

PREFACE

About This Multimedia Textbook

“Research Communication: EFL for Scientists & Engineers” is an English as a Foreign Language (EFL) course-ware designed for graduate and fourth-year students majoring in engineering and the sciences in Asian countries. Using a multimedia-based approach, it seeks to address the felt English needs of graduate students in engineering (and the sciences) while taking into account the technology with which these students and teachers are familiar.

Firstly, engineering students (including recent graduates) *need* English for communication in the areas of:

- *One-to-One Oral Interaction* at international scientific conferences and when foreign engineers visit their company
- *Listening to a Scientific Presentation* at a conference and understanding the main points
- *Presenting Research Results* at international conferences or to English-speaking bosses
- *One-to-One Written Correspondence*: This includes emailing suppliers or other companies for information as well as more formal correspondence, such as applying for jobs at foreign companies
- *Reading Scientific Literature* in order to quickly understand the main points of the paper
- *Writing Scientific Research Papers* and Graduation Thesis

On one hand, the nature of these needs means that many topics not commonly considered in EFL courses, such as viewgraph optimization and formatting a major research paper, are included. On the other hand, the needs of EFL students require the inclusion of many topics not normally included in Technical Communication books aimed at native English speakers.

Secondly, engineering students *use* vocabulary that is highly specific to the actual topic of their thesis. They use word processors with grammar and spelling checks, and, in many schools, have access to a native English speaker who can check their work for grammatical and spelling errors. Thus, rather than focusing on micro-issues, this work focuses on macro-issues, i.e. structural issues, in English that are difficult for reviewers to correct.

Thirdly, Asian engineering students, especially males, are generally “*shy to speak*” during classes. This work thus includes many small-group activities (based on the communicative methodology) that encourage students to get over their fear of speaking as they integrate the material into their research.

Fourthly, since teachers (facilitators) in the engineering field are generally not native English speakers, animated viewgraphs (usually with audio) are used to guide students, introduce key concepts and refer students to key points in the textbook as they work together in small groups. This allows the teacher to act as a facilitator rather than a lecturer.

Finally, the annual XTOP conference following the course, besides providing motivation, gives students the opportunity to present their research results in an academic environment.

How To Study

In a Formal Course (18-24 students)*

The textbook is arranged as four modules (Basic Oral Skills, Basic Written Skills, Advanced Oral Skills and Advanced Written Skills) that can be taught independently with modules selected according to the needs of the students (for example, the Department of Communication Engineering at Yuan Ze University uses only the Basic and Advanced Written modules, while the English Communication for Academics (ECA) program for undergraduate engineering students makes use of only the Basic Oral and Basic Written modules). In the case that all modules are to be taught, the author has found the following sequence helpful.

1. Master students 1st year, 2nd semester (18 weeks, 2~3 hours/week)

Students at this level are starting to read papers and attend conferences but do not yet have research results to present to others. Thus, they need to concentrate on inputting information rather than outputting information at this stage in their studies. The Basic Oral and Written Modules are appropriate at this point as they cover one-to-one interaction (oral and written) as well as listening and reading.

2. Master students, 2nd year, 1st semester (18 weeks, 2~3 hours/week)

Students now have some research results and are thinking about writing their thesis. If their research went well, this will likely include a conference presentation and a journal paper. They need the skills necessary to organize their thesis and their graduation defense. The Advanced Written and Oral modules are appropriate at this point as they cover writing a thesis and giving an oral presentation at a conference.

* Detailed course-flow information and textbook outline are online at <http://rc.xiaotu.com>. Teaching notes are available from the author.

3. Winter vacation: XTOP conference

Preparing papers in a 2nd language is not easy and requires motivation as well as the opportunity to experience the stresses of an oral presentation. The XTOP conference gives students the opportunity to present their results in English to their peers (<http://xtop.xiaotu.com>).

In a Small Group (3~6 members)

Language is a form of communication. Communication requires both a speaker and a listener. Thus, studying as an individual is not a good option.

Ideally, you will form a small group of friends to study together. This series is designed so that a small group (without the aid of a native English speaker or a trained English teacher) can study the material together.

In order to study this way, your group requires:

- A copy of the work-/textbook for each member in the group (e.g. if there are 3 members in your study group, you need 3 copies of the book for the module that you are studying)
- One copy of the audiovisual (Flash Animations). This will be used for guiding the study.

Group members then appoint one member as the “facilitator”. His responsibilities involve looking through the viewgraphs and animations before the meeting. During the meeting, it is his responsibility to control the flash animations and keep track of time allocation for the various exercises. Note that the facilitator does not need to have a better command of the English language than other group members.