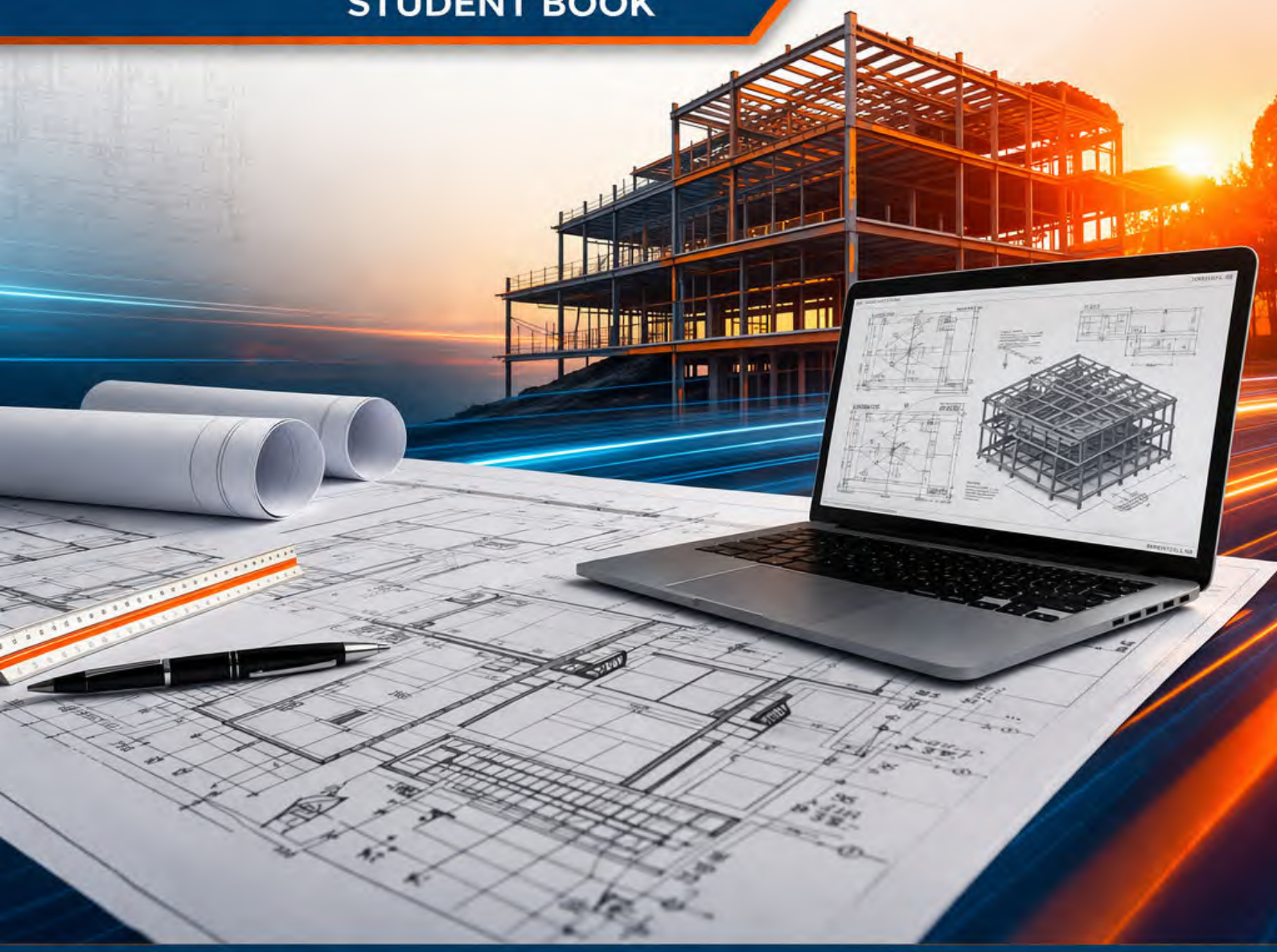
TECHNICAL WRITING *for* STRUCTURAL ENGINEERING

A 20-Hour Course

STUDENT BOOK



Dr. Kathy O'Sullivan

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Introduction

Welcome to *Technical Writing for Structural Engineering*. This ten-week practical course (20 hours) is designed to help you produce clear, accurate, and professional technical documents that meet industry standards. The course provides a focused introduction to professional communication in structural engineering, with an emphasis on writing and designing key documents such as structural design reports, specifications, and other project documentation. You will also develop skills in ethical communication, data validation, and the effective use of visuals to ensure that your work is transparent, accurate, and professionally defensible.

This Student Book is designed to be used alongside the Teacher's Guide. While this book provides tasks, activities, and space for your work, the Teacher's Guide contains detailed explanations, examples, and step-by-step support to help you understand and complete each task successfully. Using both together will give you the strongest support throughout the course.

The course focuses on practical, hands-on learning. You will work with model documents, practice writing your own texts, give and receive peer feedback, and reflect on your progress. Each week builds on the last, guiding you from core principles of professional writing to producing a complete structural design report and delivering a clear, audience-appropriate presentation.

A few key principles guide everything you do in this course:

- Clarity: Make your ideas easy to understand.
- Accuracy: Ensure your data and information are correct and verifiable.
- Ethics: Document assumptions, cite sources, and communicate responsibly.

By the end of the course, you will be able to:

- Produce professional technical documents, including structural design reports and specifications, that follow industry standards.
- Apply ethical principles in your communication by ensuring that all information is accurate, transparent, and properly supported.
- Use visuals such as drawings, diagrams, and tables effectively to support and clarify your writing.
- Present technical information clearly and confidently to both technical and non-technical audiences.

Even if you already have strong technical knowledge, this course will help you express that expertise clearly and professionally. You will learn to organize information logically, explain your reasoning concisely, and produce documentation that can stand up to scrutiny in a professional context.

The course is interactive and workshop-based. You will learn by doing: analyzing examples, writing, reviewing, and discussing. By the end, you will have the skills to produce professional documents and presentations that are clear, defensible, and ethically sound.

Week 1 – Foundations of Structural Engineering Communication

Learning Outcomes:

- Explain importance of clear, concise, defensible documentation
- Identify characteristics of professional structural engineering documents
- Apply ethical principles including verification and accurate reporting
- Produce short professional writing samples

Warm-Up Discussion

Think of a time unclear communication caused a problem. Share one example briefly.

Keywords to remember: Accountability, Clarity, Transparency, Verification

Reading Activity 1: Vague vs. Defensible Statements

Email A (vague):
The beams look fine. Loads seem standard. Not sure about cracks.

Email B (defensible):

The reinforced concrete beams were inspected for live and dead loads of 4 kPa and 2 kPa, based on occupancy assumptions. Material properties were verified using supplier certificates. Calculations were manually checked. All assumptions are documented.

Email C (vague):
The columns are probably okay. The foundation seems fine.

Email D (defensible):

The reinforced concrete columns were inspected and meet design specifications. The foundation was verified to carry expected loads. Supplier data and design drawings were reviewed and confirmed.

Tasks:

1. Circle vague terms in Emails A and C.
2. Underline precise, defensible language in Emails B and D.

Mini Writing Practice:
Rewrite one vague sentence from each email.

Sentence-Level Drills

Rewrite clearly and defensibly:

1. The foundation seems strong.

2. Minor cracks may not matter.

3. The roof load looks okay.

4. The beams probably meet the requirement.

5. Columns appear standard.

6. The beams probably meet the requirement.

7. Loads seem normal.

8. The design looks acceptable.