

Institute Graduate Curriculum Committee

Minutes

Academic Matters (Full Committee)

Thursday, December 3, 2015

Present: Breedveld (CHBE), Ceccagnoli (CoB), Gable (GCC Student Representative), Neitzel (ME), Pikowsky (Registrar), Schmidt-Krey (BIOL), Smith (AE)

Visitors: Webster (CEE), Simon (CEE), Wooley (GTPE), Mark (GTPE), Hu (CoB), Mitra (CoB), Porter (CoA), Roper (CoA-BC), Castro (CoA-BC), Irizarry (CoA-BC), Turner (GTRI), Bracco (EAS), Jacobs (CoE), Di Lorenzo (EAS), Hodges (Registrar), Laros (Registrar), Williams (ECE), Bond (CoB)

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. It may also be that approval of the Southern Association of Colleges and Schools is also required.

There was no quorum. The vote on these Minutes will be to approve the recommended actions of the members who were present and to approve the Minutes document itself.

Academic Matters

1. A motion was made to *approve* a request from the College of Business for new courses. This motion was seconded and approved.

New Courses – Approved upon contingency

MGT 6203: Data Analytics in Business 3-0-3

(Note: This course was approved contingent upon the transcript title being changed to DATA ANALYTICS BUSINESS and the Office of Disability Services statement being added to the course syllabus).

MGT 6345: Marketing Practicum 1-6-3

(Note: This course was approved contingent upon the mode of presentation on the New Course Proposal be updated to 30% lecture and 70% lab. Also, the hours in section two were revised from 3-0-3 to 1-6-3 since a lab is part of the mode of presentation).

2. A motion was made to *approve* a request from the School of Electrical and Computer Engineering for a new course. This motion was seconded and approved.

New Course – Approved

ECE 7057: GT-Shenzhen Research Internship

3-0-3

Note: This is a placeholder course which is non-gradable and non-billable.

3. A motion was made to *approve* a request from the School of Civil and Environmental Engineering for new courses. This motion was seconded and approved.

New Courses – Approved upon contingency

CEE 6585: Materials Science of Concrete

3-0-3

(Note: This course was approved contingent upon updating the New Course Proposal to allow all grade modes and updating the course syllabus to include the Office of Disability Services statement).

CEE 8097: Introduction to Transportation Research

1-0-1

(Note: This course was approved contingent upon updating the course syllabus to include the Office of Disability Services statement).

4. Informational item from the Schools of Civil and Environmental Engineering, Biology, and Earth and Atmospheric Sciences for a presentation of an upcoming proposal.

Presentation of upcoming proposal - Acknowledged

Doctor of Philosophy with a major in Ocean Science and Engineering

We propose a new **PhD Program in Ocean Science & Engineering (OSE)** that will integrate, coordinate and expand the on-going efforts in ocean science & engineering at GT across the Schools of **Earth & Atmospheric Sciences (EAS)**, **Civil and Environmental Engineering (CEE)**, and **Biology (BIOL)**. OSE will contribute new avenues for collaboration between institutions within the University System of Georgia (USG) and beyond, and train the next generation of leaders to solve the complex challenges facing ocean & humans today.

The new program in Ocean Science and Engineering will enhance existing strengths in ocean-related science and engineering across the Colleges of Sciences and Engineering to advance fundamental research and problem solving and to educate the next generation of ocean experts, in five key areas:

- Ocean Technology
- Ocean Sustainability
- Ocean & Climate
- Marine Living Resources
- Coastal Ocean Systems

Curriculum

The PhD Program in Ocean Science & Engineering (OSE) is designed to integrate, coordinate and expand the on-going efforts in ocean science & engineering at GT, while contributing new avenues for collaboration between institutions within the University System of Georgia (USG), and training the next generation of leaders to solve the complex challenges facing the ocean today. Such training is organized around five themes:

OSE Research Themes

- Ocean Technology
- Ocean Sustainability
- Ocean & Climate
- Marine Living Resources
- Coastal Ocean Systems

The PhD in OSE is designed to be completed over 4.5 – 6 years (fall, spring and summer), with an expected duration of 5 years, with a total of 32-credit hours required for each student. **The program will not grant *undergraduate or master degrees*.**

The program includes the 2 Schools within the College of Sciences: Biology (BIOL) and Earth and Atmospheric Sciences (EAS), and 1 School within the College of Engineering (Civil and Environmental Engineering (CEE)). Faculty from these schools provide distinct and complementary expertise leveraged by the OSE PhD, both in terms of coursework and research specialization. Additional program faculty include members of CoS and CoE. Interdisciplinary cooperation and input is ensured by the diversity of faculty in the program. Key to this cooperation is the establishment of a founding program graduate committee comprised of 6 faculty members, representing the 3 Schools within CoS and CoE.

The program is designed to provide much flexibility in order to allow students to tailor the program to their individual career objectives under the **Research Themes of OSE** (e.g. Ocean Sustainability, Ocean Technology, Ocean & Climate, Marine Living Resources, Coastal Ocean Systems).

General Coursework Requirements

The PhD degree in OSE requires a minimum of 32 semester hours of coursework to cover the core topics articulated in the essential knowledge list (EKL). As

mentioned already, the course load requirement could be partially lifted for students with proven foundations in any of the research areas (i.e. students with a Master degree). The coursework includes in its core component the OSE seminar offered to incoming students in their first Spring semester. The OSE seminar will serve the dual role of introducing OSE students to research advances in the laboratories and groups of participating program faculty as well as providing a point of contact for matching students and faculty aiding the formation of the Advising Committees.

The general requirements for a PhD in Ocean Science and Engineering include:

Component	Courses	Hours Required
	<p>The OSE PhD program requires completion of four 3-hour credit courses between the ones listed below. Student must choose at least one core topic and one class from each school.</p>	
OSE Core Courses	<p><u>Core topics for EKL, at least one from each School + one additional course:</u></p> <p>CEE TOPIC: Coastal & Ocean Mechanics Environmental Fluid Mechanics (CEE 6261) (Fall, yearly) Coastal Mechanics (CEE 8803) (Fall, yearly)</p> <p>TOPIC: Environmental Biotechnology Microbial Principles in Environmental Engineering (CEE 6311) (Fall, yearly) Biological Processes (CEE 6331) (Spring, yearly) Environmental Microbial Genomics (CEE 6720) (Spring, yearly)</p> <p>BIO TOPIC: Marine Ecology & Conservation Marine Ecology (BIOL 6417) (Spring, odd years) Biological Oceanography (BIOL 6221) (Spring, even</p>	14

	<p>years)</p> <p>TOPIC: Biological & Microbial Oceanography Microbial Ecology (BIOL 6410) (Spring, even years) Biological Oceanography (BIOL 6221) (Spring, odd years)</p> <p>EAS TOPIC: Physical and Chemical Oceanography Physical and Chemical Oceanography (EAS 6305) (Fall, yearly) Global Biogeochemical Cycles (EAS 6122) (Spring, even years) Advanced Environmental Data Analysis (EAS 6490) (Fall, yearly)</p> <p>TOPIC: Ocean & Climate Thermodynamics of Atmospheres & Oceans (EAS 6140) (Fall, yearly) Climate and Global Change (EAS 4410/8803) (Fall, yearly)</p> <p>Ethics/RCR training - pass/fail 0hr</p> <p>OSE Seminar - 2hr (EAS 8802) (Spring, Yearly)</p>	
OSE Specialization	<p>Elective courses that increase depth of understanding in the research Theme chosen by the PhD candidate (<i>e.g. Ocean Sustainability, Ocean Technology, Ocean & Climate, Marine Living Resources, or Coastal Ocean Systems</i>)</p>	9
Minor	<p>Courses outside the student' selected Themes</p>	9

	(equivalent to Institute approved minor)	
	TOTAL	32

Students can request to modify one of the classes associated with the core topics pending approval by their PhD Advising Committee. The requirement of at least one course from each School cannot be altered.

Curriculum Standards

Ocean Science and Engineering is a relatively new area of interdisciplinary science. Hence, there is not a nationally accredited society or organization responsible for setting curriculum standards. Nonetheless, OSE @ GT leverages existing PhD programs in traditional disciplinary Schools. The majority of the courses are already offered at GT, and reviewed as part of regular reviews of the doctoral programs in each of the three Schools.

Comments and Suggestions Noted by the Committee

The Committee made a suggestion to increase the TOEFL score from 79 to 95. Some Committee members feel the Institute minimum is too low and feel that a minimum required score of 95 is more appropriate.

The proposal, when it comes forward, should clarify that 6 of the 12 credits need to be taken in the home School and the 6 of the 12 credits need to be taken in partner Schools. The proposal as it stands now is unclear.

“The OSE PhD program requires completion of four 3-hour credit courses between the ones listed below. Student must choose at least one core topic and one class from each school.”

Committee members also suggested that the comp exam be called for at the end of a certain number of terms.

There was a question about whether the internship can and should be required. It would seem that there are opportunities to create them. It was suggested that this requirement be included and that exceptions can be addressed by petitions to the faculty in case insufficient internships are available to meet demand.

Also, the Committee advised that an explanation should be included when presenting to the Board of Regents as to why the name of the degree was changed to Ocean Science and Engineering from Ocean Science and Technology.

5. A motion was made to *approve* a request from the School of Building Construction for a new degree prospectus. This motion was seconded and approved.

New Degree Prospectus – Approved Master of Real Estate Development

Note: The Committee stressed the importance of having a sufficient number of tenure-track faculty to sustain this program if approved.

Objective

The objective of the Master of Real Estate Development (MRED) is to provide students the technical, business, and policy knowledge demanded for the sustainable utilization of our land for human development. The objective will be met through a program that coordinates offerings from the three Schools in the College of Architecture, the School of Building Construction, the School of City and Regional Planning, and the School of Architecture. Further intent is to offer participation to other Georgia Tech programs teaching content pertinent to real estate development, such as the School of Civil & Environmental Engineering, the School of Public Policy and the College of Business.

Non-Duplication of Other USG Programs

There is no offering of a Master of Real Estate Development in the USG. As noted earlier, Georgia State University offers a Master of Science in Real Estate, which is focused primarily on real estate finance and analytics with only one course referencing development, and is currently offered as an 11 month executive type program. The Master of Real Estate Development at Georgia Tech will cover site and building design, construction, development process, land use planning, sustainability, infrastructure engineering, regulatory and legal issues as well as real estate finance, management, and marketing all housed in a major technological university. Further, the Master of Real Estate Development at Georgia Tech will be unique in its accessibility to full time U.S. and international students along with industry professionals seeking an advanced degree for professional enhancement.

Student education

The degree will include five required core courses, four elective courses and a capstone experience course for a total of 30 curriculum hours. The core course requirement will be satisfied by at least one course from each knowledge area designated as a core course. The elective courses can be chosen by the student with approval from an academic advisor to allow specialization in an area of particular interest or a particular project type. To achieve the educational diversity to prepare the students for participation in the full range of real estate development projects, several courses in each knowledge area will be offered.

The advantage of this curriculum is allowing the student to tailor the degree while requiring content within each area of knowledge, and allowing the various Schools to bring unique perspectives to the curriculum. Finance, for example, is a fundamental element of real estate development, and multiple levels need to be addressed. Funding could come from private or public sources, and be necessary for acquisition, for production, or for long term ownership. A student with a special interest in finance could take several courses within the knowledge area, while a student with a special interest in the technical nuances of development might only take a core course. The technically oriented student might then choose several courses in the infrastructure design and construction arena. Electives would be numerous and chosen from a specific set of courses across the various Schools discussed earlier. It should also be noted that course offerings in the Master of Real Estate Development could be made available to masters level students in related fields of study at Georgia Tech, and thereby enhance the attraction of students to the Institute.

6. A motion was made to *approve* a request from the School of Building Construction for a new subject code. This motion was seconded and approved.

New Subject Code – Approved

BCP – Building Construction Professional

In conjunction with its proposal for a new professional master's degree in occupational safety and health (PMOSH), the School of Building Construction is requesting a new subject code.

7. Informational item from the School of Building Construction, GTRI, and GTPE for a presentation of an upcoming proposal.

Presentation of upcoming proposal – Acknowledged

PMOSH – Professional Masters in Occupational Safety and Health Management

The Professional Masters in Occupational Safety and Health Management (PMOSH) program is a terminal degree for industry professionals with 3-5 years of work experience. It is designed to help students develop the skills and knowledge necessary to successfully define and manage complex safety and health programs. As opposed to a Master of Science degree, which typically has a research focus and serves as a gateway to a PhD program, the PMOSH program will provide an applied, practical educational experience through projects, teamwork and industry-relevant case studies. Students will gain real-world experience by collaborating in a team environment through a hybrid of online and in-person learning. They will learn how to think strategically to determine strengths in their company's safety and health management systems while also identifying areas of risks.

There are no graduate Occupational Safety and Health Management Degree programs in the University System of Georgia (USG). Currently, through the Georgia Tech OSHA Training Institute Education Center (OTIEC), Georgia Tech offers short format professional education courses that participants and industry continue to request be offered as degree earning academic courses in this field. Accordingly, several construction and general industry safety-related certificate programs are offered that numerous students reported have resulted in gainful employment and promotions at work. As part of this proposal, Georgia Tech's Professional Education conducted a survey of past participants in these courses regarding the need for a Professional Master's Degree in this field. A majority of respondents (61.24%) indicated that they would be interested in such a degree program and 87.8% indicated that there is a need for such a program. Among the reasons cited were the recognition of a need for more highly qualified safety professionals that can manage risks in the workplace, the potential for contributing to positive changes in safety climate in their organizations, and enhanced opportunities for professional growth.

The establishment of a Professional Masters in Occupational Safety and Health Management will open doors to those in the public, private, and nonprofit sectors who desire to further their careers in this important field. The effect on the community will be far reaching, with graduates of the program being at the forefront of preventing workplace fatalities, injuries, illnesses, and catastrophic events that cost taxpayers millions of dollars every year. Graduates of the Professional Masters in Occupational Safety and Health Management program will be more effective leaders and problem solvers, saving lives, and preventing debilitating injuries and illnesses in the workplace.

1. Curriculum: List the entire course of study required and recommended to complete the degree program. Provide a sample program of study that would be followed by a representative student. Include Area F requirements (if applicable).
 - a. Clearly differentiate which courses are existing and those that are newly developed courses. Include course titles as well as acronyms and credit hour requirements associated with each course.
 - b. Append course descriptions for all courses (existing and new courses).
 - c. When describing required and elective courses, list all course prerequisites.

To earn the PMOSH degree, students must complete ten courses. The PMOSH curriculum consists of nine core courses and one industry specific course in either general industry or construction.

Core/Required Courses:

Note: The Committee noted that each new course must have at least one tenure-track faculty member listed on the NCP. The Committee also noted that where a course is based at least on content that has existed at the undergraduate level only, particularly if below the 4000-level, a clear explanation must be provided for how that undergraduate content has been transformed into graduate,

Master's, level content. The Committee also noted that there needs to be some discussion included on what metrics will be used for incoming candidate requirements and acceptances.

BCP 6100: Fundamentals of Occupational Safety and Health Program Management

Prerequisites: Admission into PMOSH program

New course (modules from existing GTRI courses)

Course description: This course introduces the core elements of an effective safety and health management system; central issues critical to each element's proper implementation and OSHA's hierarchy of controls.

Credit hours: 3

BCP 6200: Industrial Hygiene Principles and Health Hazards

Prerequisites: BCP 6100

New course (modules from existing GTRI courses)

Course description: This course provides an overview of the discipline of industrial hygiene.

Credit hours: 3

BCP 6300: Hazardous Materials Management

Prerequisites: BCP 6200

New course (modules from existing GTRI courses)

Course description: The course is based on OSHA's general industry and construction industry standards and other consensus and proprietary standards relating to the use, storage and transportation of hazardous materials.

Credit hours: 3

BCP 6500: Advanced Safety Principles

Prerequisites: BCP 6400 or BCP 6450

New course (modules from existing GTRI courses)

Course description: Developing a high performance safety culture requires much more than programs and regulatory compliance. Gain a deeper understanding of the impact of organizational culture on safety performance and how to implement leading-edge safety systems.

Credit hours: 3

BCP 6600: Applied Ergonomics

Prerequisites: BCP 6500

New course (modules from existing ID course)

Course description: Application of ergonomic principles for the reduction of stress and strain on a person's body as well as the control of workplace musculoskeletal and nerve disorders. Job hazard analysis and effective control strategies will be covered. Additionally, analysis of manual lifting tasks and estimation of reasonable lifting limits and design of lifting tasks will be covered.

Credit hours: 3

BCP 6700: Current issues in occupational safety and health

Prerequisites: BCP 6600

New course (modules from existing BC course)

Course description: This course covers the environmental issues related to the performance of buildings and the current issues in workplace safety and health.

Credit hours: 3

BCP 6800: Culture & Leadership Influences on Safety & Health

Prerequisites: BCP 6700

New course

Course description: This course provides a framework and guidelines for those who seek to become effective leaders and communicators in their professional fields.

Credit hours: 3

BCP 6900 Economic Analysis, Risk Management, Risk Financing, & Insurance for Safety Professionals

Prerequisites: BCP 6800

New course

Course description: Principles and methodology of economic analysis concepts and risk management techniques applied to occupational health & safety

Credit hours: 3

BCP 6950: Occupational Safety and Health Capstone

Prerequisites: All courses in the PMOSH curriculum

New course

Course description: This project course is the application of course materials covered in the PMOSH curriculum to a student driven scenario with a simulated business construct.

Credit hours: 3

Industry Specific Courses:

BCP 6400: General Industry Occupational Safety and Health Standards

Prerequisites: BCP 6300

New course (modules from existing GTRI courses)

Course description: Use regulatory standards as a guide to apply policies, procedures, standards and general industry safety and health principles. Industry recognized best practices, origin of the standards, the process and rules of inspections, citations and penalties and polices will be covered.

Credit hours: 3

BCP 6450: Construction Occupational Safety and Health Standards

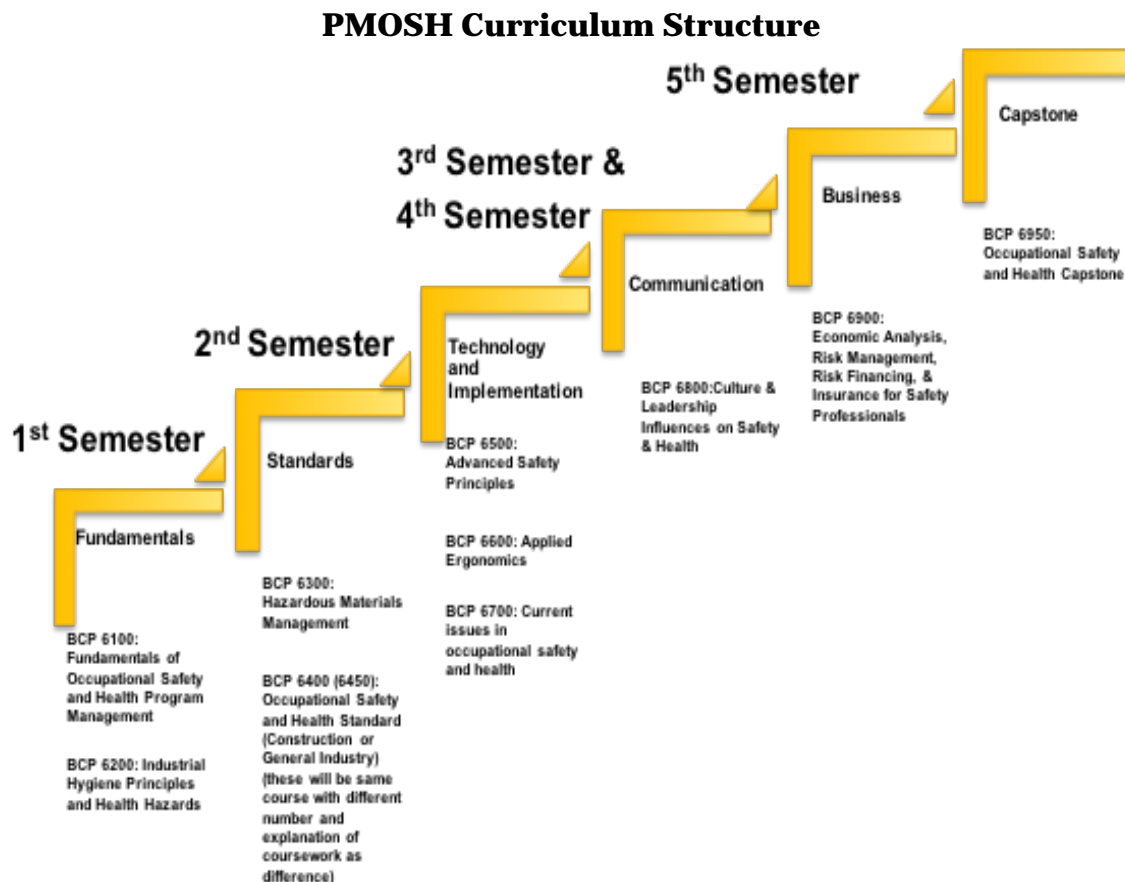
Prerequisites: BCP 6300

New course (modules from existing GTRI courses)

Course description: Use regulatory standards as a guide to apply policies, procedures, standards and Construction industry safety and health principles. Industry recognized best practices, origin of the

standards, the process and rules of inspections, citations and penalties and polices will be covered. Construction safety standards and requirements are emphasized due to hazards intrinsic to the temporary nature of construction and the significant number of construction related fatalities per year (4101 total fatalities in 2103, 828 deaths in construction industry (20.2%)).

Credit hours: 3



- An earned bachelor's degree from an accredited school with a competitive GPA of at least 3.0. The admission committee will have the final decision on rejecting the application, admitting the student, or conditionally admitting the student. In the case of conditional admission, the student is given the opportunity to take two courses and prove he or she can do well in the two courses, so that he or she can continue in the degree program.
- Proof of English Proficiency (i.e., TOEFL). The minimum TOEFL score for graduate admission required by Georgia Tech is 550 paper-based, 213 computer-based, or 79 internet-based. TOEFL requirements will be exempted if the applicant earned his or her degree from a university where English is the language of instruction.

- At least one year of professional work experience (post-Bachelor's degree) in a safety and health related in general industry or construction related fields.
- Three descriptive letters of recommendation. Letters are expected from the applicant's past and current supervisors, who can evaluate the applicant's skills and capabilities and describe why the individual should be considered for admission.
- A required essay/statement of purpose (no more than one page). The essay/statement of purpose should include: why the applicant should be considered, what experience the applicant can bring to the program and what the applicant expects to take away from the program to enhance his or her professional career.
- A resume, including work and educational experience.
- An official transcript sent from each accredited school from which the candidate has received a degree.

Comments and Suggestions Noted by the Committee

The Committee advised that several of the BCP courses would need to be created as Special Topics. Also, for the courses that are similar to undergraduate courses must have a component that clearly distinguishes the graduate level courses from the undergraduate level courses.

Petitions

1. A motion was made to approve actions of the Petitions Subcommittee in the following areas.

The following petitions were reviewed by the Graduate Curriculum Committee Petition Subcommittee. All approved except where noted. Petitions reviewed from 09/04/15 to 12/03/15 are included.

- 1- Course substitution
- 3- Change grade mode **(1 Denied)**
- 1- Selective withdrawal
- 1- Term Withdrawal

The following petitions were reviewed administratively by the Registrar's office. All approved except where noted. Petitions reviewed from 4/9/15 to 06/04/15 are included.

- 23- Late registration for the current term
- 2- Selective withdrawal
- 6- Cancel registration for the current term
- 1- Three-hour rule waiver
- 3- Seven-year rule waiver
- 5- Change grade mode
- 5- Full graduate standing

- 15- Registration adjustment for current term
- 5- Readmit after first drop (**2 Denied**)
- 1- Full-time waiver for final term
- 2- Petition to return after withdrawing in current term
- 1- Use excess Pass-fail hours toward degree
- 1- One-hour rule waiver
- 2- Transfer minor credit for doctoral degree
- 1- Allow course taken as undergraduate to count toward graduate degree
- 3- Count courses taken on special status toward degree
- 3- Enrollment waiver for final term

2. A motion was made to approve a blanket petition for students wishing to pursue the new Professional Master's in Sustainable Electrical Energy. The motion was seconded and approved.

The petition involves allowing the student to change their majors to this new degree which is effective Summer 2016. The courses they have taken in special/non-degree status will apply toward degree requirements. Furthermore, all students will be changed to full graduate standing at the end of Spring 2016, effective Summer 2016. It should be noted that all are making satisfactory progress towards the degree thus far. All will have to meet minimum academic standards, as normal, to have the degree awarded in August 2016.

3. A motion was made to approve a petition to allow the awarding of a Master of Science in Industrial Engineering for May 2016 based on coursework that was completed in 1956. The motion was seconded and approved.

The accompanying material with the petition noted that the student had completed the coursework and had the requisite GPA. He has, since leaving Tech, been employed successfully as an engineer. He also received his undergraduate degree from Tech. At the time of his last enrollment, a thesis was required. Sometime later, the thesis requirement was removed, but this student did not petition successfully to be allowed to graduate in those intervening years.

The Registrar noted that a diploma will be easily produced, but the hardcopy transcript credit will be difficult to annotate and reproduce with good results. Given the age of the record, there will be no transcript in Banner. The Registrar's Office will determine the best method of recording award of the degree in Banner, if possible, and on the hardcopy transcript.

Adjourned,

Reta Pikowsky,
Secretary