





**Institute Graduate Curriculum Committee**  
**Minutes**  
**Thursday, January 12, 2017**

**Present:** Breedveld (ChBE), Pikowsky (Registrar), Bafna (CoD-ARCH), Dixon (ME), Flowers (CoD-ARCH), Jagoda (AE), Jayaraman (MSE), Schmidt-Krey (BIOL), Sluss (CoB), Smith (AE)

**Visitors:** Hodges (REG), Bamburowski (Graduate Studies), Sokol (ISyE), Jordan (ECE), Stewart (BIOS), Mulholland (CEE), Rosenstein (CEE), Baker (GTPE)

**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 are 24 voting members, 13 needed to reach a quorum.

**There was no quorum for this meeting.** In the absence of a quorum, the full committee will vote via email on the Minutes as recommendations of those that were present and then they will vote to approve the Minutes.

All votes are unanimous except as noted.

**Administrative Item:**

1. David Bamburowski, Director of Graduate Studies, presented for the Committee's information a Memorandum of Understanding between GT Lorraine and Institut National Polytechnique de Toulouse – Ecole Nationale Supérieure d'Ingénierus en Arts Chimiques et Technologiques program. (France). GT-L shall admit qualified students enrolled in INP-ENSIACET Diplôme d'Ingénieur program to pursue the Master of Science degree from Georgia Tech in Mechanical Engineering (ME).

Memorandum of Understanding – Acknowledged without Concern

## Academic Matters

1. A motion was made to *table* a request from the School of Materials Science and Engineering for a modification to an existing course. The motion was seconded and approved.

### **Course Other – TABLED**

#### **MSE 6754: Engineering Communication**

This request included eliminating the phrase ‘cross-listed with CEE 6754’ from the catalog description.

**Note:** The Committee determined the best course of action for this proposal would be to submit new course proposals and deactivation proposals of MSE/CEE 6754 if they were to be considered completely separate courses. The units plan to submit those proposals for the February 2 GCC meeting.

2. A motion was made to *table* a request from the School of Civil and Environmental Engineering for a modification to an existing course. The motion was seconded and approved.

### **Course Other – TABLED**

#### **CEE 6754: Engineering Communication**

This request included eliminating the phrase ‘cross-listed with MSE 6754’ from the catalog description.

**Note:** The Committee determined the best course of action for this proposal would be to submit new course proposals and deactivation of MSE/CEE 6754 if they were to be considered completely separate courses. The units plan to submit those proposals for the February 02 GCC meeting.

3. A motion was made to *approve* a request from the School of Biological Sciences for a new course. The motion was seconded and approved.

### **New Course – APPROVED**

#### **BIOL 8744: Microbial Symbiosis & Microbiomes (3-0-3)**

**Note:** The Committee suggested that the undergraduate pre-requisites (BIOL 1510/1511) be removed from the NCP and syllabus since it is assumed graduate students would already have this knowledge.

Updates to NCP:

Box 7 – remove BIOL 1510 and BIOL 1511 as pre-requisites

Box 9 – add BIOL 4744 (undergraduate version)

Update to syllabus:

Remove BIOL 1510 and BIOL 1511 as pre-requisites for the course.

A discussion ensued about the definition of a cross-listed course versus a joint-listed course. Some institutions see these two things differently with cross-listing referring to a course offered under different subject codes and joint-listed referring to courses offered at both the undergraduate and graduate levels.

Joint-listed courses are courses offered at an undergraduate and a graduate level in the same classroom with the graduate level including more rigor in course content. Cross-listed courses are courses with the same number, content, and instructor, but offered in different disciplines.

Currently, both types of courses are being numbered as 'X7XX'. The Committee suggested this practice be reviewed to consider whether our definitions need to be updated and whether a new numbering system for joint-listed courses should be created. In the meantime, course proposals will move forward.

4. A motion was made to *table* a request from the School of Electrical and Computing Engineering for a new certificate. The motion was seconded and approved.

### **New Certificate – TABLED Certificate in Healthcare Robotics**

The Healthcare Robotics Certificate is a result of the National Science Foundation (NSF) Research Traineeship (NRT) initiative in Accessibility, Rehabilitation and Movement Science (ARMS), an interdisciplinary traineeship program in human-centered robotics at Georgia Institute of Technology. It has the potential to transform graduate education. It will be engaging as it offers students challenging interdisciplinary experiences and comprehensive knowledge. Students will view this certificate as value added to their graduate education. The objective of this certificate program is to expand opportunities for students in the emerging field

of healthcare robotics. The Healthcare Robotics Certificate program will positively increase the reputation and positioning of Georgia Institute of Technology as a continued leader in the robotics education field.

All courses are existing courses. The Healthcare Robotics Certificate requires four courses drawn from the following lists.

**Required Courses (6 credit hours):**

- ECE/BMED/ME 7785: Introduction to Robotics Research—this course familiarizes students with the core areas of robotics: mechanics, control, perception, artificial intelligence and human-robot interaction. All Robotics Ph.D. students must take the foundational course as part of their curriculum.
  - ECE/BMED/ME 8750: Multidisciplinary Robotics Research—this is a multidisciplinary research course in which research projects are proposed by students and supervised by two robotics faculty from different schools. This is one of the foundational courses required by all Robotics Ph.D. students.

**Two Elective Courses Chosen from the Following (6 credit hours):**

- ECE/PHIL 6710: Ethics of Biotechnology and Bioengineering Research—this course examines the ethics of biotechnological research, with a special focus on research ethics, healthcare and robotics. This course also satisfies the in-person RCR training requirement for doctoral students.
- ECE/BMED 8813: Interfacing Engineering Technology and Rehabilitation—this course introduces students to the emerging trends in rehabilitation technologies; its lectures and laboratory instruction help students develop skills in adopting objective criteria for evaluation emerging technologies with alternative methods.
- APPH 6231: Human Motor Control—this course examines selected motor control problems that the nervous system faces in the process of managing this mechanical complexity.
- APPH 6232: Locomotion Neuromechanic—this course introduces topics on the biomechanical and neural aspects of the control of limbed locomotion and movement.
- APPH 6236: Neuromuscular Physiology—this course discusses the application of current experimental techniques in human studies in vivo.
- APPH 6400: Human Neuroanatomy—this course teaches the anatomical makeup of the human nervous system. It closely examines details of central and peripheral neuroanatomy with links to functions; comparisons with non-human vertebrate neuroanatomy will be made.
- APPH/ME 6746: Rehabilitative Engineering—this course allows students to participate in rehabilitation engineering as practiced in the assistive technology industry.

**Note:** The Registrar reminded the Committee that certificates are not recorded or handled in any way by the Registrar's Office, but are maintained by the academic units. Students must be degree-seeking in order to pursue a certificate and certificates do not appear on student transcripts.

The Committee suggested that the unit review the requirements for the certificate and determine if it should be renamed with a new title such as "Assistive Technology" to accurately reflect the content of the courses which are listed as required and those listed for electives. The Committee felt more components of healthcare should be required if the unit wished to offer the certificate as "Healthcare Robotics." The unit should also include learning outcomes of the certificate in the proposal.

### **Discussion Items**

1. Dr. Joel Sokol (ISyE, Analytics) informed the Committee of the MicroMasters certificate in Analytics offered by edX (which is similar to Udacity which offers Nano masters certificates in Computer Science). This certificate program is intended to attract and provide a pathway to potential students to apply and pursue a Master of Science in Analytics degree at Georgia Tech. Essentially, Georgia Tech professors are instructing Georgia Tech Analytics courses at edX.

Dr. Sokol assured the Committee that he and GTPE reviewed advertising materials to ensure that students of edX were not given any implication that successfully completing the Analytics courses would guarantee admittance to Georgia Tech and the MS Analytics program. Dr. Sokol also confirmed the credits from edX are non-transferable as edX is not an accredited institution and does not guarantee acceptance to Georgia Tech or the Master of Science in Analytics degree program. However, students who are accepted into Georgia Tech and the MS Analytics program may apply for Advanced Standing. And, edX grants the certificates, not Georgia Tech.

### **Student Petitions**

1. A petition for withdrawal from three terms at the doctoral level was acted on by the Chair and the Registrar due to a critical timeframe. The Registrar and Chair wished to report it to the Committee because it involved three terms of withdrawal and there were some severe mitigating circumstances. The action of the Registrar and Chair was supported by the Committee.

## **Administrative Item**

1. Dr. Marilyn Smith (AE, GCC representative for Study Abroad Committee) updated the Committee in regards to an action item for the Study Abroad Committee. She informed the Committee that courses which require a study abroad component will be reviewed and an alternative plan should be provided for students who are unable to complete the study abroad component due to circumstances beyond their control (ie., family emergency, unable to obtain Visa, etc.).

Adjourned,

Reta Pikowsky,  
Secretary