TECHNICAL COMMUNICATION, CERTIFICATE

The Technical Communication Certificate (TCC) has established itself as a program that meets industry and government agencies' demands for students with skills as communicators and for communication specialists. Because employers value well-developed communication skills, TCC courses will enhance success in co-op/intern positions and post-graduation careers. TCC graduates overwhelmingly confirm not only that the certificate gave them an edge over other candidates during the recruitment process, but also that the communication knowledge, skills, and attitudes they acquired while in the program helped them succeed in their jobs and helped prepare them for the diverse communication and management tasks in today's multifunctional team environments.

The Technical Communication Certificate, housed in the College of Engineering, complements all undergraduate degrees, but is especially designed to fit in well with an engineering degree. TCC students gain experience in career-applicable skills by

- Receiving education in principles and processes for communicating about technical subjects (including problem solving methods, audience analysis, rhetorical analysis, conventions of format, and usability testing).
- Gaining education in the fundamentals of written, oral, and visual communication (including organization, structure, style, mechanics, format, and delivery).
- Learning effective interpersonal communication and management skills (including teamwork, interviewing, leading and facilitating groups, project management, and international communication).
- Gaining opportunities to research and think analytically about contemporary issues and to consider ethical issues.
- Using current technology to encourage effective communication in a variety of environments (including use of the web, distance communication, electronic publishing, group software, and layout and presentation software).

While the certificate is designed especially for engineering students, students from other fields sometimes seek out the program to enhance their career options. Students who complete the certificate will have the notation "Technical Communication Certificate" added to their transcripts.

Students in the program often take on leadership roles in other college or campus student organizations and projects, further developing their communication, team, and management skills.

HOW TO GET IN

Undergraduates who would like to enroll in the Technical Communication Certificate may download the TCC Application form (PDF) (https://tc.engr.wisc.edu/certificate/applying-to-the-technical-communication-certificate/). Email the completed TCC Application along with a PDF of your current DARS report to Laura Grossenbacher, Director of the Tech Comm Program, at lrgrossenbac@wisc.edu. Graduate students and non-degree-seeking students cannot enroll in the TCC.

PREREQUISITES FOR ADMISSION TO THE TCC PROGRAM

- A grade of at least B in Communication A or equivalent course or AP English credits (score of at least 4 out of 5).
- Four courses (12-credit minimum) in science and/or engineering, including at least one intermediate-level (minimum 200-level) course.
- Three courses (9-credit minimum) in humanities, social sciences, and/or foreign language.
- Overall GPA of at least 2.5.

Applications are accepted throughout the semester, though students are encouraged to submit applications as early as possible so they have ample time to plan their coursework. The program will notify all new admissions via email.

REQUIREMENTS

To graduate with the certificate in technical communication, students must complete at least 21 credits, with a minimum of 6 credits in technical proficiency courses and a minimum of 15 credits in both technical and non-technical communication courses.

In addition to course requirements, students must achieve at least a B in the required Engineering Communication (INTEREGR 397) and the Technical Communications Internship (E P D 398). All students must complete the program within five years from their application date. Students are encouraged to meet with their advisor regularly to ensure they are on track to graduate with their certificate. Students cannot count courses completed on a pass/fail basis toward the certificate.

Substitution of courses substantively equivalent to those listed will be considered by the Technical Communication Curriculum Committee. Students must submit requests for substitution with supporting material before beginning the course.

PREREQUISITES

Code	Title	Credits
A grade of at least B in Communication A or equivalent course or AP English credits (score of at least 4 or 5)		
Select four courses (12-credit minimum) in science and/or engineering, including at least one intermediate-level (minimum 200-level) course		
Select three courses (9-credit minimum) in liberal studies including a foreign language		
Overall GPA of at least 2.5		

TECHNICAL PROFICIENCY

Code	Title	Credits
Select a minimum of one course each from two areas:		6
Computer Science		
Management/Economics/Business		
Total Credits		**6**

Computer Science

Code	Title	Credits
CBE 255	Introduction to Chemical Process Modeling	3
CIV ENGR/G L E 291	Problem Solving Using Computer Tools	4

Code	Title	Credits
COMP SCI 200	Programming I	3
COMP SCI 220	Data Science Programming I	4
COMP SCI 300	Programming II	3
COMP SCI 320	Data Science Programming II	4
INFO SYS 371	Technology of Computer-Based Business Systems	3
LSC 532	Web Design for the Sciences	3

Management/Economics/Business

Code	Title	Credits
A A E/INTL ST 374	The Growth and Development of Nations in the Global Economy	3
CIV ENGR 491	Legal Aspects of Engineering	3
CIV ENGR 492	Integrated Project Estimating and Scheduling	3
CIV ENGR 494	Civil and Environmental Engineering Decision Making	3
CIV ENGR 498	Construction Project Management	3
ECON 301	Intermediate Microeconomic Theory	4
ECON 302	Intermediate Macroeconomic Theory	4
ECON/A A E/ ENVIR ST 343	Environmental Economics	3-4
ECON 467	International Industrial Organizations	3-4
GEN BUS 301	Business Law	3
GEN BUS 302	Business Organizations and Negotiable Instruments	3
GEN BUS 365	Contemporary Topics	1-3
INTL BUS 200	International Business	3
INTL BUS/ GEN BUS 320	Intercultural Communication in Business	3
I SY E 313	Engineering Economic Analysis	3
I SY E/PSYCH 349	Introduction to Human Factors	3
I SY E 476	Industrial Engineering Projects	3
I SY E 515	Engineering Management of Continuous Process Improvement	3
I SY E 575	Introduction to Quality Engineering	3
MARKETNG 300	Marketing Management	3
MARKETNG 310	Marketing Research	3
MARKETNG 415	Social Creative Marketing	3
MARKETNG/ INTL BUS 420	Global Marketing Strategy	3
M E 549	Product Design	3
M H R 300	Managing Organizations	3
M H R 365	Contemporary Topics	1-3
M H R 420	Managing Change and Organizational Effectiveness	3
M H R 612	Labor-Management Relations	3
N E 571	Economic and Environmental Aspects of Nuclear Energy	3
OTM 365	Contemporary Topics	1-3
R M I 300	Principles of Risk Management	3

TECHNICAL COMMUNICATION REQUIRED COURSES

Code	Title	Credits
INTEREGR 397	Engineering Communication	3
E P D 398	Technical Communications Internship (Required. This course, completed in conjunction with the Technical Communication Internship, can be repeated for an additional credit, which will count toward elective courses in technical communication from EPD. Also, this course can be substituted with a special project completed as an Independent Study course. Only offered in spring.)	1
Total Credits		**4**

TECHNICAL COMMUNICATION ELECTIVES

Code	Title	Credits
Select a minimum of 8 credits [1]		8
Total Credits		**8**

Elective Courses in Communication

Code	Title	Credits
E P D 275	Technical Presentations	2
M E 231	Geometric Modeling for Design and Manufacturing	3
I SY E 515	Engineering Management of Continuous Process Improvement	3
BSE 270	Introduction to Computer Aided Design	3
BSE 375	Special Topics	1-4
CBE 324	Transport Phenomena Lab	3
CBE 424	Operations and Process Laboratory	5
CIV ENGR 159	Civil Engineering Graphics	2
COM ARTS 260	Communication and Human Behavior	3
COM ARTS 262	Theory and Practice of Argumentation and Debate	3
COM ARTS 266	Theory and Practice of Group Discussion	3
COM ARTS 272	Introduction to Interpersonal Communication	3
COM ARTS 355	Introduction to Media Production	4
COM ARTS 368	Theory and Practice of Persuasion	3
COM ARTS 562	Theories of Deliberation and Controversy	3
COM ARTS 575	Communication in Complex Organizations	3
ENGL 201	Intermediate Composition	3
ENGL 315	English Phonology	3
ENGL 318	Second Language Acquisition	3
GEN BUS 360	Workplace Writing and Communication	3
HISTORY 201	The Historian's Craft	3-4

HIST SCI 201	The Origins of Scientific Thought	3
HIST SCI 202	The Making of Modern Science	3
HIST SCI 203	Science in the Twentieth Century: A Historical Overview	3
JOURN 425	Video Journalism	4
JOURN 447	Strategic Media Planning	4
LSC 515	Social Marketing Campaigns in Science, Health and the Environment	3
JOURN/POLI SCI/ URB R PL 373	Introduction to Survey Research	3
JOURN 563	Law of Mass Communication	4
L I S 601	Information: Perspectives and Contexts	3
L I S/LEGAL ST 663	Introduction to Cyberlaw	3
LSC 350	Visualizing Science and Technology	3
LSC 515	Social Marketing Campaigns in Science, Health and the Environment	3
M H R 365	Contemporary Topics	1-3
M H R 401	The Management of Teams	3
PHILOS 210	Reason in Communication	3-4
PHILOS 241	Introductory Ethics	3-4
PHILOS 243	Ethics in Business	3-4
PHILOS/ ENVIR ST 441	Environmental Ethics	3-4
PSYCH 456	Social Psychology	3-4
PSYCH/I SY E 653	Organization and Job Design	3
SOC 535	Talk and Social Interaction	3

Independent Study courses by instructor approval only [2]

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Note: These E P D courses **do NOT count toward** the TCC:
- E P D 654 Teaching in Science and Engineering
- E P D 690 Core Competency in Sustainability
- E P D 690 ATE Powertrain
- E P D 690 Essential Skills for Engineering Productivity

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Special credits in Technical Communication include E P D 499 Senior Independent Study.

SENIOR DESIGN OR CAPSTONE

Code	Title	Credits
Select one of the following:		3-4
B M E 400	Capstone Design Course in Biomedical Engineering	
B M E 402	Biomedical Engineering Capstone Design II	
BSE 508	Biological Systems Engineering Design Practicum I	
BSE 509	Biological Systems Engineering Design Practicum II	
CBE 424	Operations and Process Laboratory	
CBE 450	Process Design	
CIV ENGR 578	Senior Capstone Design	
E C E 453	Embedded Microprocessor System Design	
E C E 491	Senior Design Project	
E M A 469	Design Problems in Engineering	
G L E 479	Geological Engineering Design	
I SY E 476	Industrial Engineering Projects	
I SY E 450	Industrial Engineering Design II	
M E 349	Engineering Design Projects	
M E 351	Interdisciplinary Experiential Design Projects I	
M E 352	Interdisciplinary Experiential Design Projects II	
M S & E 470	Capstone Project I	
M S & E 471	Capstone Project II	
N E 412	Nuclear Reactor Design	
N E 571	Economic and Environmental Aspects of Nuclear Energy	

CERTIFICATE COMPLETION REQUIREMENT

This undergraduate certificate must be completed concurrently with the student's undergraduate degree. Students cannot delay degree completion to complete the certificate.

LEARNING OUTCOMES

1. Understand and apply principles and processes for communicating about technical subjects to diverse audiences.
2. Understand and apply fundamentals of written, oral, and visual communication.
3. Apply improved skills in interpersonal communication, teamwork, and management.
4. Research, identify, and think analytically about social, global, economic, political, environmental, and ethical issues as they impact technical projects or engineering work.
5. Use current technology to communicate effectively in a variety of formats and environments.
6. Engage in real world experiences through communication internships and guest lectures.