
PRACTICAL SPECIFICATION AND TECHNICAL WRITING FOR ENGINEERS AND OTHER TECHNICAL PROFESSIONALS



YOU WILL LEARN HOW TO:

- Systematically design and write accurate and comprehensive technical specifications
- Write realistic specifications, thereby improving project management and performance
- Write clear and concise formal reports, equipment manuals and other technical documentation
- Develop effective communication with technical as well as non-technical staff at all levels (from top management within the organisation to the end user in the home environment)
- Brainstorm and identify technical problems and solutions
- Collect, organise, analyse and evaluate information
- Transfer technical information into powerful graphs, flowcharts and tables
- Translate technical documents into captivating oral presentations

WHO SHOULD ATTEND:

- Engineering Professionals (e.g. Project and Design Engineers)
- Technical Personnel
- Maintenance/Supervisory Managers
- Maintenance Planning Staff
- Project Team Members in: manufacturing, process industries, tendering, contracting, marketing, procurement, feasibility study, research & development, utilities, local authorities

The Program

INTRODUCTION TO TECHNICAL WRITING

- Fundamentals of Technical Writing (clear, concise, accurate)

FORMATS OF TECHNICAL WRITING

- Formal Report, Technical Memo Reports, Technical Proposals, Equipment/Maintenance Manuals, Journal Articles

TYPES OF TECHNICAL REPORTS

- Periodic, Progress, Research, Recommendation, Field, Feasibility.

COMPILING THE REPORT

- Establish a framework
- Terms of reference (subject matter, purpose for writing it, reader of the report)

STRUCTURE OF A TECHNICAL REPORT

- Main sections (introduction, findings, observations, discussions, conclusion, recommendations, executive summary)
- Elements of Technical Writing (factual versus opinion, logical flow of writing, results of research)
- Other sections (title page, table of contents, lists, appendices, references)

Case Study: developing a awareness of fact and opinion substantiating opinions with facts

Practical Session: determining terms of reference and writing an introduction

DEVELOPMENT PROCESS:

- Preparing to write (establish a writing objective)
- Identify readers
- Perform necessary research (including interviewing skills, listening process, note taking, reading process)
- Organising the report
- Methods of development (general to specific, specific to general, chronological, sequential, cause & effect, comparison, spatial)
- Overview of conclusion/recommendations section

Practical Session: applying the four stage reading process, group discussion on conclusion and recommendations

REPORT OUTLINE

- Mind mapping
- Outline formats (academic & engineering outline styles)
- Rough draft
- Revising the report
- Activate the writing (correct grammar, language, expressions & units of measures)
- Simplify the writing (word/sentence/paragraph lengths, fog index)

Practical Session: Investigating faulty construction methods. Participants to research design faults and problem areas take observations findings, mind map write a rough draft

FINALISING THE REPORT

- Report appearance (white space, headings/sub-headings, colour, illustrations, graphic material)

Practical Session: Interpreting graphic material, graphic presentation

VERBAL PRESENTATION OF YOUR REPORT

- Preparing your presentation, using the report as guideline
- Formulating the central message
- Arranging the ideas, facts & supportive arguments logically
- Mind mapping technique
- Make a positive impact (appearance, gestures, eye contact, body language, style of speaking)
- Using visual aids effectively (types of visual aid equipment, using the equipment correctly)
- Maximising delivery (fielding questions, managing answers, handling difficult situations, short talk guidelines, impromptu sessions)

Practical Session: delivery of a 10 minute presentation each delegate delivers a presentation on a particular aspect of the technical report

SPECIFICATION WRITING

- Fundamentals of Specification Writing
- Preparing the Specification (customer, market, risk, product, scope)
- Specification Database (basic specification information, organising input from different specialists & sources)

Practical Session: brainstorming exercise, creating a specification data input sheet

STRUCTURE OF TECHNICAL SPECIFICATIONS

- Master format (correct numbering & Titling)
- Section format
- Section 1: Administration - definitions, descriptions, quality assurance, warranties; Procedures - delivery, storage, handling; Maintenance - extra materials required, service
- Section 2: Product Information including manufacturer's details, materials, equipment requirements, system requirements
- Section 3: Execution of the Specification -preparation, installation, quality control, training

Practical Session: format outline

SPECIFICATIONS AND CONTRACTS

- Securing a contractor
- User manual
- Contract
- Review checklist

SPECIFICATIONS AND THE PRODUCT

- Detailed descriptions, standards, performance, property rights

SPECIFICATIONS AND STATEMENTS OF WORK

- Services and products

Practical Session: writing specification clauses

CHECKING THE SPECIFICATION

- Functional language correctness, theory, prototypes, realistic specifications, compliance test and evaluation criteria

Practical Session: Editing the specification

TYPES OF SPECIFICATIONS

- Government specifications and standards, industry standards, specifications for complex goods and services, performance specifications, design specifications, cancelled specifications

Practical Session: Creating a specification template

WRITING THE SPECIFICATION

- Time and cost framework, collaboration with other purchasers, using consultants & specialists, liaison with industry, specific & non-specific requirements, tiering of specifications, reviewing specifications, constructive changes, errors in specifications, conflicting requirements, setting data requirements, warranties, tolerances, specification approval & authorisation, configuration management, hazardous materials, conflicting requirements, setting clear limits, property disposal, quantities, performance and design, outline responsibilities, professionalism

Practical Session: writing the specification

QUALITY DEPLOYMENT FUNCTION

- Historical background, management and planning tools, customer requirements, technical requirements, planning matrix (customer perceptions), interrelationship between technical and customer requirements, technical requirements versus product design, technical priorities and targets, QFD template

Practical Session: using the template as a specification design tool

DO'S AND DON'TS OF SPECIFICATION WRITING

SPECIFICATION CHECKLIST

SUMMARY, CLOSING AND GROUP DISCUSSION

The Workshop

Researching and preparing technical documents, especially technical specifications, calls for much time and effort. This workshop is designed to give you step by step guidance to writing these documents in a professional manner, working within a cost and time framework.

The workshop will demonstrate techniques to establishing more effective communication between technical and non-technical staff and foster skills relating to problem identification and solutions, plus enhancing skills in information seeking, research and organising collected data in a non-conflicting, unambiguous manner.

Pre-requisites

A fundamental knowledge of basic writing of reports is expected and some understanding of what you want to achieve with specification writing.