The rules and regulations stated in this handbook are for information only and in no way constitute a contract between the student and Cornell University. The University reserves the right to change any regulations or requirements at any time.

It is the policy of Cornell University actively to support equality of education and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age, or handicap. The University is committed to the maintenance of affirmative-action programs that will assure the continuation of such equality of opportunity. Sexual harassment is an act of discrimination and, as such, will not be tolerated. Inquiries concerning the application of Title IX may be referred to Cornell’s Title IX coordinator at the Office Workforce Diversity, Equity and Life Quality, 160 Day Hall, Ithaca, New York 14853-2801 (Telephone: 607-255-3976).
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SECTION 1

INTRODUCTION

Welcome to Cornell University and, in particular, to the School of Civil and Environmental Engineering. We hope your year here will be an academically rich and personally rewarding experience. This handbook has been prepared to simplify the orientation and registration process of new candidates for the Master of Engineering degree in Civil and Environmental Engineering.

1.1 The School of Civil and Environmental Engineering (CEE)

The School has a strong educational tradition and a supportive alumni network. Ranked as one of the top civil and environmental engineering departments in the United States, the School currently consists of twenty-one active faculty members and other individuals who serve as lecturers, senior research associates, and other staff. The CEE faculty and their particular specializations are listed in Appendix A. In addition, we have several thousand alumni who hold important positions in engineering, construction, research and development, manufacturing, sales, education, consulting, and government in the U.S. and around the world.

The faculty and other individuals responsible for administering the School include:

**Director, School of Civil & Environ. Engr.:** Linda Nozick, 220 Hollister, 255-3690

**Director of Administration:** Joe Rowe, 220 Hollister, 255-0549

**Administrative Assistant:** Jeannette Little, 220 Hollister, 255-3690

**Director of Graduate Studies:** Christopher J. Earls, 217 Hollister Hall

**Chair, Master of Engineering Program:** Christopher J. Earls, 217 Hollister Hall

**Graduate Program Coordinator:** Tania Sharpsteen, 219 Hollister, 255-7560

**Other Support Staff:**

**Administrative Assistant:** Charissa King, 220 Hollister, 255-2542

**Finance Specialist:** Stacey Shirk, 220 Hollister, 255-3684

**Accounts Coordinator:** Megan Keene, 220 Hollister, 255-6192

**Facilities Coordinator:** Paul Charles, B56 Hollister, 351-6210

**IT:** Cameron Willkens, B55 Hollister
The Master of Engineering degree is a coursework and project-oriented graduate program. It requires thirty (30) credit hours consisting of coursework in the major and supporting areas, and a project. The Master of Engineering degree is normally completed in two semesters of intensive study, but for some students a third semester may be necessary.

Master of Engineering candidates in Civil and Environmental Engineering may elect to pursue one of the following majors:

- environmental & water resources engineering (with a specialty in one of the following subject areas)
  - environmental processes
  - environmental and water resource systems
  - environmental fluid mechanics and hydrology
  - sustainable energy systems
- geotechnical engineering
- structural mechanics and materials
- transportation systems engineering

In addition to coursework in a chosen major or specialty, students will also take courses in one or more supporting areas. Supporting areas can be chosen from many disciplines, including any of the specialty areas within CEE, or in microbiology, historic preservation, operations research, computer science, economics, materials science, architecture, and engineering management, to name just a few.

The School of Civil and Environmental Engineering also offers a Master of Engineering degree in Engineering Management. The program is aimed at engineers who want to stay in a technical environment, but advance into managerial roles. Students learn to identify problems, analyze data, formulate models to understand these problems, and interpret the results of analyses for managerial action. A number of students in the M.Eng program in Engineering Management elect to take courses in management offered by CEE, the Johnson Graduate School of Management, or the School of Industrial and Labor Relations. A joint Masters program in Public Administration is also available through the Cornell Institute for Public Affairs. Appendix C provides a short description of the program in Engineering Management and a list of typical electives. A separate handbook providing more details about the program is also available from the Graduate Program Coordinator.

1.2.1 Preparation

Students from all fields of engineering and the physical and natural sciences are welcome in the Master of Engineering programs offered by the CEE School. However, a student without adequate preparation may be required to take additional preparatory coursework, which will be determined by faculty in the student’s chosen major. This preparatory work does not count toward the Master of Engineering graduation requirements. Any preparatory coursework that is required will be listed in a student’s letter offering admission.

1.2.2 Major Program Requirements

A minimum of 30 credit hours of course and project work is required for the M.Eng degree in Civil & Environmental Engineering. This is typically the equivalent of ten 3-credit courses. Program requirements for each major concentration are given in Appendix D.

The information provided should help you develop a coursework proposal, but we encourage you to seek guidance from your advisor and other faculty members. Your advisor will work with you to develop a program consistent with your career goals and the intent of the M.Eng program.
SECTION 2

PLANNING and REGISTERING for the M.Eng (CEE) PROGRAM

Enrolling in the M.Eng program will take relatively little time for most of you. You will find the process a little more informal than undergraduate registration, with more freedom to change courses easily during the first three weeks of classes of each semester. The major steps in the process are described in the following sections.

2.1.1 Assignment of Advisor

You will have an advisor in your major area of concentration to help you design a program of study and generally to assist and advise you during your stay at Cornell. Advisor assignments are done within each major concentration area. You may also request to change your advisor to another faculty member within the same concentration upon permission of the faculty member whom you would like to serve as your new advisor.

2.3 Course Registration

Graduate students must register for courses online by logging into your Student Center with your NetID*. You can begin registering for classes for the fall term on Tuesday, August 14, 2018. Courses may be added online until Tuesday, September 6th. They may be dropped online until Tuesday, October 18th.

Any changes in your course registration after the deadlines (i.e., adds/drops, credit hour changes) requires submission of a Course Enrollment Petition to the Engineering Registrar’s office within the College of Engineering. The petition must be signed by both your advisor and the instructor of the course. Please note that petitions are not automatically approved.

*NetID: You should have received your NetID and information from Cornell Information Technologies (CIT) over the summer. If you did not, please contact the CIT Office at HelpDesk@cornell.edu. Please be sure to check your Cornell e-mail regularly.

2.4 Planning Your M.Eng Program

Please study the pertinent material in this handbook for both required courses and appropriate elective courses before seeing your advisor. It would be worthwhile to spend some time with the online course catalog (https://classes.cornell.edu/browse/roster/FA18) to identify possible courses for both the Fall and Spring terms (the spring roster will be available by mid-October). In addition, students will want to consult the course listing in the Johnson Graduate School of Management, the School of Industrial and Labor Relations, and various other departments within engineering.

Program planning is done with the aid of the M.Eng. Proposal Form for M.Eng students (see Appendix D). You will fill this form out with the help of your advisor, who must also sign the form showing his/her approval of your program.

A maximum of two credit hours graded on an S/U basis, such as seminar or their equivalent, may be included provided they are participatory in nature.

2.5 Approval of Your Course Program

After a “final” program of courses for the entire year is agreed upon between you and your advisor, please submit your Proposal Form to the Graduate Field Assistant via your Cornell Dropbox that you will receive a link to for access. The deadline for each semester are as follows:

Fall semester: Friday, September 7th;
Spring semester: Friday, February 8th, 2019
2.6 Filing Your Course Program

You have approximately three (3) weeks (until September 6, 2018) to enroll online for Fall 2018 classes. This time period allows you to sit in on an extra course or two, if you wish, for a couple of weeks to assist you in making up your mind about your exact program for the term.

2.7 Program Changes

Students often propose changes to their program at the start of their second semester that reflect changes in interests and/or course availability. **All changes to your approved M.Eng program must take the form of a revised proposal. All revised proposal forms must be approved by your advisor and turned into the GPC.**

It is important that any changes in your program be approved promptly because the current version of your proposal form that is on file serves as a check-list for determining compliance with graduation requirements. Program changes made after the Fall term to take effect in the Spring term should be submitted by February 10, 2019.

2.8 Petitions

Cornell University has a long-standing tradition of considering petitions from students relative to special situations or circumstances that could justify exceptions to the normal rules or requirements. Most petitions are considered by the Engineering Management Director; others must be submitted to the College Master of Engineering Committee for a decision. The College Committee may also review petitions that are submitted to the Engineering Management Director that are not resolved to the satisfaction of the student. While we are not encouraging use of the petition route to get around requirements, we do want to point out the existence of this process. It gives everyone the opportunity of stating his/her case for special consideration, and therefore it is a very important part of the operational procedures for students attending Cornell University.

2.9 Financial Aid and Work Obligation

Financial aid administered by the College or School can be in the form of fellowships or half-time assistantships. If you have the latter, you will be given eight hours per week of teaching assistant-related duties. M.Eng students typically serve as graders, hold office hours, prepare labs, etc. The faculty will make assistantship assignments during the first two weeks of classes.

2.10 Grade Requirements

The College requires a minimum grade point average of 2.50 for graduation from the Master of Engineering program. Students admitted on a Provisional Basis must achieve a 3.00 average during their first term in the M.Eng program to continue in the second term. Typical graduate student grade point averages are much higher than this. At Cornell decimal grade points are assigned to grades with (+) or (-), i.e., A+ = 4.3, A = 4, A- = 3.7, B+ = 3.3, etc.

A grade of less than C- in a course will result in no credit being granted toward satisfaction of the 30-hour minimum requirement. However, these courses are included in calculating grade point averages.

2.11 Facilities

Most of the facilities for the CEE School are housed in Hollister Hall, except for the large-scale infrastructure testing labs in the George Winter Lab (Thurston Hall). Each Master of Engineering student will have a workstation equipped with a computer in a room with other students participating on the same project.
2.12 Room access, etc.

Entrance to the M.Eng offices is via your ID card. Your ID will also open outside doors to Hollister Hall and all student lounges within Hollister Hall.

2.13 Job Placement

We are confident that the background you receive in your M.Eng program will be of great assistance to you in the job market. Employers have always been enthusiastic about Cornell graduates with M.Eng degrees.

The Career Services Office (201 Carpenter Hall) offers an extensive recruitment program with many interviewers coming to campus each year. You will receive information from the Career Services Office regarding events they host throughout the academic year.

There are many routes to explore in seeking the right engineering position; the key point to remember is that you must take the initiative.

SECTION 3
PROFESSIONAL CONDUCT and SPECIAL NEEDS

3.1 Academic Integrity and Plagiarism

Absolute integrity is expected of every Cornell student in all academic undertakings. Integrity entails a firm adherence to values most essential to an academic community, including honesty with respect to the intellectual efforts of oneself and others. Both students and faculty at Cornell assume the responsibility of maintaining and furthering these values. However, a Cornell student’s submission of work for academic credit indicates that the work is their own. All outside assistance should be acknowledged, and the student’s academic position should be reported truthfully at all times. In addition, Cornell students have the right to expect academic integrity from each of their peers. It is plagiarism for anyone to represent another’s work as their own. As stated in the University Code of Academic Integrity, “The maintenance of an atmosphere of academic honor ... is the responsibility of the student and faculty ...”

Gray areas sometimes exist when students study and work together. It is important that faculty make clear what is expected and that students understand what authorship citations an instructor expects. To become better acquainted with academic integrity responsibilities, each student should have a copy of the Policy Notebook for Students, Faculty and Staff (available in the Dean of Student’s Office). Also, a copy of the “University Code of Academic Integrity” is included in the Handbook of Engineering Students available from the Engineering College’s Office of Admissions and Undergraduate Programs located near the north entrance of Hollister Hall, or online at http://cuinfo.cornell.edu/aic.cfm.

3.2 Persons with Special Needs

Cornell University is committed to assisting those persons with disabilities who have special needs. A brochure describing services for persons with disabilities may be obtained from the Office of Equal Opportunity, Cornell University, 234 Day Hall, Ithaca, New York 14853-2801. Other questions or requests for special assistance also should be directed to that office.
APPENDIX A
SCHOOL OF CEE FACULTY and SENIOR LECTURERS
(does not include retired/emeritus faculty)

John D. Albertson
113 Hollister Hall, jda59
Professor (Ph.D. California/Davis): hydrology, boundary layer meteorology, land-atmosphere interaction, turbulent transport process, wind energy.

Edwin A. Cowen
119 Hollister Hall, eac20
Professor (Ph.D. Stanford): environmental fluid mechanics, wave hydrodynamics, coupled air-water transfer processes, mixing and transport processes in the environment, experimental methods.

Ricardo A. Daziano
305 Hollister Hall, ra477
Assistant Professor, (Ph.D. Laval, Quebec): pro-environmental preferences, sustainable travel behavior, renewable energy, environmentally-friendly energy sources.

Peter Diamessis
105 Hollister Hall, pid38
Associate Professor (Ph.D, California/San Diego): environmental fluid mechanics, hydrodynamics of the coastal/open ocean and lakes, turbulence modeling, hydrodynamic instability theory, spectral methods in scientific and engineering computation, high performance parallel scientific computing.

Christopher J. Earls
365 Hollister Hall, cje23
Professor (Ph.D. Minnesota): Structural stability, computational and structural mechanics, behavior and design of metal structures.

Huaizhu Gao
313 Hollister Hall, hg55
Associate Professor (Ph.D. California/Davis): transportation systems analysis, transportation and environment planning, urban traffic management.

Mircea D. Grigoriu
363 Hollister Hall, mdg12
Professor (Ph.D. MIT): structural engineering, structural reliability, structural dynamics, random vibration, stochastic mechanics.

April Z. Gu
263 Hollister Hall, azg4
Professor (Ph.D. Washington): biotechnology for water and wastewater treatment, biological nutrient removal and recovery, biosensors for water quality monitoring, toxicogenomics-based toxicity assessment, phosphorus cycling and bioavailability of nutrients.

Damian E. Helbling
273 Hollister Hall, deh262
Assistant Professor (Ph.D. Carnegie Mellon): water quality, chemical and biological processes, transport and fate of emerging contaminants, sustainable water and wastewater treatment technologies.

Kenneth C. Hover
302A Hollister Hall, kch7
Professor (Ph.D. Cornell): concrete material properties and construction techniques, durability of construction materials.
David S. Kammer
371 Hollister Hall, dsk262
Assistant Professor (Ph.D. Ecole Polytechnique Federale de Lausanne): computational mechanics, fracture mechanics, friction and interface mechanics, high-performance computing, mechanics of materials, dynamic failure of solids.

Qi Li
107 Hollister Hall, ql56
Assistant Professor (Ph.D. Princeton): boundary layer turbulence, fluid-structure interactions, urban heat island, pollutant dispersion, urban sustainability, computational fluid dynamics.

Gregory C. McClaskey
369 Hollister Hall, gcm8
Assistant Professor (Ph.D. California/Berkeley): earthquake mechanics, friction and interfaces, nondestructive testing, piezoelectric sensor calibration, the method of acoustic emission, wave propagation, seismology and earthquake scaling.

Linda K. Nozick
311 Hollister Hall, lkn3
Professor (Ph.D. Pennsylvania): engineering management, transportation systems analysis, systems engineering.

Thomas D. O’Rourke
323 Hollister Hall, tdo1
Thomas R. Briggs Professor of Engineering (Ph.D. Illinois): earthquake engineering, geotechnical engineering and analysis, lifeline systems, soil-structure interaction, underground technologies.

William D. Philpot
453 Hollister Hall, wdp2
Professor (Ph.D. Delaware): remote sensing, digital image processing, radiative transfer.

Patrick M. Reed
211 Hollister Hall, pmr82
Professor (Ph.D. Illinois): environmental and water resources systems; planning and management, evolutionary computation; high-performance computing; uncertainty in decision making.

Matthew C. Reid
267 Hollister Hall, mcr239
Assistant Professor (Ph.D. Princeton): environmental biogeochemistry; coupled biological and physiochemical processes in soil-water systems; engineered ecosystems for sustainable water quality improvement.

Ruth E. Richardson
271 Hollister Hall, rer26
Associate Professor (Ph.D. California/Berkeley): microbiology, application of molecular techniques to understand microbial activities, environmental microbiology of water and soil systems, bioremediation of subsurface contaminants, fate and transport of microbial and chemical contaminants, Civil & Environmental Engineering.

Samitha Samaranayake
317 Hollister Hall, ss3496
Assistant Professor (Ph.D. California/Berkeley): transportation systems modeling and optimization, network algorithms, decision making under uncertainty, operations research.

Jery R. Stedinger
213 Hollister Hall, jrs5
Dwight C. Baum Professor of Engineering (Ph.D. Harvard): stochastic hydrology, water resource systems operations and planning, risk analysis.
Harry E. Stewart  
324 Hollister Hall, hes1  
Associate Professor (Ph.D. Massachusetts): geotechnical engineering, dynamic behavior of soils, instrumentation.

Francis M. Vanek  
307 Hollister Hall, fmv3  
Senior Lecturer (PhD. Pennsylvania): environmental impact of freight transportation, transportation energy, energy efficiency and renewable energy, green building, systems engineering process applied to commercial product development.

Derek H. Warner  
373 Hollister Hall, dhw52  
Associate Professor (Ph.D. Johns Hopkins): computational solid mechanics, deformation and fracture mechanisms, nanostructured materials and thin films, dynamic failure and fragmentation, massively parallel and multi-scale computing.

Monroe Weber-Shirk  
265 Hollister Hall, mw24  
Senior Lecturer and Senior Research Associate (Ph.D. Cornell): environmental engineering, hydraulics, slow sand filtration, LabVIEW data acquisitions/control.
APPENDIX B
FIVE SEMESTER M.ENG/MBA PROGRAM

What is it?
A joint venture between the College of Engineering and the Johnson Graduate School of Management (JGSM) that allows students to acquire a Master of Engineering degree and an MBA degree in 5 semesters (usually based on Fall admission to the M.Eng program). The dual-degree program consists of 75 credit hours, 30 of which comprise the regular two-semester M.Eng program. For those admitted to the MBA program, the JGSM allows some (occasionally all) of these M.Eng credits to be transferred to the MBA program, usually resulting in saving one semester’s time over taking the M.Eng and MBA degree programs separately.

What are the requirements?
Applicants must have already earned a baccalaureate degree in engineering, applied science, or equivalent from Cornell or elsewhere and be accepted for admission or presently enrolled in the M.Eng program. The two programs require separate application forms and review processes, and materials submitted to one program are not available to the other. The JGSM places great emphasis on relevant work experience, and this will be taken into consideration when evaluating applications. All requirements of the Master of Engineering (CEE) program are to be completed. No credit toward the M.Eng degree is allowed for coursework done outside Cornell. All requirements of the Master of Business Administration curriculum are to be completed. Coursework done outside Cornell normally will not be credited toward the MBA degree.

a. If you have been admitted to or are attending the M.Eng program, you must formally apply to the Johnson Graduate School of Management by the second semester of your M.Eng program at the latest. You must fill out a separate JGMS application form and pay their application fee. You should also notify your M.Eng advisor of your intention to do the MBA program so your advisor can take this into consideration when planning your M.Eng program schedule.

b. If you have not already done so, you must apply to take the GMAT, which is required by JGSM, using January of your M.Eng year as your last possible test date and have the scores directed to JGSM.

If you are admitted to the JGSM, your Master of Engineering degree will be awarded when all requirements of that degree are completed (usually after 2 semesters), and the Master of Business Administration degree will be awarded when all requirements of that degree are completed (usually after 3 more semesters). The two degrees cannot be awarded simultaneously.

In general, financial aid is not awarded to those doing the MBA portion of the program except through the Knight Joint Degree Scholarship Program, which has very strict requirements. Information and an application to the Scholarship Program is available on the web at:

http://www.engineering.cornell.edu/academics/graduate/financial_aid/meng/scholarship.cfm

Questions about this Scholarship Program should be directed to the Office of Research and Graduate Studies, engr_grad@cornell.edu).
APPENDIX C

MASTERS IN PUBLIC ADMINISTRATION (M.P.A.) FROM THE CORNELL INSTITUTE FOR PUBLIC AFFARIS (CIPA)

After the award of the M.Eng degree, CEE M.Eng students who aspire to a leadership or management position in formulating, implementing or evaluating public policies can benefit from a program that offers an accelerated path to a Masters in Public Administration (M.P.A.) from the Cornell Institute for Public Affairs (CIPA). CIPA offers a flexible and challenging two-year program of graduate professional studies in public affairs that prepares degree recipients for careers in public affairs, public administration, and public policy.

Concentration areas offered in CIPA include Environmental Policy; Science, Technology and Infrastructure Policy; Economic and Financial Policy; International Development; and Public and Nonprofit Management.

The two degree programs (M.Eng and M.P.A.) have separate admission processes; so you may apply to the Accelerated M.P.A. program upon completion of your first semester in the M.Eng program. The M.Eng students who possess an M.Eng can obtain the M.P.A. degree in three additional semesters. Applicants should plan on meeting with the CIPA Director of Graduate Studies to discuss which M.Eng credits would be transferable for the MPA program.

Please contact the CIPA Office at 607-255-8018 or cipa@cornell.edu to set up an appointment. More information is available on the CIPA website at www.cipa.cornell.edu.
Environmental and Water Resource Engineering (EWRE):  EWRE Proposal Form AY 2018-19

NOTES:
A student may select his or her supporting electives from engineering and non-engineering subject areas related to environmental engineering, including biology, chemistry, toxicology, law, policy, economics, operations research, computer science, engineering mathematics, systems engineering, and city and regional planning.

Credit for seminars count toward the MEng degree only if the format of the seminar is “participatory” (i.e. requires more than attendance). Students are expected to take CEE 6020 Environmental Seminar in the Fall and CEE 6021 in the Spring. These are only participatory if students give a presentation.

Geotechnical Engineering:  GEO MEng Proposal Form AY 18-19

NOTES:

Typical additional major courses for the M.Eng in Geotechnical Engineering are drawn from the following list (actual availability depends on staffing in each given semester):

- BEE 4810  LRFD – Based Engineering of Wood Structures
- CEE 4710  Fundamentals of Structural Mechanics
- CEE 4770  Composite Materials
- CEE 5950  Construction Planning and Operations
- CEE 6000  Numerical Methods for Engineers
- CEE 6730  Design of Concrete Structures
- CEE 6750  Concrete Materials and Construction
- CEE 6780  Structural Dynamics and Earthquake Engineering
- CEE 6790  Time Series Data Analysis for Civil, Mechanical, and Geophysical Applications
- CEE 7740  Advanced Structural Concrete
- EAS 4320  Exploration Geophysics
- MAE 4700  Finite Element Analysis for Mechanical and Aero
- MAE 5010  Future Energy Systems
- PLSCS 4200  Geographic Information Systems

Support areas may include any engineering or non-engineering subject area that can be reasonably justified as supporting the major area, a well-defined career objective, or plans for a PhD. Typical supporting areas include geological sciences, construction, theoretical and applied mechanics, engineering management, computer science, fluid mechanics, material science, and business.
All courses should be listed whether or not they count in the MEng program. No more than 20 credits per semester (MEng and non-MEng) may be taken except by petition to the College Master of Engineering Committee.

**Structural Mechanics and Materials Proposal form:** STR Mechanics and Materials Proposal Form AY 18-19

**NOTES:**

- Project course CEE5071 is required during the special summer term: no exceptions.
- CEE 3720 and CEE 5720 are required courses, to be taken in fall term.
- MAE 6110 can be substituted for CEE 3720 if you plan on taking MAE 6120 in the spring term.
- The 4 unspecified major area courses must be selected from:
  
  CEE 6075: LRFD-Based Engineering of Wood Structures
  CEE 6725: 3D Printing Parts that Don’t Break: From Processing to Performance (Spring)
  CEE 6750: Concrete Materials and Construction (Spring)
  CEE 6770: Natural Hazards, Reliability, and Insurance (Fall)
  CEE 7740: Advanced Structural Concrete (Spring)

- Typical advisor approved electives are (actual availability depends on staffing in each given semester):
  
  MAE 6110: Foundations of Solid Mechanics I (Fall)
  MAE 6120: Foundations of Solid Mechanics II (Spring)
  MAE 6010: Foundations of Fluid Mechanics (Fall)
  MAE 4130: Mechanics of Composite Structures (Fall)
  MAE 4730: Intermediate Dynamics and Vibrations (Fall)
  CS 3220: Introduction to Scientific Computation (Spring)
  CS 4210: Numerical Analysis and Differential Equations (Fall)
  CEE 6000: Numerical Methods for Engineers (Fall)
  CEE 6730: Design of Concrete Structures (Fall)
  CEE 6780: Structural Dynamics and Earthquake Engineering (Spring)
  CEE 6790: Time Series Data Analysis for Civil, Mechanical, and Geophysical Applications (Fall)
  CEE 7710: Stochastic Problems Engineering and Science (Fall)
  MAE 6810: Methods of Applied Mathematics I (Fall)
  MAE 6780: Methods of Applied Mathematics II (Spring)
  MSE 6020: Elasticity, Plasticity, and Fracture (Spring)
  MAE 6160: Advanced Composite Materials (Spring)
  TAM 6680: Elastic Waves in Solids with Applications
  MAE 5010: Future Energy Systems (Fall)
  MAE 6640: Mechanics of Bone (Spring)
  BME 5810: Soft Tissue Biomechanics (Spring)
  CEE 6400: Foundation Engineering (Fall)
  CEE 6410: Retaining Structures and Slopes (Spring)
  MAE 5130: Mechanical Properties of Thin Films (Spring)
  MAE 5790: Nonlinear Dynamics and Chaos (Spring)

- All courses should be listed whether or not they count in the MEng program. No more than 20 credits per semester (MEng and non-MEng) may be taken except by petition to the College Master of Engineering Committee.
Transportation Systems Engineering Proposal form: Transportation Proposal form AY 18-19

NOTES:

1 A project of at least 3 credits is required. In some cases, specific projects may be defined whose scope justifies more than 3 credits.

2 Transportation Systems courses include CEE 4630 Future Transportation Technologies Systems, CEE 6620 Urban Transportation Network Design & Anal., CEE 6650 Environment/Energy and Transportation Planning, and CEE 6640 Microeconomics of Discrete Choice. CEE 6065 Special Topics in Transportation can be used to pursue an independent study on a particular transportation topic if you and your advisor agree that this is appropriate. The selection of appropriate transportation core courses will depend on your background, and will be determined in discussion with your advisor.

3 Supporting electives should be selected from one or more related areas. Typical areas include Operations Research, Economics, City and Regional Planning, Johnson School of Management, and other areas of CEE. Some commonly chosen courses include:

- AEM 4170 Decision Models for Small and Large Businesses
- AEM 4320 Public Private Sector Economics Linkages
- AEM 6330 Devolution, Privatization, & the New Public Management
- CEE 5290 Heuristic Methods for Optimization
- CEE 5900 Project Management
- CEE 5970 Risk Analysis and Management
- CEE 6930 Public Systems Modeling
- CRP 5040 Urban Economics
- CRP 5080 Introduction to Geographic Information Systems
- CRP 5170 Economic Development
- CRP 5190 Urban Theory and Spatial Development
- CRP 5520 Land Use Planning
- CRP 5840 Green Cities
- CRP 6090 Urban and Regional Theory
- CRP 6860 Planning for Sustainable Transportation
- ECON 3540 Economics of Regulation
- ECON 6090 Microeconomic Theory I
- NBA 6410 Supply Chain Management
- ORIE 5300 Optimization I
- ORIE 5310 Optimization II
- ORIE 5510 Introduction to Stochastic Processes
- ORIE 4580 Simulation Modeling & Analysis

4 Credit for seminars count toward the MEng degree only if the format of the seminar is “participatory” (i.e. requires more than attendance).

4 All courses should be listed whether or not they count in the MEng program. No more than 20 credits per semester (MEng and non-MEng) may be taken except by petition to the College Master of Engineering Committee.
APPENDIX E

OVERALL LISTING OF CEE COURSE INFORMATION:

For an up to date listing of all CEE courses, please visit:
https://classes.cornell.edu/browse/roster/FA18/subject/CEE
(please note that the CEE, Spring 2019 course roster will be available by mid-October)

All other course listings/rosters for the Fall 2018 term can be found at:
https://classes.cornell.edu/browse/roster/FA18
(Spring 2019 courses being available by mid-October)