

**Georgia Institute of Technology**  
**Graduate Curriculum Committee**  
**Minutes**  
**May 13, 2010**

**Present:** Babensee (BME), Pikowsky (Registrar), Butera (ECE), Clarke (CoM), Goldsman (ISYE), Storici (BIO), Silva (ECON), Potts (Grad Studies)

**Visitors:** Laros (Registrar), Howson (Registrar), Senft (Registrar), Paraska (Provost), Neitzel (ME), Yezzi (ECE), Pritchett (AE/ISYE), Dieci (MATH)

**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 Electrical and Computer Engineering for a new joint degree. The motion was seconded and approved.

**New Degree**

Joint Doctor of Philosophy with a major in Electrical and Computer Engineering with the Politecnico di Milano

The proposed joint Ph.D. program does not require or suggest any changes to the existing Ph.D. degree programs of either Georgia Tech or PdM. Rather, the proposed program mandates that students enrolled in this joint program satisfy the curriculum requirements of each of the existing Ph.D. programs at Georgia Tech and PdM. The existing Ph.D. degree study programs at each institution are flexible enough to allow for a large amount of credit transfer, thereby enabling a student to simultaneously satisfy the Ph.D. coursework requirements at each institution without a significant increase in the total course load compared to either study program independently.

Therefore, there are no new courses being proposed. The curriculum for the joint program will be composed of existing, faculty-approved classes on both campuses that meet the current Ph.D. program's requirements at both Georgia Tech and PdM. In addition, all Ph.D. courses will be taught in English by existing faculty at both institutions.

Since the joint Ph.D. program does not involve a separate and distinct curriculum program but rather allows the existing separate Ph.D. curriculum requirements to "pass through" unaltered, it is possible that these independent and externally conceived

requirements may change between the time a student enters the joint program and the time the student completes the program. In such cases, the existing Ph.D. curriculum requirements in place at the time of the student's enrollment into the joint program shall remain a valid alternative to the changed requirements so long as the student remains enrolled in the joint program. At the time of application, it is the responsibility of the student to have an approved joint study program that meets the requirements of both programs within their respective constraints.

While there are no changes to the curriculum requirements of either university, there are some additional application and program requirements which are detailed below:

### **Application**

Before applying to the joint Ph.D. program, students must first apply and be admitted to the existing Ph.D. program at their "home institution", i.e., either to Georgia Tech in Atlanta, GA, U.S.A., or to PdM in Milano, Italy. This would mean that prior to application to the joint Ph.D. program the student will have satisfied all admissions requirements for the home university's Ph.D. program. A student must also have passed any examination (other than course exams) required by their home university's existing Ph.D. program before the thesis proposal prior to acceptance into the joint Ph.D. program (for example, any written and/or oral preliminary/comprehensive examination).

### **M.S. Degree Requirement**

Eligible students for this joint Ph.D. program must also have completed a Master's degree in Electrical and Computer Engineering with the minimum grade point average of 3.5 out of 4.0 from a recognized (or accredited) school of engineering. Applicants with M.S. degrees in other engineering disciplines, computer sciences, or physics are also eligible to apply. PdM Ph.D. students are required to have already obtained a M.S. degree in order to apply to the Ph.D. program at their institution. Georgia Tech Ph.D. students who have not yet completed their Master's degree will have to wait until they are awarded that degree before they are eligible to transfer into the joint Ph.D. program. The corresponding ECE Ph.D. at PdM will be in one of these two research areas (Electrical or Computer Engineering).

### **Length of Program and Residency Requirement**

The joint Ph.D. program must be completed in four years after the M.S. is obtained. Students will take the majority of their classes and conduct research in their advisors' laboratories at their home campus. In addition, students will spend a minimum of one year doing research at their co-advisors' laboratories and taking classes on the host campus. Because of the flexibility in the programs at both institutions, students can complete this program within four years.

Applicants with M.S. degrees outside of Georgia Tech ECE should carefully consider the joint curriculum requirements in light of their prior coursework to assess whether the amount of allowed credit from their prior M.S. coursework will be sufficient to complete the remaining coursework requirements within the four-year time limit. Applicants with

non-ECE M.S. degrees are especially cautioned to pay close attention to this matter as they are likely to receive significantly less credit toward their Ph.D. coursework requirements compared to students with M.S. degrees in ECE.

### **Co-Advisors**

At the time of application (see Admissions Criteria section below), the student will have to identify and obtain confirmation from co-advisors at both the home and host institutions. These two advisors—who have agreed to work together with the Ph.D. student—must belong to the respective faculties of each institution and be qualified by their institution to advise Ph.D. students in their institution’s existing Ph.D. program. Working together, the advisors will assist the student in successfully determining an appropriate program of study and research that is in a compliance with the existing Ph.D. programs of both institutions. In addition, these advisors will assist the student in conducting their proposed area of research associated with the joint Ph.D. program.

### **Dual Committee for Thesis Proposal and Defense**

A dual committee – one committee from each university – will be selected to approve a student’s dissertation proposal and dissertation defense. Membership of each institution’s committee must meet the independent requirements of that institution’s standard Ph.D. doctoral committee. As with the curriculum, should the requirements change at any time, the requirements in place at the time of a student’s enrollment into the joint program will remain valid so long as the student remains enrolled in the Ph.D. program.

The doctorate dissertation proposal as well as the final Ph.D. thesis will be presented in both written and oral form. The oral presentation of both the proposal and the final defense will take place at one of the two partner institutions by remote conference connection and will be approved by the dual committee. Both the oral presentation and defense will be delivered in English. The student’s advisors and the committee members from the home and host institutions will participate, either on-site or through remote connection.

### **Publication Requirement**

Ph.D. students enrolled in the joint program will also be required to publish a minimum of one paper in journals (or conference proceedings) which have a noted impact factor (e.g., ISI or ISI-like index) in order to be conferred their doctorate degree. The joint committee will determine if the publications satisfy this requirement.

### **Credit Transfer**

Both institutions currently allow an enrolled student to transfer a generous amount of academic credit in order to meet the requirements of their existing Ph.D. programs. In the joint Ph.D. program, credits that are transferred to satisfy requirements at the host institution will continue to satisfy credit requirements at the home institution. The credit transfer will be in accordance with each institution’s published policies on credit transfer.

Per the policy in the Georgia Tech General Catalog, 9 hours of coursework for a letter grade out of a total of 43 credit hours in coursework must be coursework completed at Georgia Tech. At PdM 15-20 ECTS must be completed at PdM out of a total of 40-50 ECTS required for coursework. The published policies of each institution will enable Ph.D. students enrolled in the joint program to complete the coursework requirement of each institution separately within the stated four years, even if they only spend the minimum of one year at the host university.

The decision about which specific courses to transfer toward the Georgia Tech curriculum requirements will rest with the ECE graduate office. Likewise, the decision about which specific courses to transfer toward the PdM curriculum requirements will rest with the PdM doctoral school. In accordance with the standard Ph.D. programs of both universities, all transferred credits will require official approval of the individual courses.

Should the credit transfer policy regarding credit transfer change mid-way through the program, the rules in place at the time of enrollment into the joint program shall remain a valid alternative to the changed requirements so long as the student remains enrolled in the joint program.

### **Joint Coursework Planning**

Careful advanced coordination of coursework will be required for students who wish to avoid any additional coursework beyond the normal Ph.D. course load in order to satisfy both universities' curricula constraints. Otherwise, because both universities require that a certain number of courses be completed on their local campus, some additional coursework may be necessary and will depend on a student's specific program of study.

It is important to note that in order to participate in the joint Ph.D. program and complete the program within four years, eligible students must have already completed the course work required for a M.S. Degree in Electrical and Computer Engineering, Computer Science or Physics from Georgia Tech or a recognized/accredited school of engineering. Applicants with M.S. degrees outside of Georgia Tech ECE should carefully consider the joint curriculum requirements in light of their prior coursework to assess whether the amount of allowed credit from their prior M.S. coursework will be sufficient to complete the remaining coursework requirements within the time limit. Applicants with non-ECE M.S. degrees are especially cautioned to pay close attention to this matter as they may receive less credit toward their Ph.D. coursework requirements compared to students with M.S. degrees in ECE.

### **Joint Degree Program of Study**

The program of study for the proposed joint Ph.D. program must meet all the requirements of both institutions. Ph.D. coursework plans are highly individualized and it will be the student's responsibility to work with the academic offices of both institutions to be sure that all degree requirements are met and official approval for the program of study is obtained from both Georgia Tech and PdM.

An approximate time line for a joint program student is shown below.

Year 1 - Take courses towards Ph.D. program on home campus; conduct research; preliminary exam; and admittance into joint Ph.D. program.

Year 2 - Take courses on home campus; conduct research; thesis proposal.

Year 3 - Spend year on secondary ("host") campus, taking courses and conducting research with co-advisor.

Year 4 - Conduct research on home campus and undergo thesis defense.

The minimum course requirements for program participants are as follows:

9 hours of ECE 6000 classes (or level 2 or 3 courses at PdM) in 1 or 2 Technical Interest Area (TIA)

9 hours of ECE 6000 classes (or level 2 or 3 courses at PdM) outside TIA(s)

9 hours of Minor in area outside ECE (or level 2 or 3 courses at PdM)

14 hours of Electives

1 hour of ECE 8010

1 hour of ECE 8022

### **43 course hours minimum**

The course curriculum is the same one for the Georgia Tech standard Ph.D. in ECE. The curriculum also meets the standard requirements for the Ph.D. at PdM.

2. A motion was made to approve a request from the Schools of Computational Science and Engineering, Aerospace Engineering, and Industrial and Systems Engineering for modification to a certificate. The motion was seconded and approved.

#### **Certificate Modification:**

Modeling and Computer Simulation (MaCS)

Delete: CS 6236 – Parallel and Distributed Simulation Systems

Add: CSE/ECE 6730 (Crosslisted) Modeling and Simulation: Foundations and Implementation

3. A presentation was made by Dr. Neitzel of an upcoming proposal for a Dual-M.S. degree between the School of Mechanical Engineering and Karlsruhe Institute of Technology. The Committee discussed the preliminary proposal and made suggestions for things to consider if a formal proposal is undertaken.
4. A motion was made from the School of Mathematics for a new course. The motion was seconded and approved.

#### **New Course:**

MATH 6111: Advanced Linear Algebra 3-0-3

5. A motion was made to approve new Guidelines for Graduate Certificates. The motion was seconded and approved.

## GUIDELINES FOR GRADUATE CERTIFICATES

Certificates are intended to encourage students to use the elective requirements in their degree program to form a coherent concentration of coursework in a specified area.

1. Certificates will be granted only to students who, in addition to the certificate program requirements, have satisfied requirements for a graduate degree. The offering unit is responsible for verifying satisfaction of all certificate requirements, as well as completion of a graduate degree. Certificates are not recorded on the student's transcript or diploma. Arrangements must be made for awarding certificates within colleges or offering units. Certificates will not be awarded at the Institute level.
2. All graduate certificate programs must be approved by the Graduate Curriculum Committee and by the Academic Senate and forwarded to the Office of Program Review and Accreditation for USG notification and posting in the USG Degrees and Majors Authorized database.
3. Departments, schools, and colleges are eligible to offer graduate certificate programs in well-defined and coherent subject areas. Certificate programs sponsored jointly by more than one academic unit may be designated as multi-disciplinary certificates, subject to the special requirements listed below.
4. A certificate program generally will be available to all graduate students, subject to the restrictions below. Exceptions must be clearly justified in the certificate proposal.
5. All proposals for a certificate must originate from the faculty of the academic unit offering the certificate or, in the case of a multi-disciplinary certificate, from the faculty of each participating academic unit. Proposals must be endorsed by the appropriate College Dean(s) and by the Provost.
6. In addition to the academic requirements for the certificate, the proposal must define the procedures for management of the program and for awarding certificates. The offering unit must record and maintain enrollment and completion for certificates. The design and working of certificates must be approved by the Provost and a draft must be submitted with the proposal.
7. The certificate program must comprise at least 12 semester hours in a coherent program of which at least 3 semester hours are foundational to provide a broad overview of that discipline. A multi-disciplinary certificate program will additionally require that courses be taken from more than one academic unit and that at least 3 semester hours be taken outside the student's major field. Cross-listed courses may be counted as being outside the student's major field.

8. No more than a total of 4 semester hours of Special Problems courses may be included in a certificate program.
9. Courses used in a certificate also may be used to fulfill elective requirements in the student's major degree program.
10. A course may not be counted toward more than one certificate.
11. All courses counting toward the certificate must be taken on a letter-grade basis, and be completed with a grade of B or higher.
12. The availability of a certificate should be noted in the catalog, at least by title, under the appropriate academic unit(s). The academic unit(s) offering the certificate shall publish and make available to students the requirements for the certificate – the courses and total number of hours required, along with the enumeration of any particular courses that are mandated or excluded, and any grade requirements that differ from the general grade requirements of this policy.
13. All certificate programs are to be reviewed during the scheduled academic program review in the sponsoring unit(s).
14. All certificates will be submitted to the USG Office of Academic Affairs for administrative approval following the approval by the GT Curriculum Committee and the Academic Senate. The point of contact for USG submission is Susan Paraska, Director, Program Review and Accreditation. The appropriate form is available on the Curriculum Committee Web site.

### **Student Petitions**

1. A motion was made to approve the recommendations of the Petitions Subcommittee for petitions in the following areas as well as administrative action on petitions. The motion was seconded and approved.

#### **All petitions approved except where noted.**

##### Subcommittee Decision:

- 1 Waive Minor Requirement
- 9 Graduate with excess Pass-Fail hours
- 1 Request credit for course (Denied)
- 1 Selective Withdrawal
- 1 Term Withdrawal (Denied)
- 1 Change Grade mode
- 1 Waive Graduate GPA rule

Administrative Action:

2 Count courses taken while on Special status

1 Allow six hours of CHEM9000 to be substituted as CHEM7000

2 Change course from one to three hours

21 Request Full Graduate Standing

2. A motion was made to approve a petition from a student for an exception to the two-year graduate course option. The motion was seconded and approved.

3. A motion was made to approve a petition from a student to use twelve additional hours of graduate coursework and six hours of undergraduate coursework toward his B.S./M.S. degree. The motion was seconded and approved.

Adjourned,

Reta Pikowsky  
Registrar