Graduate Studies Committee (GSC) Meeting dates in 2015-2016:

November 3, 2015
January 20, 2016
February 23, 2016
March 30, 2016
May 2, 2016
May 23, 2016

The major initiatives and accomplishments are as follows:

1. **US News and World Report-Women**
   
   Tufts ranked 4 for percentage of Women in Graduate Programs. US News & World Report listed Tufts University School of Engineering among the 10 engineering schools with the highest percentage of women enrolled at the master's and doctoral level in both full-time and part-time programs during fall 2015. The overall percentage of female students at all 193 engineering schools surveyed by USNWR was just 24 percent, compared with 35 percent among the top 10 schools.

   Tufts engineering doctoral candidates have the opportunity to be selected for a teaching fellow program supported by the National Science Foundation. Tufts' "*Future Female Engineering Leaders*" program intends to develop a community that both empowers and retains women, providing mentorship by senior women faculty and addressing gender-related challenges. (photo above)

   In Tufts' Department of Computer Science, women comprise 50 percent of the tenured faculty and qualified doctoral students can apply for *Clare Boothe Luce Graduate Fellowships*, which specifically support female graduate students in computer science. Recent doctoral students have accepted faculty positions at universities such as Northwestern, Wellesley, Brandeis and Washington University in St. Louis, as well as positions in industry and research labs.

2. **US News and World Report-Overall**

   The School of Engineering at Tufts moved up 3 spots to #65 on the US News and World Report list of Top Schools for Engineering.

3. **One year MS program**

   The School of Engineering will now offer students a one year MS program option in order to be competitive with other institutions. Beginning fall 2016, students will have the option to switch to the one year MS program. In the fall of 2017 all incoming MS students will be on the new MS
structure. Non-thesis MS students can complete coursework in 2 semesters. Students who don’t complete their coursework or students who are completing a MS thesis can remain in the program for a maximum of 3 additional semesters in order to complete their program. Along with the ability to complete a MS in one year, students will begin a new pay structure where they pay the full cost of their MS degree in two semesters with a continuation fee of $800.00 per semester for additional semesters.

Tufts Gordon Institute is also offering a new one year MS program beginning in the fall of 2016. Designed specifically for recent STEM graduates (0-3 years of experience), the MS in Innovation and Management provides students with the skills they need to identify, design and launch high impact, sustainable innovations. The program requires three semesters to complete and consists of course work along with multiple project experiences in which students apply their learning within existing organizations or new ventures. The program launches in September with a cohort of 15 students. Additional information on this program can be found at http://gordon.tufts.edu/programs/m-s-in-innovation-and-management.

4. NSF Awarded Dr. Karen Panetta, Dr. Tom Vandervelde, Dr. Darryl Williams, Dr. Kristin Finch, Dr. Valencia Joyner, Dr. Sinaia Nathanson and Dr. Keith Maddox $1,000,000 for their FAST-Trac Program. The FAST-TRAC research will characterize the needs, perceptions, and research competencies of low-income students pursuing graduate Engineering degrees, and interrogate the effectiveness of each program component in helping students achieve the MS degree. The project will measure the contextual supports and barriers to pursuing graduate education or securing a position in industry using the social-cognitive theory of career choice and development. This measure has been extensively used in the study of career choice and successfully applied to examine the roots of gender and ethnic disparities in STEM disciplines. The FAST-TRAC program at Tufts University School of Engineering will recruit, prepare, and support academically talented low-income undergraduate students to complete an MS in Engineering through Tufts’ existing 5-year BS/MS program. FAST-TRAC’s core features will be early outreach, careful ‘matchmaking’ and support of the student-research mentor relationship, skill-building workshops beginning in the senior year, optional undergraduate research experiences, and full tuition scholarships for the Masters degree year. Industry partnerships will help connect students to current state of the art challenges in their fields. FAST-TRAC will establish a comprehensive and transferrable support framework to prepare low-income undergraduate STEM students for the increased rigor, different culture, and new expectations of a graduate program.

5. **GRE Waiver for Tufts Undergraduates (applying for graduate programs in 2017)**
   Beginning in the of Fall 2016 current Tufts Undergraduate students applying for one of our School of Engineering graduate programs will no longer be required to take the GRE test.

6. **Revised Deans/Provost/Stern/Abriola/Adams fellowship guidelines**
   This year marked the first year that the Abriola Fellowship was awarded along with the prestigious Provost, Stern, Adams and Dean’s fellowships. These fellowships are intended to provide an additional incentive for top Ph.D. applicants to come to Tufts. The list of recipients are below.

7. **BS/MS Program Updates:**
   In the past, students in this combined degree program had to complete the requirements for both
degrees before being allowed to graduate. This posed several issues including preventing students from applying for scholarships that require the student already have received the BS degree and also created issues for students applying to Ph.D. programs. In May 2016, Students were allowed to receive their BS degree following the completion of their 4th year and their MS degree following the completion of the 5th year. Dean Panetta worked with Dean Glaser to ensure that Arts and Sciences Students in combined BS/MS programs were also included in this change. Parents of seniors in the BS/MS program applauded this change and students who received their BS diplomas this past May, believe more students will participate in this program now.

8. **Stipend increased rates for RA/TA positions**
   Dean Qu and Dean Panetta requested to raise the minimum RA/TA stipend rates for graduate students. The new rate ensures that students receive $2300.00 per month. If hired on a 12 month contract, the total minimum stipend amount is $27,600. If hired on a 9 month contract, the total minimum stipend amount is $20,700.00. Student stipends had not been increased in over six years. We believe this change will make our graduate programs more competitive and reflects the cost of living in the Medford/Somerville area. It should be noted all students not meeting these minimums will have to receive a stipend adjustment beginning fall 2016. (This increase is not retroactive)

9. **SoE Open House (Graduate Recruitment)**
   The School of Engineering hosted a graduate recruitment Open House on March 10-13, 2016. Five out of the six departments participated (BME held their own event at an earlier time). 62 students were in attendance. The schedule included travel reimbursement and dinner with graduate students, a welcome session with Dean Qu and Associate Dean Karen Panetta, a campus tour by admissions, a poster session, a welcome lunch and the afternoon with departments. A private tour of Boston and day at the Museum of Science was included as a social event. Of the 62 students who attended the Open House (MS and PhD students) 25 (40%) intend to enroll in fall 2016. (6 MS students and 19 PhD and MS/PhD students)

10. The GSC **Voted to invite Merredith Portsmore, the director of the CEEO to join the committee as a non-voting member.** Welcome Merredith! The committee is happy to have you join them and welcome your input.

11. **New Form: Request to walk in May but graduate in August.**
    We had several requests from students graduating in August to walk in the May graduation ceremony. Students who narrowly missed the May cutoff for graduation and would now be graduating in August. We worked with student services and created a form where students could make this request. Along with the form, students need a letter from their advisor supporting the request and verifying that the student will graduate in August. Requests are approved by the student’s advisor, the department chair and finally the Associate Dean for Graduate Education. Approved requests are forwarded to student services.

12. **Graduate Website**
    The AS&E Graduate Admissions website (http://asegrad.tufts.edu/) launched on July 20, 2015. With the new, responsive design format and its integration with the SLATE application system, the website has seen an increase in traffic and applications (see attached analytic reports). This site allows better integration of information for graduate students on upcoming professional development workshops, grant opportunities, and social events. In addition, the site allows us to
more easily promote the research and teaching excellence of our students through feature stories and spotlights on their work (see below). The site also automatically pulls in related research stories from content generated through channels such as TuftsNow (http://asegrad.tufts.edu/news-events/tufts-now).

13. **Engineering Brochures**
Karen Richardson from graduate admissions worked with Hetch Horton Partners and Julia Keller to design a graduate brochure. Puritan Press completed the printing. The 17 page color brochure introduces readers to the world of engineering at Tufts and tours each department. The brochure has already been utilized for recruiting events and has been mailed out to potential future graduate students.

14. **Diversity Recruitment**
The National Society of Black Engineers (NSBE) holds an annual conference for networking and recruitment of talented students by employers and academic institutions. This year’s convention was held in Boston on March 23-27. Representatives from Tufts Graduate Admissions team, including Roxana Woudstra and Gabrielle Thomas, were in attendance. In conjunction with Julia Keller, Communications Director, and the Graduate Admissions team, we developed an ad to be placed in the NSBE Magazine Convention issue. NSBE Magazine’s Convention issue was distributed to all attendees, as well as mailed and emailed to the membership. More than 10,000 people registered for the conference and NSBE boasts nearly 31,000 members worldwide, making the conference ad placement an essential advertising tool for targeting NSBE members with our graduate program opportunities.

## School of Engineering Awards and Fellowships

1. **School of Engineering Fellowships:**
   - Provost Fellowships:
     - Fabio De Ferrari, BME
     - Sophia Szymkowiak, BME
     - Dylan Cashman, CS
     - Emily Carson, ECE
     - Michael Stehnach, ME
   - Other Fellowships
     - Demetra Sklaviades, BME, Sterns Fellowship
     - Amanda Parry, CEE, Abriola Fellowship
     - Parker Aubin, CEE, Dean’s Fellowship
     - Elliot Taylor, ChBE, Adams Fellowship

2. **School of Engineering Travel Awards (Fall 2015, Spring 2016 & Summer 2016)**
   - Pamela Anderson, Biomedical Engineering Biomedical Optics Congress Conference
   - Meenal Datta, Chemical and Biological Engineering AACR Physical Science and Engineering in Oncology Conference
d. Nathan Davis, Civil and Environmental Engineering
   GEO-SEI 2016 Conference

e. Nishanth Krishnamurthy, Biomedical Engineering
   Biomedical Optics Congress Conference

f. Smitha Krishnan, Chemical and Biological Engineering
   AICHE Annual Meeting

g. Jilei Liu, Chemical and Biological Engineering
   AICHE Annual Meeting

h. Tyler Marcet, Civil and Environmental Engineering
   10th International Conference on Remediation of Chlorinated and Recalcitrant
   Compounds

i. Laia Moga Soldevila, Biomedical Engineering
   Living Material Conference

j. Lisa Pinals, Electrical and Computer Engineering
   AICHE Annual Meeting

k. Mahboubeh Rahmati Rostami, Chemical and Biological Engineering
   AICHE Annual Meeting

l. Saroj Routs, Electrical and Computer Engineering
   META 15 Conference

m. Mingming Song, Civil and Environmental Engineering
   IMAC 2016 Conference

n. Kristen Tgavelekos, Biomedical Engineering
   Biomedical Optics Congress Conference

3. **Provost Travel Awards and Graduate Flight Funding**
   a. Laia Moga Soldevila, Biomedical Engineering, Advisor: Fiorenzo Omenetto
      Graduate Flight Funding Award
   b. Long Bao, Electrical and Computer Engineer, Advisor: Karen Panetta
      Provost Travel Award
   c. Margaret Stevens, Electrical and Computer Engineering, Advisor: Tom Vandervelde
      Provost Travel Award
   d. Agustin Botteron, Civil and Environmental Engineering, Advisor: Shafiqul Islam
      Provost Travel Award
   e. Disha Sood, Biomedical Engineering, Advisor: David Kaplan
      Provost Travel Award
   f. Yu Chen, Electrical and Computer Engineering, Advisor: Sameer Sonkusale
      Provost Travel Award

4. **BS/MS Combined Program Summer 2016 Funding Recipients**
   a. Ahmed Bardooli, Year one in the program
      Chemical and Biological Engineering
      Advisor, Daniel Ryder
   b. Stephen Dennison, Year two in the program
      Electrical Engineering
      Advisor, Jeff Hopwood
   c. Alexander Hankin, Year two in the program
      Electrical Engineering
      Advisor, Hwa Chang & Mark Hempstead
d. Emily Hickmott, Year two in the program
   Biomedical Engineering
   Advisor, Fiorenzo Omenetto

e. Qiaochu Hu, Year one in the program
   Mechanical Engineering
   Advisor, Marc Hodes

f. Tszhim (Josh) Lueng, year two in the program
   Mechanical Engineering
   Advisor, Jason Rife

g. Arin Naidu, Year one in the program
   Biomedical Engineering
   Advisor, Irene Georgakoudi

h. Robert Trout, Year two in the program
   Biomedical Engineering
   Advisor, Irene Georgakoudi

i. Alex Wolf, Year two in the program
   Biomedical Engineering
   Advisor, Fiorenzo Omenetto

j. Marisa Zellmer, Year one in the program
   Civil Engineering
   Advisor, John Durant

k. Adam Zieba, Year two in the program
   Biomedical Engineering
   Advisor, David Kaplan

5. School of Engineering Graduate Award Winners
   - Outstanding Academic Scholarship-
     - Master’s – Joseph Lyons, Biomedical Engineering
     - PhD – Kelly Sullivan, Biomedical Engineering
   - Outstanding Contributions to Undergraduate Education –
     - Master’s – Carter Casey, Computer Science
     - PhD – Qianwen Wendy Wan, Electrical Engineering
   - Award for Commitment to the Practice of Engineering-
     - Pamela Anderson, Biomedical Engineering
   - Faculty Mentoring Award -
     - David Kaplan, Biomedical Engineering
   - SOE Alumni-
     - Graduate Alumni Award for Outstanding Career Achievement – Yee Cho ((EG1976, J1976, E2016P)
     - Graduate Alumni Awards for Outstanding Service Award-Jeff D’Amelia & David Scher
   - Graduate AS&E Research Awards, SoE recipients
     - Nicole Pfiester, Electrical and Computer Engineering
     - Alister Wood, Civil and Environmental Engineering
     - Metamaterial Selective Emitters for Thermophotovoltaic Applications
     - Water Quality Sampling of Per-Urban Point Source Pollution, Jarabacoa, Dominican Republic
6. **Notation of Development (NOD) program and awards**
NOD recipients attended four or more professional development workshops offered by the Graduate School of Arts and Science and the School of Engineering. Below are the 2016 NOD recipients.

- Sara Amin, Computer Science
- Long Bao, Electrical Engineering
- Derek Bean, Engineering Management
- Chiamaka Chima, Electrical and Computer Engineering
- Whitney Crooks, Mechanical Engineering
- Marco Dominguez, Engineering Management
- Piers Echols-Jones, Mechanical Engineering
- Neda Hassanpour, Computer Science
- Sayed Heydarshahi, Computer Science
- Hassan Ijaz, Engineering Management
- Vivekanand Kalaparthi, Mechanical Engineering
- Xaixing Kehoe, Chemical and Biological Engineering
- Amin Nozari, Mechanical Engineering
- Mahboubeh Rostami, Chemical Engineering
- Christopher Sacca, Electrical and Computer Engineering
- Jessica Stieglitz, Chemical and Biological Engineering
- Maria Sol Ucciani, Civil and Environmental Engineering
- Madeline Wrable, Civil and Environmental Engineering
- Zhuting Xue, Electrical Engineering
- Xuan Zang, Biomedical Engineering

7. **Graduate Research Symposium Award winners.**
Graduate students had the opportunity to present their research to the University at the Research Symposium held on February 26, 2016. Awards were given for the best presentations. School of Engineering winners:

a. Best 15 Minute Talks
   i. 3rd Place, Long Bao (Electrical and Computer Engineering)
      Advisor: Karen Panetta

b. Best 5 Minute talks
   i. 1st Place, Vasanth Sarathy (Computer Science)
      Advisor: Matthias Scheutz
   ii. 3rd Place, Agustin Botteron (Civil and Environmental Engineering)
      Advisor: Shafiquel Islam

c. Best Poster
i. 2nd Place, Tom Williams (Computer Science)
   Advisor: Matthias Scheutz
Dear Department Chairs,

On behalf of Dean Jianmin Qu, I am writing to solicit department nominations for Provost, Dean’s, Abriola, and Stern Graduate Fellowships. These competitive fellowships are designed to help us recruit our strongest doctoral applicants.

For the second year, we will also award a John A. and Dorothy M. Adams Endowed Interdisciplinary Fellowship. This fellowship targets outstanding doctoral candidates in our strategic interdisciplinary areas with preference for environmental sustainability.

Our goal is to award 27 fellowships for the next academic year. Five Provost Fellowships will be awarded by the Provost, in consultation with the recommendation of the Associate Dean. The remaining fellowships will be awarded by the Dean on the recommendation of the SOE Graduate Studies Committee (GSC). All SOE fellowships will award supplemental support in the form of $5,000.00 for the first year of study only and their fellowship award letter will reflect this exact amount. There will be an option to renew the award for a second year based on performance. (Note that this is a change from previous years. This change has been instituted to enable us to offer more fellowships.) All nominations for the fellowships must include: a commitment from the department and faculty advisor to provide the base Teaching or Research Assistantship, comprising a 12-month stipend of no less than $27,600.00 per year or a 9-month stipend of no less than $20,700 per year.

Thus, all applicants selected to become Fellows will receive at least $25,700 or $32,600 per year in stipend support for the first year of study.

Support in all subsequent years of study is the responsibility of the nominating faculty advisor and the department and we strongly encourage faculty to maintain this level of funding.

Fellowship offering

Based on our previous years’ yield, the Dean has authorized a total of 27 fellowship offers to be made according to the fellowship guidelines:

- Each department should select 3 candidates to whom offers will be made, given that these candidates satisfy fellowship guidelines (yielding 18 offers)
- The CCEO can also select up to 2 candidates who will also receive fellowship offers.
- Each department can also nominate up to 3 other candidates for possible fellowship selection. This supplemental pool of 18 candidates will be reviewed and ranked by the SOE GSC at its February meeting. The highest ranking 7 candidates will also receive fellowship offers.
- From among its nominees, good candidates for the Adams fellowship should be noted by the nominating department.
- Unless approved by the Dean of Engineering, no additional offers other than the original 27 will be made.
- Specific fellowship awards will be determined by the Associate Dean, in consultation with the Dean.

Selection Criteria

All Fellowship candidates must be applying to a Tufts PhD program or have the intent to pursue the PhD at the Tufts following a completion of their Tufts MS program. All nominees must have the following:

- A completed application to a PhD program in SLATE with all required test scores and reference letters.
- Current tufts students applying for our PhD programs will be considered as well.
• Already have been accepted by the department and acceptance recorded in SLATE.
• Outstanding academic records as indicated by grades, standardized test scores, programs of study related experiences.
• Excellent letters of recommendation.
• Strong potential for research.

Nomination Package

The nomination package from each department will consist of a cover letter from the Department Chair that lists the nominees that are being proposed by the department and an appendix of nominating letters (each not to exceed one page) written by the proposed faculty advisor for each nominee. The cover letter should indicate the Department’s commitment to support the fellowship students for the duration of their programs and clearly identify the two candidates who are to be considered in the pool of 35 initial offers and note any candidates who specifically fit with the Adams Fellowship profile.

Each nominee’s application form, transcript(s), personal statement, letters of recommendation, test scores, and other relevant materials will be available to the Graduate Committee through the SLATE platform for evaluation.

Each Chair should transmit the department nomination package to the Associate Dean via email. The email should be sent by 8:00pm on Friday, February 12, 2016 to Engineering Graduate Studies (enggradstudies@tufts.edu), with copies to the Associate Dean (karen@ece.tufts.edu) and the department’s representative to the Graduate Studies Committee.

Upon submission of the nominations, departments may informally contact the applicants to notify them of the Fellowship nomination. Please do not inform students that they were awarded a fellowship. After receiving approval from the Dean, the Associate Dean will send official letters to the nominees informing them of their selection for these fellowships.

Departments should report acceptances or declinations as they occur to Engineering Graduate Studies (enggradstudies@tufts.edu).

We all look forward to an even more successful effort in attracting the strongest applicants to our doctoral programs. If you have any questions, please contact Engineering Graduate Studies (enggradstudies@tufts.edu) or myself (karen@ece.tufts.edu).

Sincerely,

Karen Panetta, Associate Dean for Graduate Education
School of Engineering
617-627-5976
School of Engineering Master of Science Degree Program 2016/2017
Thesis or Non-Thesis

Program Overview

- Two semesters residency required for all School of Engineering Masters students with full tuition paid over those two semesters. (Thesis and Non-thesis Master’s students)
- 2016/2017 tuition is set at $25,269 per semester.
- A Non-thesis MS can be completed in 2 semesters
- Full time Master’s students have up to 5 semesters to complete their program.
- Students completing a thesis or finishing their coursework will pay an $800.00 continuation fee per semester for up to 3 semesters beyond the initial year.

Master’s Program Internal Policies

Program Options: Students can choose the MS or MS thesis program

Credit Hours: minimum of 30

Duration: Two semesters for MS Non-Thesis. (Non-Thesis Master’s students can continue taking courses for up to 3 semesters after their first year in order to complete coursework via an $800 per semester continuation fee.) Master’s Thesis students can complete their degree program in up to 5 semesters.

Costs to all Master’s students: The 2016/2017 tuition is set at $25,260 per semester for the first 2 semesters for a total of $50,520/degree. ($800.00 per semester continuation fee up to 3 additional semesters for students to take courses or complete thesis research)

Funding: Limited funding for underrepresented students. (Please see Karen Panetta for details if you have a student in mind.) Grant funding for MS-thesis students is allowable at the department’s discretion.

Dean’s office TA Allocations: MS students are not eligible for Dean’s office TA allocations however MS students may be hired hourly by their departments to assist with courses.

Tuition Scholarships: MS students are not eligible for tuition scholarships. Grant funding for MS-thesis students is allowable at the department’s discretion.

MS/PhD Students: These students are not affected by this program. The first year of the program would remain at the three semester tuition structure, funding is allowable and course work would be completed in a timely manner based on the discretion of the faculty advisor.

Master’s Thesis Students: Students who intend to complete a MS with thesis are required to pay full tuition in their first two semesters and will continue into their second year paying an $800 per semester continuation fee. Full time Master’s Thesis students have up to 5 semesters to complete their program.

Part time Students: Students completing their Master’s degree part time have up to 5 years to complete their program and will pay tuition by the course.
BS/MS Students: These students are not affected by this program for the coming 2016-2017 year. Two of their BS courses can be counted towards MS. Thus, they only need to take 4 (3 credit hour) course/semester for 2 semesters to complete the 30 credit hour requirement. Tuition for BS/MS students will remain the same, $15,578 for 2 graduate semesters for 2016-2017. Beginning 2017-2018 the tuition will move to the new tuition structure with a discount.

Certificate Students: Students who transfer from certificate programs to MS programs will receive a per course tuition credit for tufts courses taken toward the certificate.

Summer Courses: Students who find summer courses available (summer courses are rare) should note that summer tuition is in addition to the 2 semesters of tuition. ($25,260 per semester for 2 semesters for a total of $50,520/degree)

2016/2017 Implementation

- The updated master’s program model will begin with the students enrolled in the fall of 2016.
- Starting fall 2016, MS degree students will have the option to transition to the new master’s model, allowing them to complete their non-thesis master’s in one year. If they do, they will be moved to the new tuition model. ($25,260/semester for 2 semesters and $800.00 continuation fee). Beginning fall 2017, all MS students will follow this new tuition model.
  - Please note: Students who opt out of the one year MS program this academic year 2016/2017, will pay the per semester tuition for 3 semesters plus $3654 continuation fee for additional semesters. (The current rate is approximately $15,627 per semester)
- Existing students will be grandfathered within the existing program.
Mechanical Engineering

Masters of Science in Mechanical Engineering (non-thesis option)

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>2 credits Core A Breadth of Technical Exposure (two 1-credit courses)</td>
<td>2 credits Core B Breadth of Technical Exposure (two 1-credit courses)</td>
</tr>
<tr>
<td>1 credit analytical capabilities (ME150 or ES101 or ME108)</td>
<td>2 credits focus coursework (engineering graduate electives)</td>
</tr>
<tr>
<td>1 credit Technical Communication (EM252 or ME118)</td>
<td>1 credit TGI professional education or project</td>
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<tr>
<td>1 credit TGI professional education or project</td>
<td>Tuition:</td>
</tr>
<tr>
<td>$25,260 tuition</td>
<td>$25,260 tuition</td>
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Professional Education classes available from the Tufts Gordon Institute, [http://gordon.tufts.edu/programs/professional-education/pe-courses](http://gordon.tufts.edu/programs/professional-education/pe-courses)

Please contact the department for a list of approved courses.

Masters of Science in Human Factors (non-thesis option)

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
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<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>ENP 162</td>
<td>ENP 163</td>
</tr>
<tr>
<td>PSY 107</td>
<td>PSY 108</td>
</tr>
<tr>
<td>1 credit Technical Communication (EM252 or ME118)</td>
<td>ME102 or ENP 161</td>
</tr>
<tr>
<td>1 credit focus coursework (engineering graduate elective)</td>
<td>1 credit focus coursework (engineering graduate elective)</td>
</tr>
<tr>
<td>1 credit TGI professional education or project</td>
<td>1 credit TGI professional education or project</td>
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<tr>
<td>Tuition:</td>
<td>$25,260 tuition</td>
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<tr>
<td>$25,260 tuition</td>
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Professional Education classes available from the Tufts Gordon Institute, [http://gordon.tufts.edu/programs/professional-education/pe-courses](http://gordon.tufts.edu/programs/professional-education/pe-courses)

Please contact the department for a list of approved courses.
Chemical and Biological Engineering

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
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</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>2 ChBE Core Courses</td>
<td>2 ChBE Core Courses</td>
</tr>
<tr>
<td>1 ChBE Elective Course</td>
<td>2 ChBE Elective Courses</td>
</tr>
<tr>
<td>2 Graduate Level Elective or TGI professional development Courses</td>
<td>1 Graduate Level Elective or TGI professional development Course</td>
</tr>
</tbody>
</table>

Tuition:
$25,260 tuition $25,260 tuition

All course must be graduate level courses, and elective course outside of the ChBE Department must be approved by Academic Program Advisor. (Please note, while this program could be completed in 1 year, typically students complete this program in 1 1/2-2 academic years.)

Professional Education classes available from the Tufts Gordon Institute, http://gordon.tufts.edu/programs/professional-education/pe-courses

Computer Science

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>4 graduate level (1 credit) CS courses</td>
<td>4 graduate level (1 credit) CS courses</td>
</tr>
<tr>
<td>Department Seminar (.5 credit)</td>
<td>Department Seminar (.5 credit)</td>
</tr>
<tr>
<td>1 TGI Professional Development course (.5 credit)</td>
<td>1 TGI Professional Development course (.5 credit)</td>
</tr>
</tbody>
</table>

Tuition:
$25,260 tuition $25,260 tuition

NOTES

This program that assumes the student has covered discrete math and computer architecture/assembly language before entering.

It assumes that they have not covered programming languages (105), algorithms (160), or theory (170). If they have covered them, then the corresponding courses may be deleted in favor of other graduate level
CS elective courses. A student entering with a Tufts undergraduate CS degree would have covered all of these.

(Please note: while this program could be completed in 1 year, typically students complete this program in 1 1/2-2 academic years.)

Professional Education classes available from the Tufts Gordon Institute, http://gordon.tufts.edu/programs/professional-education/pe-courses

## Biomedical Engineering

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
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</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>2 BME foundation courses</td>
<td>3 BME concentration elective courses</td>
</tr>
<tr>
<td>1 professional development Course TGI (1 credit)</td>
<td>1 elective (BME or Non-BME designation)</td>
</tr>
<tr>
<td>2 BME concentration elective courses</td>
<td>1 MS project credit</td>
</tr>
</tbody>
</table>

Tuition: $25,260 tuition

Professional Education classes available from the Tufts Gordon Institute, http://gordon.tufts.edu/programs/professional-education/pe-courses

### Electrical and Computer Engineering

**Masters of Science in Electrical Engineering (non-thesis option)**

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
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</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>4 credits of course work¹</td>
<td>4 credits of course work¹</td>
</tr>
<tr>
<td>0.5 credit EE Seminar (EE-191)</td>
<td>0.5 credit EE Seminar (EE-191)</td>
</tr>
<tr>
<td>0.5 credit elective² or TGI professional development courses</td>
<td>0.5 credit elective² or TGI professional development courses</td>
</tr>
</tbody>
</table>

**Tuition:**

| $25,260 tuition | $25,260 tuition |

Notes:
1) Course work may include up to two credits of internship or a one credit Master’s Project. At least a total of six of the credits must be from EE.
2) The elective credit can be used for an internship, a course, an independent study, or a professional development course offered by The Gordon Institute. [http://gordon.tufts.edu/programs/professional-education/pe-courses](http://gordon.tufts.edu/programs/professional-education/pe-courses)

Civil and Environmental Engineering
(Four MS options)

(1) Master of Science in Environmental and Water Resources Engineering

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>3 core courses</td>
<td>3 concentration courses</td>
</tr>
<tr>
<td>2 concentration courses</td>
<td>1 professional development (TGI)</td>
</tr>
<tr>
<td></td>
<td>1 Graduate Environmental seminar</td>
</tr>
</tbody>
</table>

Tuition:
$25,260 tuition    $25,260 tuition

Please contact the department for a list of approved courses.

Professional Education classes available from the Tufts Gordon Institute, [http://gordon.tufts.edu/programs/professional-education/pe-courses](http://gordon.tufts.edu/programs/professional-education/pe-courses)

(2) Master of Science in Structural Engineering

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>2 structural analysis courses</td>
<td>1 professional development (TGI)</td>
</tr>
<tr>
<td>2 structural design courses</td>
<td>1 technical seminars course</td>
</tr>
<tr>
<td>1 numerical tools course</td>
<td>3 technical elective courses</td>
</tr>
</tbody>
</table>

Tuition:
$25,260 tuition    $25,260 tuition

Professional Education classes available from the Tufts Gordon Institute, [http://gordon.tufts.edu/programs/professional-education/pe-courses](http://gordon.tufts.edu/programs/professional-education/pe-courses)
(3) Civil and Environmental Engineering, Environmental Health MS Options

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>2 core courses</td>
<td>2 core courses</td>
</tr>
<tr>
<td>3 elective course</td>
<td>3 elective course</td>
</tr>
</tbody>
</table>

**Tuition:**

$25,260 tuition  $25,260 tuition

Please see list of approved courses for this program.

(4) Master of Science in Geosystems Engineering

<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>Semester 2 (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 credits</td>
<td>5 credits</td>
</tr>
<tr>
<td>2 core courses</td>
<td>2 core courses</td>
</tr>
<tr>
<td>3 elective course or TGI professional development courses</td>
<td>3 elective course or TGI professional development courses</td>
</tr>
</tbody>
</table>

**Tuition:**

$25,260 tuition  $25,260 tuition

Please contact the department for a list of approved courses.

Professional Education classes available from the Tufts Gordon Institute, [http://gordon.tufts.edu/programs/professional-education/pe-courses](http://gordon.tufts.edu/programs/professional-education/pe-courses)

Appendix C.

TGI- Professional Education Courses as possible electives for SOE 1-year MS programs

*Each course is held one evening per week from 6-9pm; 1.0 credit = 13 weeks; 0.5 credit = 6 weeks.*

**EM 211 – Lean Six Sigma (with option to earn lean six sigma black belt certification) (1.0 credit)**

Provides principles and methods for process improvement by eliminating non-value added work and by reducing output variability. Tools include the define-measure-analyze-improve-control problem solving methodology, statistical process control, statistically designed experiments and risk identification and
mitigation strategies. [Fall and Spring]

**EM 231 – Project Management Strategies & Methodologies (0.5 credit)**
Develops the knowledge and skills required to plan and execute engineering projects. Topics include creating work breakdown structures, schedules, critical path determination, and risk assessment and mitigation. Methodologies covered also include iterative techniques such as agile and scrum, which often used in software development. [Fall and Spring]

**EM 252 – Business Communication (1.0 credit)**
Enhances written and oral communications in the business setting. Topics include making conscious communications decisions, principles of effective written and oral communication, addressing different workplace audiences, and designing and delivering effective presentations. Consideration is given to the practical, philosophical and ethical context of communication in the modern globalized business world. [Spring]

**EM 262 – Negotiation & Conflict Resolution for Engineers & Technologists (0.5 credit)**
Introduces conceptual frameworks, tools, and skills required to effectively manage conflict and negotiate win/win solutions in the workplace. The course is structured in a compelling learning-in-action format with role-playing and simulated scenarios, which provides students with the opportunity to develop a persuasive negotiating style rooted in their own personalities and their roles in the technology world. [Fall & Spring]

**EM 254 – Advancing Innovation: Breakthrough Methodologies for Technology Firms (1.0 credit)**
Develops the knowledge and skills to reinvigorate and accelerate innovation by reframing problems and generating solutions using systematic innovation based on the principles of TRIZ. Students will learn to integrate their technical expertise with leading-edge practices that foster idea generation, and develop the knowledge needed to turn those ideas into highly competitive commercial innovations. [Spring]

**EM 261 – Leadership for Technical Professionals (1.0 credit)**
Provides the opportunity to develop knowledge, skills and mindset for effective leadership, management and teamwork. Specific topics covered include: personality types; giving and receiving feedback; best practices in forming and maintaining teams; communicating to inspire; and influencing without authority. The uniqueness of this course is within the teaching methodology, which has been developed to accelerate the advancement of interpersonal competencies, especially self-awareness. [Tentative: Fall]
Request to Walk in May Graduation (but graduate in August)

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Student Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisor Name</td>
<td>Faculty Email</td>
</tr>
<tr>
<td>Student ID #</td>
<td></td>
</tr>
</tbody>
</table>

Reason for the Request:

Date the Student will graduate:

This form must be accompanied by a letter from the student’s advisor indicating support of the decision to walk in May and must include the date of actual graduation.

Please note: Students are only allowed to walk in commencement once.

<table>
<thead>
<tr>
<th>Student Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisor Signature</td>
<td>Date</td>
</tr>
<tr>
<td>Department Chair Signature</td>
<td>Date</td>
</tr>
</tbody>
</table>

Approve/Deny  
Associate Dean for Graduate Education Signature & Date
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Biomedical Engineering
Chemical Engineering
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Electrical Engineering
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Innovation and Management
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