CIVIL AND ENVIRONMENTAL ENGINEERING

MASTER OF ENGINEERING PROGRAM HANDBOOK

CornellEngineering
Civil and Environmental Engineering

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

Cornell University's history of diversity and inclusion encourages all students, faculty, and staff to support a diverse and inclusive university in which to work, study, teach, research, and serve. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally protected status or subjected to prohibited discrimination involving, but not limited to, such factors as race, ethnic or national origin, citizenship and immigration status, color, sex/gender, pregnancy or pregnancy-related conditions, age, creed, religion, actual or perceived disability (including persons associated with such a person), arrest and/or conviction record, military or veteran status, sexual orientation, gender expression and/or identity, an individual's genetic information, domestic violence victim status, familial status or marital status. Cornell University is an affirmative action/equal opportunity employer.

The Office of Institutional Equity and Title IX (OIETIX) responds to bias incidents and protected-status harassment involving staff and faculty, and sexual and related misconduct involving students, faculty, and staff. OIETIX can provide information about and referrals to resources, implement supportive measures, and conduct incident response education for accused individuals. OIETIX also has the authority to investigate and adjudicate claims of misconduct under Policy 6.4. If you have any questions, please email OIETIX at titleix@cornell.edu (for sexual harassment or other sexual misconduct) or equity@cornell.edu (for other protected-status harassment, prohibited discrimination or bias), and/or visit titleix.cornell.edu.

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SECTION 1

INTRODUCTION

Welcome to Cornell University and to the School of Civil and Environmental Engineering. We hope your program experience here will be academically rich and personally rewarding. This handbook has been prepared to simplify the orientation and registration process for new candidates pursuing their Master of Engineering (M.Eng.) degree in Civil and Environmental Engineering.

1.1 The School of Civil and Environmental Engineering (CEE/School)

The School has a strong educational tradition, supportive alumni network, and is ranked as one of the top civil and environmental engineering programs in the United States. It currently has twenty-two active faculty members, as well as other individuals that serve as lecturers, research associates, and staff. Professors and Senior Lecturers are listed in Appendix A. In addition, we have several thousand alumni who hold positions in engineering, construction, research and development, manufacturing, sales, education, consulting, and government in the United States and around the world.

Faculty and other individuals responsible for administering the School include:

Director	Linda Nozick, 220 Hollister Hall
Director of Administration	Joe Rowe, 220 Hollister Hall
Director of Graduate Studies	Pete Diamessis, 217 Hollister Hall
Support staff:	
Assistant Director of Graduate Programs	Andrew Armitage, 219 Hollister Hall
Student Services Program Manager	Celia Szczepura, 215 Hollister Hall
Finance Specialist	Stacey Shirk, 220 Hollister Hall
Accounts Coordinator	Chelsea Dodge, 220 Hollister Hall
Assistant to the Directors	Jeannette Little, 220 Hollister Hall
Information Technology	Cameron Willkens, 325 Hollister Hall
Facilities Coordinator	Thom Quinn, B14A Olin Hall
Administrative Assistants	220 Hollister Hall

Concentrations and Faculty Leads

Environmental Engineering	
Francis Vanek	307 Hollister Hall, fmv3@cornell.edu
Structural Engineering	
Matthew Reiter	315 Hollister Hall, mtr68@cornell.edu
Transportation Systems Engineering	
Ricardo Daziano	305 Hollister Hall, daziano@cornell.edu

1.2 The Master of Engineering Degree in Civil and Environmental Engineering

The Master of Engineering degree is a coursework and project-oriented graduate program designed to develop a higher level of competence in disciplines within civil and environmental engineering to prepare students for professional practice. It requires thirty (30) credit hours consisting of coursework in a student's chosen concentration and area of specialization, as well as a 3-credit hour capstone design project course. The M.Eng. degree is two semesters of intensive study. A three-semester program is available; additional coursework is mandated and applying directly into a three-semester program is required.

M.Eng. candidates in Civil and Environmental Engineering may elect to pursue one of the three

concentrations listed below.

Environmental Engineering (specializations listed below)
- Engineering Systems and Management
- Sustainable Energy Systems
- Environmental Processes
- Environmental Fluid Mechanics and Hydrology

Structural Engineering (specializations listed below)
- Behavior and Design
- Advanced Materials
- Advanced Computation

Transportation Systems Engineering

CEE also offers a Master of Engineering degree in **Engineering Management** (EM). The EM program is designed for engineers who want to remain in a technical environment and advance into managerial roles. EM M.Eng. students learn to identify problems, analyze data, formulate models to understand these problems, and interpret the results of analyses for managerial action. For more information, see the Engineering Management Master of Engineering Handbook.

1.2.1 Preparation

Students from all fields of engineering and the physical and natural sciences are welcome. 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 concentration. 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 Program Requirements

A minimum of thirty (30) credit hours of course and project work is required for the M.Eng. degree in Civil and Environmental Engineering. Program core course requirements for each of the three major concentrations are provided in Appendix B. The remainder of each student's program is designed and approved individually in consultation with an academic advisor based on their professional aspirations.

SECTION 2
PLANNING AND REGISTERING FOR THE M.ENG. DEGREE PROGRAM IN CIVIL AND ENVIROMENTAL ENGINEERING

The major steps to enrolling in the Civil and Environmental Engineering M.Eng. program are described in the following sections.

2.1 Assignment of Advisor

You will be assigned an advisor in your concentration area to help you design a program of study, and to generally assist and advise you throughout your degree program. You may request to change your advisor to another faculty member within the same concentration with permission of the faculty member whom you would like to serve as your new advisor.

2.2 Course Registration

Course registration is done online by logging onto Student Center with your Cornell NetID*. Enrollment

dates, drop/add dates, etc., Fall and Spring, are shared with incoming and current students (as they vary year-to-year). Students will be notified of an opportunity to pre-enroll for Spring courses; the announcement for this window comes out during the Fall semester. Early admit or students beginning their program in the Spring semester cannot participate in pre-enroll, they must wait for add/drop to begin.

Any changes in your course registration after the deadlines (i.e., add/drop, credit hour changes, etc.) 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 course instructor. Please note that petitions are not automatically approved.

Cornell **NetID: You should have received your Cornell 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 email regularly.*

2.3 Planning Your M.Eng. Program

Please study the pertinent materials in this handbook for both required core courses for your chosen concentration and appropriate elective courses before meeting with your advisor. It would be worthwhile to spend some time with the online Class Roster to identify possible courses for both the Fall and Spring terms. The Spring roster becomes available during the Fall semester. In the meantime, you can refer to the previous year's Spring catalog, as many of the same courses will be offered. **Courses listed may not always be offered, course offerings vary by semester and year-to-year.** In addition, students may want to consult the course listings in the S.C. Johnson Graduate School of Management, the School of Industrial and Labor Relations, and various other departments within the College of Engineering.

Program planning is done with the aid of an M.Eng. Proposal Form (see Appendix B). There are unique forms for each of the three concentrations. You will fill this form out with the help of your advisor, who must also approve your program.

You have approximately two (2) weeks to enroll online for Fall 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. Course choices for the second or third semester should never be listed as TBD, a default set of courses that meet the requirements should be listed. These courses may change with approval; a full plan should be established for advisor review and approval at the beginning of your program.

All courses should be listed, whether or not they count toward your M.Eng. degree program requirements. No more than 20 credits per semester may be taken, except by petition to the College of Engineering's Master of Engineering Committee.

All three CEE M.Eng. concentrations require three (3) credits of a project design course.

Credit for seminars count toward the M.Eng. degree only if the format of the seminar is "participatory" (i.e., requires more than attendance).

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.

2.4 Filing Your Course Program

After a final program of courses for the entire year is agreed upon between you and your advisor, please submit your approved Proposal Form to the Assistant Director of Graduate Programs via your Cornell

Dropbox. These should be uploaded about the third week into the semester, deadlines will be shared with students and may vary by concentration.

2.5 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 M.Eng. program must take the form of a revised proposal and be submitted to the Assistant Director of Graduate Programs via your Cornell Dropbox for approval.

It is important that any changes in your program be submitted and approved promptly because the current version of your Proposal Form that is on file serves as a checklist for determining compliance with graduation requirements.

2.6 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 Director of Graduate Studies. While we are not encouraging use of a petition to circumvent requirements, we do want to point out the existence of this process. It provides an opportunity to communicate cases for special consideration, and therefore it is an important part of the operational procedures for students attending Cornell University.

2.7 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 grading-related duties. M.Eng. students typically serve as graders, hold office hours, prepare labs, etc. The faculty will make grading assignments during the first two weeks of classes.

2.8 Grade Requirements

The College requires a minimum grade point average of 2.5 for graduation from the Master of Engineering Program. Students admitted on a Provisional Basis must achieve a 3.0 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-credit hour minimum requirement. However, these courses are included in calculating grade point averages.

2.9 Facilities

Most of the facilities for the School are housed in Hollister Hall, except for the Bovay Lab, which is a large-scale infrastructure testing laboratory in Thurston Hall.

2.10 Building Access

Your Cornell ID card will open the outside doors to Hollister Hall when they are electronically locked.

2.11 Career Services

Jennifer Micale is the College of Engineering M.Eng. Career Services Manager. She is located in 205A Carpenter Hall and her email is jjm368@cornell.edu.

Career Services 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. Cornell Career Services is part of Cornell's Division of Student and Campus Life. Their comprehensive services are in Barnes Hall and open to all students. They complement the services offered through career offices in the undergraduate colleges that are tailored more to college-specific academic and career goals.

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. 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 always be reported truthfully. 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 Student Disability Services

Cornell University is committed to assisting those persons with disabilities who have special needs. Please consider registering with SDS if you require an accommodation. Also, 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.

APPENDIX A
SCHOOL OF CEE FACULTY, SENIOR LECTURERS, AND PROFESSORS OF PRACTICE

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

Edwin A. (Todd) Cowen
119 Hollister Hall, eac20
Professor (Ph.D. Stanford University): 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
Associate Professor, (Ph.D. Université Laval): pro-environmental preferences, sustainable travel behavior, renewable energy, environment-friendly energy sources.

Peter Diamessis
105 Hollister Hall, pjd38
Professor (Ph.D. University of 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. University of Minnesota): Structural stability, computational and structural mechanics, behavior and design of metal structures.

Greeshma Gadikota
117 Hollister Hall, gg464
Assistant Professor, (Ph.D. Columbia University): sustainable energy and resource recovery, chemo-morphological coupling, fluid recovery and storage, designing novel chemical pathways, low carbon and negative emissions technologies, and engineering elemental cycles.

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

Andrea Giometto
363 Hollister Hall, ag956
Assistant Professor (Ph.D. École Polytechnique Fédérale de Lausanne): ecological and evolutional dynamics of spatially-extended microbial populations using a combination of statistical and nonlinear physics methods, experiments with microbes and genetic engineering.

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

April Z. Gu
263 Hollister Hall, azg4
Professor (Ph.D. University of Washington): biotechnology for water and wastewater treatment, biological nutrient

removal and recovery, biosensors for water quality monitoring, toxicogenomic-based toxicity assessment, phosphorus cycling and bioavailability of nutrients.

Damian E. Helbling
273 Hollister Hall, deh262
Associate Professor (Ph.D. Carnegie Mellon University): 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 University): concrete material properties and construction techniques, durability of construction materials.

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

Jacob Mays
323 Hollister Hall, jpm452
Assistant Professor (Ph.D. Northwestern University): applications of stochastic optimization and statistical learning in transportation and energy systems.

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

Sriramya Nair
371 Hollister Hall, sn599
Assistant Professor (Ph.D. The University of Texas at Austin): Cement-based magneto-rheological fluids, sustainable cementitious materials, 3-D printing of concrete, oil well cementing, characterization of fresh and hardened cement-based materials, micromechanics using high energy x-ray techniques.

Robert T. Newman
207 Hollister Hall, rtn24
Senior Lecturer (MBA, Baker College): Critical skills for leadership, emotional intelligence, individual and team behavior, conflict management, business savvy, effective communication, economic analysis, negotiation prowess, managing contracts and Intellectual Property, ethics, and engineering management decision making.

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

Patrick M. Reed
211 Hollister Hall, pmr82
Joseph C. Ford Professor of Engineering (Ph.D. University of 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 University): environmental biogeochemistry; coupled biological and physiochemical processes in soil-water systems; engineered ecosystems for sustainable water quality improvement.

Matthew Reiter
315 Hollister Hall, mtr68
Professor of Practice (M.Eng. Cornell University): structural engineering, structural steel, masonry, timber, structural mechanics and materials, engineering management.

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

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

Francis M. Vanek
307 Hollister Hall, fmv3
Senior Lecturer (Ph.D. University of 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
Professor (Ph.D. Johns Hopkins University): computational solid mechanics, deformation and fracture mechanisms, nanostructured materials and thin films, dynamic failure and fragmentation, massively parallel and multi-scale computing.

APPENDIX B
PROGRAM CONCENTRATION REQUIREMENTS AND PROPOSAL FORMS

Environmental Engineering Proposal Form

Environmental Engineering Proposal Form AY 22-23

Core Courses (minimum of 12 credits)

Required		Credits
CEE 5051 *or* CEE 5052	Project in Environmental Engineering	3
CEE 5930	Data Analytics (ALTERNATE CEE 5970) *or*	4
CEE 5970	Risk Analysis and Management (ALTERNATE CEE 5930)	3
CEE 5420	Energy Technologies and Subsurface Resources (ALTERNATE CEE 6210) *or*	3
CEE 6210	Renewable Energy Systems (ALTERNATE CEE 5420)	3
CEE 6560	Physical and Chemical Processes (ALTERNATE CEE 6530) *or*	3
CEE 6530	Water Chemistry for Environmental Engineering (ALTERNATE CEE 6560)	3

Advisor Approved Electives
(18 additional credits from one of the specializations are required)
Note: Partial list, see Environmental Engineering Proposal Form spreadsheet (above) for additional course options.

Recommended		Credits
Engineering Systems and Management		
CEE 6770	Natural Hazards, Reliability, and Insurance	3
CEE 6790	Time Series Data Analysis for Civil, Mechanical and Geophysical Applications	3
CEE 5900	Project Management	4
CEE 5980	Decision Framing and Analytics	3
Sustainable Energy Systems		
CEE 6648	Sustainable Transportation Systems Design	3
CEE 5200	Economics of the Energy Transition	3
CEE 6880	Applied Modeling and Simulation for Renewable Energy Systems	3
MAE 5020	Wind Power	3
MSE 5150	Structures and Materials for Sustainable Energy Systems	3
Environmental Processes (*CEE 5510 required)		
CEE 5510*	Microbiology for Environmental Engineering	3
CEE 6565	Wastewater Processes and Resources Recovery	3
CEE 6580	Biodegradation and Biocatalysis	3
CEE 6590	Environmental Organic Chemistry	3
Environmental Fluid Mechanics and Hydrology (*CEE 6330 required)		
CEE 6350	Coastal Engineering	3
CEE 6330*	Physical Hydrology in the Built and Natural Environments	3
CEE 6370	Experimental Methods in Fluid Dynamics	4

CEE 6550	Transport, Mixing, and Transformation in the Environment	3
CEE 6790	Time Series Data Analysis for Civil, Mechanical, and Geophysical Applications	3
BEE 6710	Introduction to Groundwater	3
BEE 5730	Watershed Engineering	3
BEE 6110	Hydrologic Engineering in a Changing Climate	3
BEE 6790	Ecohydrology	3

Notes:
The options for the program are explained on the spreadsheet along with a list of courses appropriate for each specialty area.

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.

Students are expected to take Seminar – Water Resources and Environmental Engineering CEE 6020 in the Fall, and CEE 6021 in the Spring.

Structural Engineering Proposal Form

Structural Engineering Proposal Form AY 22- 23

Core Courses

Required		Credits
CEE 5071	Professional Experience in Structural Engineering	3 SP
MAE 5700	Finite Element Analysis for Mechanical and Aerospace Design	4
CEE 6726	Intermediate Solid Mechanics	4
Recommended		
CEE 5740	Intermediate Behavior of Metal Structures	3
CEE 6730	Design of Concrete Structures	4
CEE 6780	Structural Dynamics and Earthquake Engineering	3

Advisor Approved Electives (minimum of 9 credits required)

Behavior and Design		Credits
CEE 5710	Timber Behavior and Design	3
CEE 5700	Masonry Behavior and Design	3
CEE 7740	Advanced Structural Concrete	3
CEE 5790	Introduction to Building Information Modeling (BIM) using Revit	2
CEE 5746	Sustainability and Automation: The Future of Construction Industry	4
Advanced Materials		
CEE 6750	Concrete Materials and Construction	3
CEE 6725	3D Printing of Parts that Don't Break: From Processing to Performance	4
MSE 5802	Materials Structure and Mechanical Properties	3
MSE 5861	Mechanical Properties of Materials: From Nanodevices to Superstructures	3

MAE 5670	Polymer Mechanics	3
Analysis and Computation		
CEE 5795	Sensors for the Built and Natural Environments	3
CEE 6790	Time Series Data Analysis for Civil, Mechanical, and Geophysical Applications	3
CEE 6770	Natural Hazards, Reliability, and Insurance	3
CEE 6800	Engineering Smart Cities	3
CEE 5745	Inverse Problems: Theory and Applications	3
CEE 5735	Mathematical Modeling of Natural and Engineered Systems	3

Professional Elective Program Examples

Engineering Management Architecture S.C. Johnson Graduate School of Management Real Estate

Transportation Systems Engineering Proposal Form

Transportation Systems Engineering Proposal Form AY 22-23

Core Courses (plus one course from CRP is required)

Required		Credits
CEE 5061 *or* CEE 5062	Project in Transportation Engineering	3
CEE 5930	Data Analytics	4
CEE 6620	Analysis and Control of Transportation Systems and Networks	3
CEE 6640	Microeconometrics of Discrete Choice	3 SP
CEE 6648	Sustainable Transportation Systems Design	3

Advisor Approved Electives ((minimum of 24 credits required)

Civil and Environmental Engineering		Credits
CEE 5290	Heuristic Methods for Optimization	3
CEE 5900	Project Management	4
CEE 5970	Risk Analysis and Management	3
CEE 6620	Analysis and Control of Transportation Systems and Networks	3
CEE 6665	Modeling and Optimization for Smart Infrastructure Systems	3
CEE 6930	Public Systems Modeling	3
City and Regional Planning		
CRP 5040	Urban Economics	3
CRP 5080	Introduction to Geographic Information Systems (GIS) for Planners	3
CRP 5170	Economic Development	3
CRP 5190	Urban Theory	3
CRP 5520	Land Use Planning	3
CRP 5840	Green Cities	3
CRP 6090	Special Topics in Urban and Regional Theory	VAR
CRP 6860	Planning for Sustainable Transportation	3

Other		
ECON 5540	Economics of Regulation	3
ECON 6090	Microeconomic Theory I	3
AEM 6170	Decision Models for Small and Large Businesses	3
AEM 6320	Open Economy Analysis: Theory and Applications	3
AEM 6330	Devolution, Privatization, and the New Public Management	3
ORIE 5300	Optimization I	3
ORIE 5310	Optimization II	3
ORIE 5510	Introduction to Engineering Stochastic Processes	3
ORIE 6580	Simulation	3
NBA 6410	Supply Chain Strategy	3

Notes:
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. In this case, the selection of appropriate core courses will depend on your background and will be determined in discussion with your advisor.

Students are expected to take Seminar – Civil Infrastructure CEE 6070 in the Fall, and CEE 6071 in the Spring.

APPENDIX C
M.ENG./MBA PROGRAM

What is it?

A joint venture between the College of Engineering and the S.C. Johnson Graduate School of Management (JGSM) that allows students to acquire a Master of Engineering degree and an MBA degree in five (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, 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 compared to 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 be 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. JGSM places great emphasis on relevant work experience, and this will be taken into consideration when evaluating applications. All requirements of the CEE Master of Engineering 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 JGSM 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 here. Questions about this Scholarship Program should be directed to the Office of Research and Graduate Studies, engr_grad@cornell.edu).

APPENDIX D
MASTER OF PUBLIC ADMINISTRATION (M.P.A.) FROM THE CORNELL INSTITUTE FOR PUBLIC AFFAIRS (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 Master of 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. A CEE M.Eng. graduate 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.