCS degree effective Fall, 2012.

CS4245 Introduction to Data Mining and Analysis will no longer be offered and will eventually be deactivated as result the Computational Science and Engineering Pick needed a comparable course to maintain the number of options for those students who have selectee the Modeling and Simulation Thread. At this time the course material contained in CS is appropriate for the Computational Science and Engineering Pick.

The only key difference between the existing and proposed is that there is an addition al course in the Modeling and Simulation Thread – Computational Science and Engineering Pick which only impacts those who have chosen Modeling and simulation as a Thread choice.

Name Change of the Platform Thread

Change the name of the "Platforms" thread to "Systems & Architecture". This would also change the names of the related concentrations associated with this thread.

Change the name of the "Platforms" thread to "Systems & Architecture". This would also change the names of the related track for the Computer Science Minor.

The Undergraduate Curriculum Committee of the College of Computing has approved the **renaming of the BSCS Platforms Thread, its associated Thread combinations**, and the Platforms track within the recently approved multi-track CS minor. The College of Computing submits these changes for your information and requests that they take effect Summer Semester 2012. These changes have no effect on curricula.

The proposed **new name of the Thread** and the CS minor track is **Systems and Architecture**.

We propose that the Thread combinations (identified as **concentrations in Banner**) be changed as follows:

Current names

Devices-Platforms
Info/Internetworks-Platforms
Intelligence-Platforms
Media-Platforms
Mod/Sim-Platforms
People-Platforms
Platforms-Theory

Proposed names

Devices-Systems/Arch
Info/Internetwork-Systems/Arch
Intelligence-Systems/Arch
Media-Systems/Arch
Mod/Sim-Systems/Arch
People-Systems/Arch
Systems/Arch-Theory

The Systems and Architecture faculty proposed the new name, which incorporates universally understood computing terms, for several reasons:

- Students requested a name that potential employers would more easily understand.
- Academic advisors requested a name that incoming freshmen would more easily understand.
- Faculty, students, and advisors suggest that the present name is confused with other Thread names, especially Devices.

New Courses

CS 3743: Analysis of Emerging Technologies 3-0-3

CS 4005: Next-Generation Computing Technologies 3-0-3

(Note: This course is not cross-listed.)

CS 4052: Systems Analysis and Design 3-0-3

CS 4741: Integrative Management Development - Project Preparation 1-6-3

CS 4742: Integrated Computing and Management Capstone Project 2-6-4

(Note: After much discussion, it was decided that the title of this course would be consistent with the other subject codes: Tech Mgt Capstone Proj.)

8. A motion was made to approve a request from the Schools of Economics, Public Policy, Chemistry and Biochemistry, and Earth and Atmospheric Sciences for a minor modification. The motion was seconded and approved.

Minor Modification – Energy Systems Minor

Rationale for changing the approved program:

Given the recent refocusing of the general chemistry requirements for different majors, the Energy Systems Committee **would like to modify the Chemistry requirement for this minor.** Students with majors in biology, biochemistry, biomedical engineering, and others are now required to take Chem1211K in their first semester instead of CHEM 1310. We request the IUCC approve changing the requirement for the Energy Systems Minor as shown below:

Prerequisite Courses

The prerequisites needed for one or more of the courses required for the minor (breadth courses and the capstone project course) are (all existing courses):

- a. Mathematics (MATH 1501, 1502, 2401 through Calculus III)
 - b. Physics (PHYS 2211, 2212)
 - c. Chemistry (CHEM 1310 **or CHEM 1211K**)
 - d. Economics ECON 2100 or 2101 or (2105 and 2106)
9. A motion was made to approve a request from the School of Mechanical Engineering for a degree modification, new courses, and a prerequisite modification. The motion was seconded and approved.

Degree Modification – BS in Mechanical Engineering, BS in Mechanical Engineering – Cooperative Plan, BS in Mechanical Engineering-International Plan

Rationale for changing the approved degree program:

There are two degree options: Cooperative Plan and International Plan; both options have the same degree requirements as the basic degree.

The requested changes are designed to establish Concentration Areas within the undergraduate Mechanical Engineering degree program. The concentration areas constitute 15 hours of courses, with a combination of required and elective classes. These 15 hours can be completed through appropriate choices of their existing electives. Students are not required to do a Concentration Area (CA), but those that do complete the requirements may choose to have their accomplishment recognized on their GT transcript. Several other changes are requested:

1. Change in the rules applying to Free Electives
2. Change in the rules applying to ME Electives
3. Change to the “C-or-better” requirements for the BSME degree
4. Changes to the ME GPA requirement for the BSME degree
5. Information Items: Pre-requisite changes for ME 3340 Fluid Mechanics
6. New required courses:

ME 3017 (3-0-3) System Dynamics [will replace ME 3015 (4-0-4)
System Dynamics and Control]

ME 4056 (2-3-3) Mechanical Engineering Systems Laboratory [will replace ME 4053 (1-3-2) Mechanical Engineering Systems Laboratory]

7. New elective course:

ME 4452 (3-0-3) Control of Dynamic Systems

8. Creation of Concentration Areas in Automation and Robotics, Thermal, Fluid, and Energy Systems, and Micro- and Nanoengineering

Both degree options (Cooperative Plan and International Plan) will continue to have the same degree requirements as the basic degree.

In our previous proposal to the IUCC (approved at the 3/13/12 meeting), the BSME degree was modified to increase the number of free electives to 15 hours. The 15 hours are designed to give students the choice of a “breadth option,” or a “depth option.” In the breadth option, students have a greatly expanded opportunity to pursue their interests in areas outside of mechanical engineering. The 15 hours of Free Elective can be used by students to complete a minor or certificate if so desired, or they can explore several subject areas. The breadth option is also more amenable to students participating in study-abroad programs, exchange programs, multidisciplinary study, and undergraduate research outside of mechanical engineering. The depth option allows students to pursue a concentration within mechanical engineering. In the current proposal, 3 Concentration Areas are presented: Automation and Robotics, Thermal, Fluid, and Energy Systems, and Micro- and Nanoengineering. (Several others are in development.)

Each concentration area is detailed below. Whether students choose the depth or breadth option, they will still get a solid foundation in traditional mechanical engineering topics, as well as supporting engineering topics, math and science, and professional practice.

The BSME degree requirements approved by the IUCC on 3/13/12 will for the most part continue in the proposed curriculum. The major difference to the previously approved 2012-2013 BSME curriculum is that (a) we have designed several optional Concentration Areas that students can complete by making particular choices of Free and ME Electives, (b) there are several rule changes pertaining to Free Electives and ME Electives, (c) there are changes to two rules pertaining to the minimum level of performance required by ME students.

There are no changes to any of the program administration and support areas.

Currently Approved vs. Proposed Program Curriculum

The following items are included with this modification proposal to detail the proposed changes to the BSME degree:

A detailed description of the current BSME curriculum showing courses, pre-requisites, and descriptive notes.

Rule Changes. The following rule changes are requested:

Free Electives: Previously, the BSME degree included 6 hours of free elective. In the 3/13/12 IUCC meeting, approval was granted to increase this number to 15 hours.

Current Rule: A free elective is any GT course at the 2000-level or above that does not duplicate any of the material used for the BSME degree. All courses must be taken for letter-grade.

Proposed Rule:

- (a) A free elective is any GT course that does not duplicate any of the material used for the BSME degree.
- (b) At least 9 hours must be at the 2000-level or above. Four of these 9 hours may be satisfied with one of the following: BIOL 1510, BIOL 1520, or CHEM 1212K.
- (c) No more than 6 hours can be satisfied with any combination of 2699, 4699, or 4903 from any school.
- (d) All courses must be taken for letter grade.

ME Electives: Previously, the BSME degree included 6 hours of ME Elective. In the 3/13/12 IUCC meeting, approval was granted to reduce this number to 3 hours.

Current Rule:

- (a) An ME elective is any ME course at the 3000-level or above, excluding ME 3141, 3720, 3743, 3744, 4741, 4742, & 4753.
- (b) An ME Elective must not duplicate any other material used for the BSME degree.
- (c) Up to 4 hours of ME 4699/4903 may be used for ME elective credit. [changed to 3 hours in the 3/13/12 IUCC meeting]
- (d) ME Elective credit may be satisfied by completing an “approved minor.” [removed as part of the BSME degree modification approved at the 3/13/12 IUCC meeting]

Proposed Rule:

- (a) An ME elective is any ME course at the 3000-level or above, excluding ME 3141, 3720, 3743, 3744, 4699, 4741, 4742, 4753, and 4903.
- (b) An ME Elective must not duplicate any other material used for the BSME degree.

ME GPA:

Current Rule:

- (a) The ME GPA is computed from all ME plus COE courses.
- (b) Students must have an ME GPA of at least 2.00 at the time of graduation.
- (c) When computing the ME GPA: (i) Transfer courses and foreign exchange courses are not included, (ii) No course can be taken pass/fail, (iii) If a ME or COE course is repeated, only the last grade is included in the calculation.

Proposed Rule:

- (a) The ME GPA is computed from all courses in the “Mechanical Engineering Core,” the “Engineering Design and Professional Practice Stem,” the Design Elective, and ME Elective. [The courses in the *ME Core* and the *Design and Professional Practice Stem* are listed individually below.]
- (b) Students must have an ME GPA of at least 2.00 at the time of graduation.

- (c) When computing the ME GPA: (i) Transfer courses and foreign exchange courses are not included, (ii) No course can be taken pass/fail, (iii) If a course is repeated, only the last grade is included in the calculation.
- (d) Among the courses used to compute the ME GPA, all courses must be completed with a C-or-better, with the exception of at most 9 credit hours, which can be satisfied with a grade of D.

C-or-Better Rule:

Current Rule:

A student must have a grade of C-or-better in MATH 1501, MATH 1502, MATH 2401, and MATH 2403.

Proposed Rule:

Students must attain a grade of C-or-better in MATH 1501, MATH 1502, MATH 2401, MATH 2403, **PHYS 2211**, and **COE 2001** *before* they can move on to another course for which those courses are a pre-requisite.

Pre-requisite Change:

ME 3340 Fluid Mechanics: *Current pre-requisites:* MATH 2403, ME 2202, ME 3322*. *Proposed pre-requisites:* **MATH 2401**, MATH 2403, ME 2202, ME 3322*.

Concentration Areas:

The School of ME requests the establishment of Concentration Areas in sub-fields of mechanical engineering. Concentration Areas must meet specific rules as listed below:

1. A Concentration Area (CA) must satisfy the following minimum requirements.
 - (a) Includes at least one design course from the design elective list.
 - (b) Includes at least one ME Elective.
 - (c) The remaining courses in the CA and the Free Electives taken by the student must conform to the Free Electives rule for the BSME degree.
 - (d) Includes no more than 3 hours of ME 4699/4903.
 - (e) Designates one or more faculty coordinators who will oversee the CA.
2. Each CA must be approved by the GWW UG Committee, the GWW academic faculty, and the IUCC. Additional criteria for approval are as follows.
 - (a) Perceived desirability of CA as indicated by student and/or faculty interest.
 - (b) Availability of the courses included in the CA required and elective courses.
 - (c) No significant overlap with existing CAs or minors.
 - (d) Completion of CA in a reasonable 8-semester sequence based on pre-requisite chains.

3. Every CA will be reviewed every five years to determine if it should be
 - (a) continued
 - (b) discontinued
 - (c) merged with another CA, or
 - (d) modified regarding the lists of required and elective courses.

4. Any changes to a CA must be approved by the GWW UG Committee and the GWW academic faculty. Once approved, all changes will be submitted for approval to the IUCC.

Proposed Concentration Areas: At this time, the School of ME requests the establishment of 3 Concentration Areas. The details of each concentration area are given on the following pages.

Concentration Area in Automation and Robotic Systems

Concentration Courses				
	<i>Course number and name</i>	<i>Credits</i>	<i>Check for design elective</i>	<i>Check for ME elective</i>
<i>Required</i>	ME 3180 Machine Design	3	X	
	ME 4452 Control of Dynamic Systems	3		X
<i>Electives (Choose 3)</i>	ME 4189 Advanced Structural Vibrations	3		X
	ME 4012 Modeling and Control of Motion with lab component	3		X
	ME 4451 Robotics	3		X
	ME 4447 Microprocessor Control of Manufacturing Systems	3		X
	*ISYE 4257 Applied Robotics and Auto Data	3		
	*CS 3600 Introduction to Artificial Intelligence	3		
	*CS 4641 Machine Learning	3		
TOTAL:		15		

* Requires a pre-requisite outside of ME.

Concentration Area in Thermal, Fluid, and Energy Systems

Concentration Courses				
	<i>Course number and name</i>	<i>Credits</i>	<i>Check for design elective</i>	<i>Check for ME elective</i>
<i>Required</i>	ME 4315 Energy Systems Analysis and Design	3	X	
<i>Electives (Choose 4)</i>	ME 4011 Internal Combustion Engines	3		X
	ME 4321 Refrigeration and Air Conditioning	3		X
	ME 4325 Fuel Cells	3		X
	ME 4340 Applied Fluid Mechanics	3		X
	ME 4342 Computational Fluid Dynamics	3		X
	ME 4701 Wind Engineering	3		X
	ME 4823 Renewable Energy Systems	3		X
	ME 4803BC Nanoengineered Energy Technologies	3		X
TOTAL:		15		

Concentration Area in Micro- and Nanoengineering

Concentration Courses				
	<i>Course number and name</i>	<i>Credits</i>	<i>Check for design elective</i>	<i>Check for ME elective</i>
<i>Required</i>	ME 4315 Energy Systems Analysis and Design	3	X	
<i>Electives (Choose 4)</i>	ME 4803BC Nanoengineered Energy Technologies	3		X
	ME 4820 Fabrication and Properties of Nanoscale Devices	3		X
	ME 4699 Undergraduate Research	3		

	*CHEM 3412 Physical Chemistry II	3		
	*PHYS 4262 Solid State Physics	3		
	AE 4883 Micro-Renewable Energy Systems	3		
	ChBE 4803 Microfluidics/BIOMEMs	3		
	ChBE 4020 Chemical Engineering in Nanoscale Systems	3		
	MSE 4803 B Nanomaterials: Properties and Processing	3		
	MSE 4325 Thin Film Materials Science	3		
	MSE 4335 Soft Nano Bio Materials	3		
TOTAL:		15		

* Requires a pre-requisite outside of ME.

Blanket Substitutions for current students graduating under the current (2011-2012) requirements:

Current Course	Hours	Can Substitute New Course	Hours
ME 3015	(4-0-4)	ME 3017	(3-0-3)
ME 4053	(1-3-2)	ME 4056	(2-3-3)

Blanket Substitutions for current students graduating under the new 2012-2013 BSME requirements:

Current Course	Hours	Can Substitute New Course	Hours
ME 3017	(3-0-3)	ME 3015	(4-0-4)
ME 4056	(2-3-3)	ME 4053	(1-3-2)

Additional Notes:

1. Excess hours or shortage of hours will be accommodated with Free Elective Hours
2. Credit cannot be counted for both ME 3015 and ME 3017
3. Credit cannot be counted for both ME 4053 and ME 4056

Mechanical Engineering Core (36 credit-hours)

Category	Course #	Course name	Credits
Mechanics	COE 2001	Statics	(2-0-2)
	ME 2202	Sdynamics of Rigid Bodies	(3-0-3)
	COE 3001	Mechanics of Deformable Bodies	(3-0-3)
Thermo-fluid Mechanics	ME 3322	Thermodynamics	(3-0-3)
	ME 3340	Fluid Mechanics	(3-0-3)
	ME 3345	Heat Transfer	(3-0-3)
Modeling and Laboratory	ME 2016	Computing Techniques	(3-0-3)
	ME 3015	System Dynamics and Control	(4-0-4)
	ME 3057	Experimental Methods Laboratory	(2-3-3)
	ME 4053	ME Systems Laboratory	(1-3-2)
Other Engineering Science	MSE 2001	Engineering Materials	(3-0-3)
	ECE 3710	Circuits and Electronics	(2-0-2)
	ECE 3741	Instrumentation and Electronics Lab	(0-3-1)
	ISYE 3025	Engineering Economics	(1-0-1)
		<i>Total</i>	36

Design and Professional Practice Stem (12 credit-hours)

ME/CEE 1770	Engineering Graphics and Visualization	(2-3-3)
ME 2110	Creative Decisions and Design	(2-3-3)
ME 4210	Manufacturing Processes and Engineering	(3-0-3)
ME 4182	Capstone Design	(1-6-3)
		<i>Total</i>
		12

Note: The ME GPA is calculated based on the courses in these two lists, plus the ME Elective, and the Design Elective. For those classes that are re-taken, only the last grade is included in the calculation.

BSME degree requirements, 2012-2013 Curriculum Year

Approved at the 3/13/12 IUCC Meeting; additions in red, deletions indicated by strikethrough

FIRST YEAR - FALL	Pre-Requisites	COURSE HRS	Notes
MATH 1501 Calculus I		(4-0-4)	[1]
ENGL 1101 English Composition I		(3-0-3)	
CHEM 1310 General Chemistry		(3-3-4)	[2]
US Perspectives Elective		(3-0-3)	[3]
HPS 1040 Wellness		(2-0-2)	
FIRST YEAR - SPRING	TOTAL SEMESTER HOURS	16	
MATH 1502 Calculus II	MATH 1501	(4-0-4)	[1]
ENGL 1102 English Composition II		(3-0-3)	
PHYS 2211 Introductory Physics I	MATH 1501	(3-3-4)	[1]
CS 1371 Computing for Engineers		(3-0-3)	
ME/CEE 1770 Engineering Graphics		(2-3-3)	[4]
SECOND YEAR - FALL	TOTAL SEMESTER HOURS	17	
MATH 2401 Calculus III	MATH 1502	(4-0-4)	[1]
PHYS 2212 Introductory Physics II	PHYS 2211	(3-3-4)	
ME 2110 Creative Decisions and Design	ME/CEE 1770, COE 2001*	(2-3-3)	[4]
MSE 2001 Engineering Materials	CHEM 1310	(3-0-3)	
COE 2001 Statics	MATH 1502, PHYS 2211	(2-0-2)	[1]
SECOND YEAR - SPRING	TOTAL SEMESTER HOURS	16	
MATH 2403 Differential Equations	MATH 1502	(4-0-4)	[1]
ECE 3710 Circuits and Electronics	PHYS 2212	(2-0-2)	
ME 2202 Dynamics of Rigid Bodies	COE 2001	(3-0-3)	
ME 2016 Computing Techniques	CS 1371, MATH 1502, MATH 2403*	(3-0-3)	
Global Perspectives Elective		(3-0-3)	[5,6,7]
THIRD YEAR - FALL	TOTAL SEMESTER HOURS	15	
ECE 3741 Instrument and Electronics Lab	ECE 3710	(0-3-1)	
COE 3001 Mechanics of Deformable Bodies	COE 2001, MATH 2403*	(3-0-3)	
ME 3322 Thermodynamics	PHYS 2211, MATH 2403	(3-0-3)	
ME 3340 Fluid Mechanics	ME2202, ME 3322*, MATH 2401 , MATH 2403	(3-0-3)	
Free Elective		(3-0-3)	[8,9,10]
Economics Elective		(3-0-3)	[11,12]

THIRD YEAR - SPRING	TOTAL SEMESTER HOURS	16	
ME 3015 Dynamic Systems and Control	ME 2202, ME 2016, MATH 2403, ECE 3710	(4-0-4)	
ME 3017 System Dynamics	CS 1371, MATH 2403, ME 2202, and ECE 3710	(3-0-3)	
ME 3345 Heat Transfer	ME 3322, ME 3340, MATH 2403	(3-0-3)	
Ethics Elective		(3-0-3)	[7,13]
Social Science or Humanities Elective		(3-0-3)	[7]
MATH/ISYE 3770 Statistics	MATH 2401	(3-0-3)	
ISYE 3025 Engineering Economics	ECON 2100, ECON 2101, ECON 2105, or ECON 2106	(1-0-1)	
FOURTH YEAR - FALL	TOTAL SEMESTER HOURS	16	
Design Elective	ME 2110, COE 3001 (for ME 3180 only), ME 3345 (for ME 4315 only)	(3-0-3)	[14,15]
ME 3057 Experimental Methods Laboratory	COE 3001, ME 3340, ME 3015*, ME 3345*, MATH/ISYE 3770*	(2-3-3)	[4]
ME Elective		(3-0-3)	[8,16]
Free Elective		(3-0-3)	[8,9,10]
Free Elective		(3-0-3)	[8,9,10]
FOURTH YEAR - SPRING	TOTAL SEMESTER HOURS	15	
ME 4182 Capstone Design	ME 2110, ME 4210*, (ME 3180 or ME 4315)	(1-6-3)	[4]
ME 4053 ME Systems Laboratory	ME 3057, ME 3345, ME 3015, MATH/ISYE 3770	(1-3-2)	[4]
ME 4056 ME Systems Laboratory	ME 3017, ME 3057, ME 3345, MATH/ISYE 3770	(2-3-3)	[4]
ME 4210 Manufacturing Processes and Engineering	COE 3001, ME 3345, MATH/ISYE 3770	(3-0-3)	
Free Elective		(3-0-3)	[8,9,10]
Free Elective		(3-0-3)	[8,9,10]
Social Science or Humanities Elective		(3-0-3)	[7]
TOTAL SEMESTER HOURS		18	
TOTAL PROGRAM HOURS INCLUDING WELLNESS (2 HOURS) =			129

Notes:

[1] ~~Minimum Grade of C-~~ Students must attain a grade of C-or-better in MATH 1501, MATH 1502, MATH 2401, MATH 2403, PHYS 2211, and COE 2001 before they can move on to another course for which those courses are a pre-requisite.

[2] CHEM 1211K can substitute for CHEM 1310. CHEM 1211K & 1212K are recommended for pre-health students.

[3] HIST 2111 or 2112 or POL 1101 or PUBP 3000 or INTA 1200; counts as Social Science

[4] Cannot be dropped after registration without documented medical reason

[5] Required for students who began Fall 2011 and later

[6] Approved Global Perspectives course must be included in the Social Science and Humanities elective hours.

[7] Between the Ethics Elective, Global Perspectives Elective, Social Science Electives, and Humanities Electives, students must ensure 12 hours of SS and 12 hrs of HUM.

[8] Free Electives and ME Electives may not duplicate any other material used to satisfy the BSME degree requirements

[9] ~~Any Course at the 2000 Level or Above.~~ Any GT course with the restrictions that: At least 9 hours must be at the 2000-level or above. Four of these 9 hours may be satisfied with one of the following: BIOL 1510, BIOL 1520, or CHEM 1212K.

[10] Up to 6 hours of Free Elective may be satisfied using 2699/4699/4903 from any department

[11] ECON 2100, 2101, 2105, or 2106 (counts as Social Science)

[12] Students can receive credit for only one of ECON 2100, ECON 2101, ECON 2105, and ECON 2106. The only exception is that students can receive 6 hours credit for both ECON 2105 and ECON 2106.

[13] Social Science options: HTS 2084 and INTA 2030; Humanities options: PHIL 3105, PHIL 3109, PHIL 3127, or PHIL 4176

[14] ME 3180 or ME 4315

[15] Students may take both ME 3180 and ME 4315; in this case, one class will satisfy the Design Elective and the other will satisfy the ME Elective

[16] An ME elective is any ME course at the 3000-level or above, excluding ME 3141, 3720, 3743, 3744, 4699, 4741, 4742, 4753, and 4903.

~~[17] Up to 4 hours 3 hours of ME Elective can be satisfied using ME 4699/4903~~

Additional Information:

1. Courses marked by * designate "Pre-requisite with Concurrency," i.e., these courses may be taken at the same time or prior to the course in question.
2. All classes must be taken for Letter Grade
3. ENGL 1101 and 1102 must be completed before earning 45 credit hours.
4. Overall GPA must be greater than 2.00 at graduation
5. ~~ME GPA (including all ME and COE classes) must be greater than 2.00 at graduation.~~ The ME GPA is computed from all courses in the "Mechanical Engineering Core," the "Engineering Design and Professional Practice Stem," the Design Elective, and ME Elective. Students must have an ME GPA of at least 2.00 at the time of graduation. When computing the ME GPA: (i) Transfer courses and foreign exchange courses are not included, (ii) No course can be taken pass/fail, (iii) If a course is repeated, only the last grade is included in the calculation.

4. ~~Minimum grade of D required for all classes except as noted.~~ Among the courses used to compute the ME GPA, all courses must be completed with a C-or-better, with the exception of at most 9 credit hours, which can be satisfied with a grade of D

New Courses

ME 3017: System Dynamics 3-0-3

(Note: ME 3015 will be deactivated later.)

ME 4056: ME Systems Laboratory 2-3-3

ME 4452: Control of Dynamic Systems 3-0-3

Note: The Committee suggested to ME that they check all of the course equivalencies since other units such as AE and ECE offer very similar courses in areas such as systems dynamics.

Note: Pre-requisites listed on the New Course Proposal forms refer only to the new curriculum. To aid students in the transition period, blanket substitutions for some of these pre-requisite classes are listed below.

Pre-requisite Modification

ME 3340 Fluid Mechanics: *Current pre-requisites:* MATH 2403, ME 2202, ME 3322*.

Proposed pre-requisites: **MATH 2401**, MATH 2403, ME 2202, ME 3322*.

Note: It was strongly suggested to ME by the Committee that they make available the process that students will need to follow in having elective courses approved. The use of Special Topics courses will make this very confusing and students will need to know how they go about getting approval to use any given course.

10. A motion was made to approve a request from the School of Literature, Communication and Culture to rename the School. The motion was seconded and approved.

Rename as: School of Literature, Media, and Communication

The recommendation resulted from the IAC Dean's Task Force and the LCC Ad Hoc Committee on Rebranding and was accepted, along with other recommendations, by the faculty by a vote of 18 in favor and 5 opposed at the January 19 faculty meeting.

The Registrar's Office asked whether the School had considered or was going to consider a new subject code to match the name of the School. It was noted that if that option is pursued, it might be a good opportunity to clean up the course offerings, deactivating those that are no longer going to be offered in future terms.

11. A motion was made to approve a request from the College of Management and the College of Computing for a new minor. The motion was seconded and approved.

New Minor: Computing and Management

The curriculum of the Minor in Computing and Managements requires the completion of 22 semester credit hours in the course of study shown below. Students who are admitted to the T&M Program satisfy the requirements for a bachelor's degree in their major.

- Courses for computing students include such topics as marketing, finance, accounting, and investments.
- Courses for management students include a primer in representing structure and behavior; data manipulations for science and industry, and a next generation computing technologies seminar series where the top researchers and industry experts discuss the latest computing technologies and the business opportunities they provide.
- Together, students take classes on managing emerging technologies as well as systems analysis and design. In an integrated capstone project course, interdisciplinary teams focus on a specific problem posed by one of the program's corporate affiliates. These projects address problems of significant technical and managerial issues.

Three courses required for the Minor in Computing & Management will be taken with T&M students pursuing a Minor in Engineering & Management:

- MGT/CS 3743 Analysis of Emerging Technologies
- MGT/CS 4741 Integrative Management Development
- MGT/CS 4742 Integrated Technology and Management Capstone Project
(Note: There was discussion about the title of this course. It was decided that the existing title will be applied to all courses, regardless of subject code.)

The minimum, cumulative GPA required for applicants to the Denning T&M Program is 3.0. In order for accepted students to maintain their eligibility to remain in the T&M Program, they must continue to maintain a minimum, cumulative GPA of 2.9 and maintain a 3.0 GPA for the classes required by the Denning T&M curriculum. All courses must be taken for a letter grade; pass/fail credit is not allowed.

Required Courses:13 semester credit hours

Track: 9 semester credit hours/track

Two tracks - one for BSBA students and one for BSCS students.

The proposed Minor in Computing and Management will exceed national norms for minors. Nationally and within Georgia Tech, most minors require only 15 credit hours of study. The proposed minor requires 22 credit hours and includes a hands-on, problem-focused capstone project based on a corporate opportunity or challenge.

All courses except one for the proposed minor are existing courses. **Appendix A** contains the **new course proposal for CS 4005**, "Next Generation Computing Technologies." This proposal was approved by the Computer Science faculty on January 9, 2012, and has been submitted to IUCC for approval.**Course Numbers and Descriptions** (*Also see Appendix A*)

SCH=Semester Credit Hours

Required courses to be completed by all students - **Total: 13 hours**

Course	SCH		
Analysis of Emerging Technologies MGT/CS* 3743-TM	3	Existing Course	No prerequisite, but TM section reserved for T&M students
MGT/CS* 4052 Systems Analysis and Design	3	Existing Course	Prerequisite: MGT 2200 for MGT students. Prerequisite waived for CS students.
Integrative Management Development – Capstone Preparation MGT/CS* 4741	3	Existing Course for T&M Program	No prerequisites, but course restricted to T&M students.
Tech & Mgt Capstone Project MGT/CS* 4742	4	Existing Course for T&M Program	No prerequisites, but course restricted to T&M students. Field work with Corporate Affiliate required.

*Computing students must enroll using the MGT heading and management students must enroll using the CS heading.

Track for BSBA Students – Total: 9 hours

Course	SCH		
Representing Structure and Behavior CS 1316	3	Existing Course	Prerequisites: CS 1301 or CS 1315 or CS 1371
Data Manipulation for Science and Industry CS 2316	3	Existing Course	Prerequisites: CS 1371 or CS 1301 or CS 1315
Next Generation Computing Technologies CS 4005	3	<u>New Course</u>	Prerequisite: CS 2316

Track for BSCS Students– Total: 9 hours

Course	SCH		
Marketing Management I MGT 3300	3	Existing Course	No prerequisites
Financial and Managerial Accounting MGT 3000	3	Existing Course	No prerequisites
Finance and Investments MGT 3078	3	Existing Course	No prerequisites

Total Semester Hours for Minor: 22 (7 courses)

NOTE: The Committee asked for further clarification on the required hours to be clarified to show which option the Computer Science students and which option the Management students needed to register under.

12. A motion was made to approve a request from the College of Management for new courses. The motion was seconded and approved.

New Courses

MGT 4072: Entrepreneurial Finance 3-0-3

(Note: the NCP was corrected to show 3-0-3 hours, to include P/F grade mode, and the COM was provided a copy of the original NCP for MGT 6086 so that they can compare the titles and decide if any further action needs to occur.)

MGT 4102: Management Consulting 3-0-3

MGT 4106: Teams in Organizations 3-0-3

(Note: the NCP was corrected to show 3-0-3 hours, and that this course is not repeatable for credit. The Catalog description is also too long and will have to be edited and sent back to the Registrar's Office.)

MGT 41xx: The Role of Gender, Race, and Ethnicity in Organizational Behavior 3-0-3

(Note: it was noted that the Junior status prerequisite will have to be enforced at the section level. COM noted that a graduate level version of this course will be proposed. Also, this course is requesting the Global Perspectives attribute. It will be referred on to the General Education Subcommittee for review.)

MGT 4311: Digital Marketing 3-0-3

(Note: the NCP was corrected to indicate that this course is not repeatable for credit.)

Student Petitions

1. A motion was made to approve an in-person appeal for a waiver of the 36-hour rule. The motion was seconded and approved.
2. A motion was made to approve a written appeal for a late term withdrawal from the Fall 2011 term. The motion was seconded and approved.
3. A motion was made to deny a written appeal for a late term withdrawal from the Fall 2011 term. The motion was seconded and approved.
4. A motion was made to approve a petition for a waiver of the 36-hour rule. The motion was seconded and approved.

Administrative Matters

1. Prior to her leaving Tech, Susan Paraska updated the Graduate Committee on recent changes to proposal requirements, review, and submission. The following information that was also provided to the Graduate Committee is included in these Minutes to alert the IUCC appropriately of the changes.

The Board of Regents (BOR) of the USG approved changes to the review and approval process for new academic programs, programs to be offered via distance education delivery, minors, and certificates. I encourage you to share this information with your chairs and faculty curriculum coordinators so that I may address any questions they may have.

The **two major changes** are:

1. Submission and a positive review of a ‘Program Prospectus’ before a formal academic program proposal may be submitted for BOR review and approval.
2. Notification by USG institutions to offer programs to be offered via distance education delivery, minors, and certificates. Previously, these proposals required either USG administrative approval or BOR approval.

These BOR changes do not change reporting requirements with regard to SACS Commission on Colleges standards and policies.

1. New Academic Program Proposals

Effective: January, 2012

Board of Regents Policy Manual 3.6.1; USG Academic Affairs Handbook 2.3.2

New academic program proposals will be submitted via secured USG website by designated staff at each USG institution. The two-step process begins with submission of a Program Prospectus. The Program Prospectus will be reviewed by the staff of the USG Office of Academic Affairs staff and following that review a letter outlining the review results will be sent to the institution’s designated representative.

Review results to the institution will be: 1) to move forward with the submission of a Formal Proposal, or 2) to not move forward with a formal proposal submission. Review results will be sent via letter (email) to the Office of the Provost within 30 business days and will include details of the review.

a. New Academic Program Prospectus

A program prospectus is the initial submission of a potential degree and/or major that the institution deems a priority. The program prospectus is designed to allow institutions to submit program ideas for feedback without incurring expenditures of resources toward the development of a new program proposal. The prospectus will undergo a preliminary review through the USG Office of Academic Affairs. After review of the prospectus, an institution will be sent written notification indicating whether or not to submit a formal proposal.

Program Prospectus Requirements

- 1) Provide a justification of how the program is a primary need for the university system, the state, and the institution's service region.
- 2) Explain how the proposed program is tied to the state's economic development and any relevant major statewide initiatives (e.g., Complete College Georgia), and provide an analysis of the stated demand for the program.
- 3) Include evidence that the program does not unnecessarily duplicate existing USG programs.

4) The prospectus should be no more than 650 words and then uploaded to the USG secure website (see #1 footnote below) .

Results of the USG's review will be provided to each institution's chief academic officer. The results will then be shared with the academic unit's faculty and leadership.

b. Formal Proposal for a New Academic Program

Upon a positive review of a program prospectus, the USG Office of Academic Affairs will invite Georgia Tech to submit a formal program proposal. *The formal program proposal is the same as we do now.*

- 1) Program description and objectives
- 2) Program's fit with institutional mission
- 3) Demand for proposed program
- 4) Curriculum
- 5) Admissions criteria
- 6) Assistantship availability (as applicable)
- 7) Student learning outcomes
- 8) Program administration
- 9) Degree Credit-Hour Waiver (as applicable)
- 10) Projected enrollments
- 11) Faculty inventory and workload
- 12) Fiscal and Facilities Impact with Estimated Budget
- 13) New and Online Program Delivery criteria (as applicable)

2. Distance Education Programs, Minors, and Certificates

The major change here is that institutions do not need to submit the proposal documents that are approved at the institutional level. USG institutions may now send a 'notification' to the USG Office of Academic Affairs for these proposed programs:

- Distance Education/Learning Programs² —if already an existing, approved degree program
- Minors
- Certificates – for academic credit

Upon receipt of the notification, the USG Office of Academic Affairs will acknowledge receipt and include them in the USG database of approved programs.

Proposing faculty will submit proposals for review and recommendation for approval by faculty committee(s) of the home academic unit, college dean, and Institute faculty governance bodies before submission by the Office of the Provost.

- Continued coordination with key academic and campus support units helps to ensure teaching and learning, financial, physical, technology, and administrative resources are available and in place for the proposed program.
- Curricular information contained within proposals helps to ensure approved curriculum is accurately documented in the GT catalog and related databases, enrolled

and prospective students know all program requirements, and with verification of completed academic requirements.

Footnotes:

1 Submission upload to the USG secure website will be completed by an Office of the Provost designated representative.

2 Georgia Tech must also notify SACS Commission on Colleges (SACSCOC) for all distance education offerings.

Adjourned,

Reta Pikowsky
Registrar