University Of California, Berkeley
Department of Mechanical Engineering

ME Course Number –C290X : Advanced Technical Communication: Proposals, Patents, and Presentations [3 units]

(Graduate Course)

Syllabus

- ONLINE RESOURCES: Course website
- CATALOG DESCRIPTION
- In a sense, technical prowess is a necessary but insufficient condition for success in professional engineering practice. Particularly in multidisciplinary engineering applications, effective and efficient technical communication within and across disciplines is arguably the most important aspect of professional development beyond technical prowess, whether in industry, academia, or elsewhere. Communication in this context refers to such activities as writing research papers or technical reports, preparing research or job proposals or business plans, drafting patents, and presenting any or all of this to a live audience via concise and compelling presentations. Critique of your own and other's work is integral to refining your own work, assessing the quality of other's work, providing valuable feedback, and mentoring colleagues. This course will help the advanced student develop these critically important traits via a series of lectures, interactive workshops, and student projects that will address research papers and technical reports, patents, proposals and business plans, and oral presentations. One key concept will be the emphasis on focus and clarity — achieved through clear and critical thinking regarding objectives. While many examples will be drawn from health care and bioengineering multidisciplinary applications, the course is suitable for any engineer and individual student interests will guide topics used in the workshops and class projects.
- COURSE PREREQUISITES
    - Students must have passed their PhD qualifying exam.
- TEXTBOOK(S) AND/OR OTHER REQUIRED MATERIAL:
- *Essentials of Writing Biomedical Research Papers,* 2nd Edition, 2000, Mimi Zeiger, McGraw-Hil, New York, NYl; ISBN 0-07-134544-2
- COURSE OBJECTIVES
    - Refine ability to write and critique technical papers and proposals and to give oral presentations and communicate effectively in a professional environment. Develop

critical thinking for argumentation. Understand key elements of proposals, patents, and business plans.

- TOPICS COVERED

WEEK #	Topic
1	Introduction
2	Words
3	Sentences
4-5	Critical Thinking
6	Paragraphs
7	The Introduction Section
8	Data, Uncertainty, and Statistics
9	Graphical Presentation of Data
9	The Methods and Results Sections
10	The Discussion and Abstract Sections
	Spring Break
11	Proposals and Business Plans
12	Patents
13	Oral Communication; Presentations and Slides
14	Communicating for Leadership and Conflict Resolution;
15	Closure
	[Student Presentations]

- COURSE FORMAT
    - 3 hours of lecture per week.
- ASSESSMENT OF STUDENT PROGRESS TOWARD COURSE OBJECTIVES
    - Weekly homework assignments and class participation (50%).
    - Final project (50%).

Instead of exams, there will be weekly reading and writing assignments, one oral presentation, and one course project. For the oral presentation, each student will offer a 10-minute slide presentation to the class on a topic of their choice. Each presentation will be peer-reviewed by the entire class. For the course project, each student will prepare a professional-quality report (journal article, proposal, business plan, patent application), each of which will be peer-reviewed and edited by three students.

- ESTIMATED TOTAL NUMBER OF REQUIRED HOURS OF STUDENT WORK PER WEEK. 10 HRS.
- GRADING OPTION: PASS-FAIL ONLY.
- PERSON(S) WHO PREPARED THIS DESCRIPTION: Tony Keaveny.