

Course Description

7057 - Engineering Communication and Critical Thinking

Course Code:	ELEC ENG 7057
Course Title	Eng. Communication and Critical Thinking
Academic Year:	2008
Course Type:	Masters Core
Credit Points:	3 Units
Semester:	1
Lecturers:	Mrs Kristin Munday
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Eligibility:

The course is compulsory for International M.E.(Electrical) students from language backgrounds other than English who presented an English language score (IELTS or TOEFL) for admission, or who entered via a Foundation Studies Program.

Teaching Method: 10 hours of lectures (1hr per week)
20 hours of seminars (2 hrs per week)

Assessment: 50% assignments
50% homework

Course Aims:

- To provide language development in English as a second language for listening in lecture settings; lecture and tutorial note taking; active listening; technical writing; preparing papers, reports and technical documents; reading; informal technical discussion; formal oral presentation
- To introduce linguistic principles as tools to assist communication in English as a second language and in cross-cultural settings
- To equip students with critical thinking skills (eg, intellectual resources of clear, systematic and rational approaches to the selection, ordering and presentation in a variety of modes, of academic material in all disciplines)
- To develop skills to take part in and to run meetings (including office meetings and project status meetings)

Course Outcomes:

On completion of this course students should be able to:

- appreciate some of the ways in which purpose shapes communication
- develop and present evidence based propositions
- identify and begin to apply the language features of academic writing and speaking
- locate appropriate sources of information toward assignments

- critically read and interpret information in the development of an objective point of view
- write appropriate texts which demonstrate a logical development of proposition(s) and analysis of issues
- present an understanding and analysis of issues in a formal seminar presentation
- participate in class and group discussions, and present decisions made to class colleagues in informal presentations.
- demonstrate an awareness of social, cultural and ethical issues and be able to discuss these in relation to professional and social responsibilities
- run and take part in project status meetings and office meetings

Graduate Attributes to be Developed:

- **GA1** A commitment to maintain an advanced level of knowledge throughout a lifetime of engineering practice and the skills to do so.
- **GA2** The ability to apply knowledge in a systematic and creative fashion to the solution of practical problems.
- **GA3** A commitment to the ethical practice of engineering and the ability to practice in a responsible manner that is sensitive to social, cultural, global, legal, professional and environmental issues.
- **GA4** An ability to plan, manage and implement solutions that balance considerations of economy, quality, timeliness and reliability as well as social, legal and environmental issues.
- **GA5** Interpersonal and communication skills for effective interaction with colleagues and the wider community.
- **GA6** An ability to work effectively both independently and cooperatively as a leader, manager or team member with multi-disciplinary or multi-cultural teams.
- **GA7** Personal attributes including: perseverance in the face of difficulties; initiative in identifying problems or opportunities; resourcefulness in seeking solutions; and a capacity for critical thought.
- **GA8** A commitment to the highest standards of professional endeavour and the ability to take a leadership role in the community.

These programs also foster the graduate attributes of the University of Adelaide and the Institution of Engineers Australia. These should be read in conjunction with the list above.

Assessment of Graduate Attributes

Attributes **GA1 – GA8** will be assessed through the homework exercises and assignments. The design, facilitation and delivery of a conference is designed particularly to develop and assess attributes **GA4, GA5, GA6, GA7**, but will also assess attributes **GA1, GA3 and GA8**. Completion of the conference assignment will also require students to undertake independent learning and research and so will develop in students the realisation of the necessity to continually acquire new knowledge and understanding. Thus completion of the project will develop and assess attribute **GA2**.

Course Synopsis

Engineering Communication and Critical Thinking provides strategies and practice in developing skills to enable students with English as a second language to maximize their capacity to learn and to interact effectively in an English speaking academic and professional environment. This course explores communication in a cross cultural setting, and provides strategies for effective

academic and professional writing and seminar presentations. Seminars provide information about and practice in locating, analysing and evaluating appropriate sources of information, and consider differences in style and format of documents written for different purposes. The course provides the opportunity to develop skills for professional speaking in a variety of settings.

Content:

This course consists of a series of lectures and seminars. Topics include:

- Course overview, introduction to academic writing, formulating an argument and using evidence to support it. Introduction to research essays.
- Reading and research. Note-taking skills, referencing and citation, avoiding plagiarism, using IEE and Harvard referencing styles, Practice in paraphrasing, quoting and referencing. Library seminar.
- Oral Communication skills. Listening strategies and interpersonal communication in different contexts such as meetings, lectures discussions, interviewing. Cross-cultural communication. Project status meetings, office meetings. Creating Powerpoint presentations for meetings.
- Conducting formal meetings. Planning, organising and participating in project status meetings and formal office meetings.
- Speaking Professionally. Formal oral presentations, informal technical discussions, Using Powerpoint in presentations Skills and strategies for speaking confidently in public and participating in informal technical discussions. Short oral presentations.
- Critical thinking. Statement, propositions, premises, inferences and conclusions. Deduction, induction, validity and reliability, cause and effect. Clarity, reliability of inferences.
- Academic & technical writing. Organisation of material, developing an argument, using evidence. Tone, register, format, cohesion, readability, self editing. Writing an abstract. Working with your writing: editing and presenting an article for publication in a journal. Reports, format, style.
- Practice in speaking – oral reports. From writing to speaking. Practical application of skills, presenting to an audience.

ASSESSMENT

This course is assessed by continuous assessment, based on homework exercises, and by three assignments, to be completed by the end of the course.

Homework Exercises: 50%

Due one week after they are set.

Assignments

Each student will be a speaker at one mini-conference.

Working as a **team**, each group will **plan, promote** and **facilitate** a mini-conference. Students will be divided into groups by the lecturer.

Each team will be required to conduct a number of formal meetings to organize their conference (including creating agendas for the meetings and keeping minutes of the meetings.)

Report: 10%

At the conclusion of the process you will present a short report of your team's process. (This report is a collaborative effort: one report per team.)

Public Presentation: 20%

Final three weeks of Semester

Each person will present a 15 minute talk on one aspect of the conference theme. This presentation is based on individual research.

Journal Article: 20%
Due Monday 2nd June

Each person will write an **article on a specific topic**, suitable for publication in a reputable journal and present it for publication. This is an individual research assignment.

This is the written form of the material you individually present in the conference.

Recommended Reading:

Beer, D & McMurrey, D 2005, *A Guide to Writing as an Engineer* (2nd ed), John Wiley and Sons, Hoboken.

Chaffee, J, McMahan & Stout, B 2008, *Critical Thinking, Thoughtful Writing: A Rhetoric with Readings*, (4th ed), Houghton Mifflin, Boston.

DeVito, J 2005, *Essentials of Human Communication*, (5th ed), Pearson Education, Inc., Boston.

Eunson, B 2005 or 2006, *Communicating in the 21st Century*, John Wiley and Sons, Milton.

Hart, H 2005, *Introduction to Engineering Communication*, Pearson Education, Inc.. Upper Saddle River.

Huckin, T & Olsen, LA 1991, *Technical Writing and Professional Communication for Nonnative Speakers of English*, (2nd ed.), McGraw-Hill, Inc. New York.

Graff, G and Birkenstein, C 2006, *They Say / I Say: The Moves That Matter in Academic Writing*, Norton, New York

Mohan, T McGregor, H Saunders, S & Archee, R., 2008, *Communicating as Professionals*, Thomson, Southbank.

Raimes, A 2006, *Pocket Keys for Writers* (2nd ed), Houghton Mifflin, Boston.

Riordan, D 2005, *Technical Report Writing Today*, (9th ed), Houghton Mifflin, NY.

Sales, HE 2006, *Professional Communication in Engineering*, Palgrave, Basingstoke.

Stevenson, S & Whitmore, 2002, *Strategies for Engineering Communication*, John Wiley and Sons, Inc., New York.