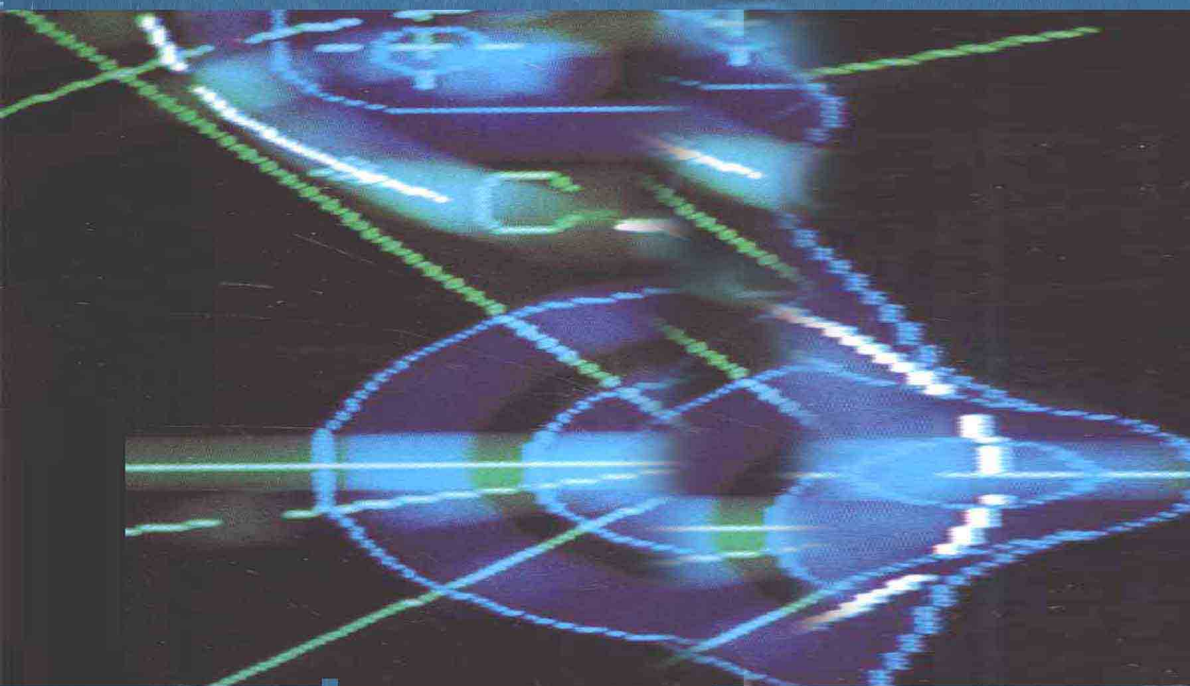SECOND EDITION

Technical Writing
and
Professional
Communication

Leslie A. Olsen and Thomas N. Huckin

Technical Writing

and

Professional
Communication

Leslie A. Olsen
The University of Michigan

Thomas N. Huckin
The University of Utah

For our parents, Christiane, Neil, and Jed

About the Authors

Leslie A. Olsen is the Director of the Technical Communication Program at the University of Michigan's College of Engineering. She teaches courses on theory and practice of rhetoric and composition, technical and professional writing and speaking for both native and nonnative speakers of English, and discourse analysis. She conducts research on coherence and cohesion, readability, computer-assisted writing analysis, documentation, and the structure of scientific, technical, and legal language.

Dr. Olsen has B.A.s in Chemistry and English and an M.A. and Ph.D. in English, all from the University of Southern California. She has taught at the University of Michigan since 1972 and served as Visiting Associate Professor at Carnegie Mellon University, technical writer and editor for the U.S. Navy and Benjamin Publishing Company, and supervisor for the development and installation of a sophisticated text processing and publishing environment for the University of Michigan's Computer-Aided Engineering Network (CAEN). She has consulted for a variety of industries and governmental agencies, including IBM, Dow-Corning Corporation, Exxon Education Foundation, Michigan Bell, Bell Northern Research, Moody and Associates Gas Exploration, the National Endowment for the Humanities, the Michigan Supreme Court, the Tennessee Supreme Court, the Michigan Department of Corrections, and the Industrial Technology Institute, a nonprofit corporation developing computer-assisted manufacturing and design.

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Dr. Huckin's research interests include the rhetoric of scientific writing, second-language vocabulary acquisition, the linguistic analysis of stylistic prescriptions, and the cognitive processing of argumentative texts. He is an Affiliated Researcher at the Center for the Study of Writing at Carnegie Mellon University.

Professor Huckin has been a Senior Fulbright Lecturer at the Catholic University in São Paulo, Brazil, and has taught technical communication courses at the Eindhoven University of Technology, Eindhoven, the Netherlands, and at the General Motors Technical Institute in Michigan. He has also served as a consultant to private corporations and government agencies.

Dr. Huckin holds an A.B. degree in English from Princeton, a Diploma in French Civilization from the University of Paris (Sorbonne), and a M.A. in Comparative Literature and a Ph.D. in Linguistics from the University of Washington. When not working, he can often be found climbing or skiing in the Wasatch Mountains of northern Utah.

Preface

Both technical writing and professional communication will have an effect on students' future producing and consuming careers. Whether they will assemble children's backyard playground equipment or build a bridge, whether as taxpayers they will present a proposal for refuse pickup for a community board's consideration, or as committee chairs present the design department's recommendation for computerized inventory control forms to upper management, concise technical messages and clear professional communication are needed to ensure that information is effectively received and/or sent. This text is designed to help students achieve success in the realization of these goals.

Technical Writing and Professional Communication, second edition, is the revision of Principles of Communication for Science and Technology and is designed for intermediate and advanced students in both basic and applied sciences and business and other technically oriented professions. It focuses on those aspects of scientific and professional communication that are known to be troublesome for both university students and industry employees. It emphasizes principles and use rather than usage—it offers functional explanations rather than formal rules.

OUR APPROACH

We have maintained the functional/rhetorical focus of the first edition, and believe it is the text's most important feature. That is, Technical Writing and Professional Communication emphasizes the communicative use of language rather than simply its formal aspects. Although we have treated the formal aspects of language where appropriate (in discussing report formats, grammar,

punctuation, and visual elements), we have placed more emphasis on the psychological, social, and rhetorical principles underlying effective communication. In doing so, we have focused on language in meaningful contexts, not on sentences or words in isolation.

A second important feature of the book—and one which stems from its rhetorical approach—is its treatment of the early stages of writing. How does a writer think up something to say, find and define a topic, find appropriate things to say about a topic? In our experience, even if students or professional engineers have been assigned to do particular studies and to write reports about them (and thus have found topics), they often do not know how to set up and state a report's problem effectively for a given audience or how to define and apply criteria needed to solve the problem. These skills are critical for scientific and technical professionals, and Chapters 2, 3, 4, and 6 of the book deal explicitly with them in an approach strongly indebted to classical argument and to Richard E. Young, Alton Becker, and Kenneth L. Pike's *Rhetoric: Discovery of Change.*

As the third important feature of the book, we believe we have provided complete and explicit explanations of the main points. We believe that science, engineering, and other professional students prefer systematic, step-by-step instruction and that they like to have reasoned explanations for how things "work." It follows that this approach to how language functions in communication is the most effective for these students.

This point gives rise to yet another feature of the text, namely, its more overt emphasis on the *process* of producing an effective piece of communication for a given audience. Too often, we think, textbooks treat writing as a finished product. Models of good writing for the student to imitate are presented, but adequate guidance by which the student can learn to cope with novel situations on his or her own is not given. We have provided step-by-step procedures that students may follow as guides to the writing process, including a number of flow charts and newly added sections on prewriting, word processing, revising and testing, and footnoting and referencing. At the same time, we continue to emphasize the fact that technical communication is a *social* process in which *text conventions* play a major role.

NEW TO THIS EDITION

In addition to the sections mentioned previously, we have added other new and/or expanded features to reflect the rapidly changing environment in which technical communication occurs.

- Integrated throughout the text is a concern with international dimensions of modern communication that reflects the important fact that science, technology, and business are increasingly becoming global activities.

- Treatment of the ethical dimensions of communication is prompted by the rising interest in ethical concerns as reflected by the many scandals that have plagued government and corporate officials in recent history.

- A concern with multiple authorship and group activities reflects the increased prominence of writing and publication teams in organizational and private settings.

- Many case study exercises provide simulated group activities and organizational settings for students accustomed to working alone in academic environments.

- The treatment of computer-based writing in Chapter 5 provides guidance on how to use the dramatically increased availability of computer resources most effectively.

- The expanded coverage of genres in Part IV satisfies the need for treatment of instructions, procedures, and computer documentation; of oral communications such as those that occur in meetings and negotiations; and of theses and dissertations.

Finally, we hope that *Technical Writing and Professional Communication* will serve not only as a course text, but also as a long-term reference work. As such, it should be especially useful to both university-level students in technical areas who are including English in their studies and who plan to continue into technical careers, and to practicing scientists and engineers who need a self-instructional reference book in written and oral English for technical communication.

- This edition contains a partial answer key provided as an aid to learning for both these groups of learners as well as for their instructors.

- To further increase the book's usefulness, we have included many exercises, lists of supplementary readings, a reference appendix on punctuation, sample reports and letters, and indexes.

- Additionally, an Instructor's Manual is available which contains additional exercise material, suggestions for setting up the curriculum and course syllabus, advice on how to use different chapters, topics for class discussion, and other aids for instructors.

NOTE TO INSTRUCTORS

While English is the primary language of business, technical, and scientific subjects, it may not be the native language of many students of these disciplines. Therefore, a companion text to the one in your hand, titled *Technical Writing and Professional Communication for Nonnative Speakers*

of English, second edition, is also available. The first twenty-eight chapters of both texts are identical so that both books can be used in the same classroom to cover basic principles of technical communication. The remaining ten chapters and appendixes in the version for nonnative English speakers include coverage of special problems that nonnative speakers are known to have when using English: countability and the indefinite article, the definite article, verbs, modal verbs, relative clauses, connectives, noun compounds, vocabulary building, informal conversational expressions, and pronunciation.

Acknowledgments

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