ENGINEERING COMMUNICATIONS MINOR

College of Engineering

Program Website (https://www.engineering.cornell.edu/degree/engineering-communications-requirements-minor/)

Program Description

This minor promotes the core belief that engineering and technical work is more useful, understood, deployed, and engaging when the communication that supports and surrounds it is as carefully crafted as the technical work itself. Within the technical and engineering fields, students will explore the concepts of communicative practice, communication design, communicative context, and professional identity via not only written words but also by the plethora of multimodalities available to the technical expert. Our target population is undergraduates who are skilled in their engineering studies that understand that communication is a core complimentary skill that supports technical endeavors at all levels.

Policies, Eligibility, and Program Requirements

All College of Engineering undergraduates are eligible; students must be affiliated with the College of Engineering in a specific undergraduate major. Pre-approval is required, with an application process to begin. Students intending to earn this minor should seek early guidance (as soon as their sophomore year) by contacting the Director of the Engineering Communications Program. Send an email to engrcomm_info@cornell.edu for more information.

Note: Students undertaking a minor are normally expected to complete the requirements during the time of their continuous undergraduate enrollment at Cornell. Courses at graduate-level (5xxx) cannot be considered for the minor, even via petition. As well, pursuant to an agreement with the College of Agricultural and Life Sciences (CALS), students will not be permitted to declare both the Engineering Communication Minor and the CALS Science Communication and Public Engagement minor (known as SCoPE or SciComm).

Students must complete the Engineering Communication Minor's 18 minor credits with a minimum GPA of 2.00 (not overall GPA); all courses for the minor must be finished with a letter grade of C or better. For the EC Minor, an application by an interested student begins the process. Each application will be reviewed for its completion plan, a statement of intent, and the student's College of Engineering advisor consent. Forms will be provided by the EC Minor Advisor. A reviewed e-portfolio will be required before the minor is granted.

Program Information

- Program Instruction Mode: Varies
- Program Location: Ithaca
- Total Credits Required: 18 minimum

Minor Requirements

Engineering Communications courses

Code	Title	Hours
Select one of the following:		3
ENGRC 3350	Organizational Communications for Engineers	
ENGRC 3500	Engineering Communications	
Select one of the following:		3
COMM 2450	Communication and Technology	
COMM 2850	Communication, Environment, Science, and Health	
HADM 3670	Persuasive and Ethical Communication	
ENGRC 4900		
Total Hours		**6**

Engineering and Technical Professionalism (minimum of 5 Credits)

Code	Title	Hours
ENGRD 2720	Data Science for Engineers	4
ENGRC 3023	Communication Intensive Opportunity: Practicum in Technical Writing	1
ENGRC 3024		1
ENGRC 3025	Creating and Communicating Your Digital Professionalism	1
ENGRC 3026	Engineering Presentations and Expert Presence	1
ENGRC 3027	Cross-cultural Communications and Ethics in the Workplace	1
ENGRC 3340	Independent Study in Engineering Communications (section 601, general)	1-3
ENGRC 3340	Independent Study in Engineering Communications (section 602, Social Justice and Engineering: Communication at the Intersection of Practice)	1-3
ENGRC 3340	Independent Study in Engineering Communications (section 603, specialized)	1-3
ENGRC 3341	Guided Fieldwork for Engineering Communications	1
ENGRC 3700	Communications Consulting for Engineers	3
ENGRG 3600	Ethical Issues in Engineering Practice	3
ENGRG 3900	Foundations of Engineering Leadership	2
ENGRG 3910	Applied Engineering Leadership (must be admitted to Leadership Certificate Program)	3
ENGRG 4990	Teaching in Engineering Leadership	1-4

Engineering, Technical, or Scientific Communication Electives (minimum of 6 credits) [1]

Code	Title	Hours
ENGRC 3111	Communications for Junior Lab I	1
ENGRC 3120	Communications for Practical Tools for Operations Research, Machine Learning and Data Science	1
ENGRC 3152	Communication for Game Development	1
ENGRC 3610	Communication for Transportation Engineering	1
ENGRC 3640	Technical Communication for Applied Engineering Physics	1
ENGRC 4152	Communication for Advanced Game Development	1

[1] Courses marked with an asterisk will also fulfill the Engineering Communication Requirement on their own; however, they are part of the elective count for the EC Minor only.

Other Courses at Cornell

Code	Title	Hours
AEM 2500	Environmental and Resource Economics	3
AEM 3245	Organizational Behavior	3
AEM 3249	Entrepreneurial Marketing and Strategy	3
BEE 4530	Computer-Aided Engineering: Applications to Biological Processes (W-I or C-I semesters only) [1]	3
BEE 4730	Watershed Engineering (W-I or C-I semesters only) [1]	3
BEE 4590	Physical Design in Biological Engineering [1]	3
BME 4440	Science Policy Bootcamp: Concept to Conclusion [1]	3
CHEME 4320	Chemical Engineering Laboratory (W-I or C-I offerings only) [1]	4
COMM 2450	Communication and Technology (W-I or C-I offerings only) [1]	4
COMM 2850	Communication, Environment, Science, and Health (cannot be taken to fulfill both Category A and Category C)	3
COMM 3200	Technology, Behavior and Society	3
COMM 4450	Computer-Mediated Communication	3
ENGL 2880	Expository Writing (non-fiction)	3
ENVS 2000	Environment and Sustainability Colloquium	1
ILRGL 2060		3
ILRGL 2080		3
ILROB 2230	Leadership in Organizations (Inactive)	3
ILROB 2290	(Inactive)	3
INFO 2950	Introduction to Data Science	4
INFO 4200	Information Policy: Applied Research and Analysis (additional info in Appendix B)	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4270		3
INFO 4310	Interactive Information Visualization	3
INFO 4430	Teams and Technology	3
INFO 4561	Evaluation and Society	3
MAE 4272	Fluids and Heat Transfer Laboratory (W-I or C-I offerings only)	3
MSE 3010	Materials Chemistry	3
MSE 4030 & MSE 4040	Senior Materials Laboratory I and (both; W-I or C-I semesters only) [1]	4
MSE 4050 & MSE 4040	Senior Experimental Thesis I and (both; W-I or C-I semesters only) [1]	4
NBA 5070	Entrepreneurship for Scientists and Engineers	3
NTRES 3330	Ways of Knowing: Indigenous and Place-Based Ecological Knowledge	3
PHIL 3340	Modal Logic	3
PSYCH 3420	Human Perception: Application to Computer Graphics, Art, and Visual Display	3
STS 4330		
STS 4451	Making Science Policy: The Real World (meets in Washington DC, spring term)	4

[1] Courses marked with an asterisk will also fulfill the Engineering Communication Requirement on their own; however, they are part of the elective count for the EC Minor only.

Statistics

Code	Title	Hours
Select one of the following:		
AEM 2100	Introductory Statistics	4
BTRY 3010	Statistics I	4
BTRY 6010	Statistical Methods I	4
CEE 3040	Uncertainty Analysis in Engineering	4
ENGRD 2700	Eng Probability and Statistics: Modeling and Data Science	4
HADM 2010	Hospitality Quantitative Analysis	3
ILRST 2100	Introductory Statistics and Data Science	4
ILRST 6100	Statistical Methods I	4
MATH 1710	Statistical Theory and Application in the Real World	4
ORIE 3500	Eng Probability and Statistics: Modeling and Data Science II	4
PUBPOL 2100	Introduction to Statistics	4
PUBPOL 2101	Statistics for Public Policy	4
PSYCH 2500	Statistics and Research Design	3
SOC 3010	Statistics for Sociological Research	4
STSCI 2100	Introductory Statistics and Data Science	4
STSCI 2150	Introductory Statistics for Biology	4
STSCI 2200	Statistics I	4

Language

Any language course, besides English, at 3xxx level or above, up to four credits can be taken in this category. Students who pass a Cornell Advanced Standing Exam (CASE) sitting may petition for credit in this category.

Study Abroad

Students may petition to have Study Abroad communication courses, up to three credits, count towards the minor. Formal petition required, approved in advance of the Study Abroad experience, not after.

Graduation Requirements for Engineering Minor Degree Programs
Requirements

Students may pursue minors in any department in any college that offers them, subject to limitations placed by the department offering the minor or by the students' major. Completed minors will appear on the student's transcript. Not all departments offer minors. Additional information on specific minors can be found above, in the *Engineering Undergraduate Handbook*, in the undergraduate major office of the department or school offering the minor, and in Engineering Advising.

An engineering minor recognizes formal study of a particular subject area in engineering normally outside the major. Students undertaking a minor are expected to complete the requirements during the time of

their continuous undergraduate enrollment at Cornell. Completing the requirements for an engineering minor (along with a major) may require more than the traditional eight semesters at Cornell. However, courses that fulfill minor requirements may also satisfy other degree requirements (e.g., distribution courses, advisor-approved, or major-approved electives), and completion within eight semesters is possible.

An engineering minor requires:

- successful completion of all requirements for an undergraduate degree.
- enrollment in a major that approves participation in the minor.
- satisfactory completion of six courses (at least 18 credits) in a college-approved minor.

Students may apply for certification of a minor at any time after the required course work has been completed in accordance with published standards. An official notation of certification of a minor appears on the Cornell transcript following graduation.

Upon finishing the minor, students should be able to perform well in these areas of competency for diverse, organizational, and global audiences:

- Written Communication/Research: Identify, research, negotiate, and compose differing forms of communication to further a technical or engineering effort at a pre-professional level; skillfully use valid research methods for identifying and incorporating outside sources into projects
- Oral Communication/Presentations: Plan, devise, formulate, design, and report information via professional presentations or short talks for a variety of diverse technical and stakeholder needs
- Multimodal Communication: Identify, test, and skillfully integrate new software tools that allow for engineering work to be advanced; visualize, illustrate, and appropriately caption visuals; discriminate between methodologies for creating visuals other multimodal artifacts; create visuals and multimodal artifacts that are accessible
- Ethics: Identify, research, negotiate, and produce communication that respects diverse expertise and perspectives
- Teamwork: Collaborate effectively in teams (not simple ad hoc groups); appraise teammates' contributions; collaborate in teams to identify, negotiate, assign roles, draft, and finalize projects with equality of effort in mind