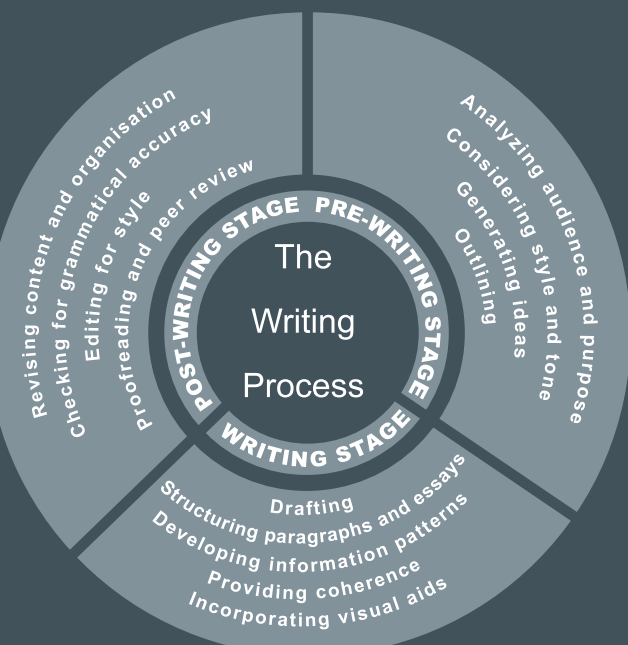


POLITEXT

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# Technical Writing

## A Guide for Effective Communication



EDICIONS UPC

*For our families*

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## Preface

### 1. Purpose and approach

This book arose from the need to have a textbook to teach technical writing to Spanish engineering students at university. Although there are good books on technical writing as well as on writing in general on the market, we could not find one that suited our students' needs: they were either too theoretical, too practical or simply aimed at students with a different cultural background. Because of this, we decided to write a book that kept the balance between the theoretical explanations necessary to understand the basic concepts on which technical writing is based and the practical aspects that would enable students to put into practice these theoretical concepts. After all, writing is a communication skill that is mostly learnt and mastered by practising it; it is not enough to have a good command of grammar and punctuation. Writing is a much more complex task requiring other techniques, such as organizing ideas logically and clearly, joining sentences coherently, using the appropriate tone and style, etc. Mastering writing, as any experienced writer knows, takes time and practice and a good way to improve writing that cannot be overlooked is reading. The more you read, the better you will write since reading is a practice that rubs off by improving vocabulary, grammar and writing techniques in general. Thus, students are encouraged to read as much as possible and from almost any kind of reading—magazines, fiction books, newspapers, novels, Internet articles, etc. Although the kinds of documents technical students will be asked to write may not require the same level of subtlety as for example a novel, they still call for some of the same skills.

The book's approach to writing is integrative and results from drawing on knowledge of three different approaches—product, process and genre. The process approach is the central one to which the other two are subsumed. We took the process approach as the core or central one because we believe it highly contributes to the development of students' writing abilities as it gives much importance to the skills or stages involved in writing. In a word, untrained writers, like most of our students, welcome having some sort of guidance to help them get started and organize their ideas, and this approach has proved to serve this purpose. We should emphasize that this approach is by no means prescriptive but acts more as

guidance allowing enough room for manoeuvre so that writers can adapt it to their own writing preferences. However, insofar as the process approach does not cater for certain fundamental teaching aspects such as the linguistic input and the different kinds of texts, it became necessary to incorporate other approaches. In this sense, the product approach accounts for the linguistic knowledge of texts, basically grammar and text structure, and recognizes the importance of the text as a final product. In addition, the genre approach acknowledges that writing takes place in a social context as a response to a particular need and so heeds the writing conventions established by the technical and scientific community. All in all, our approach seeks to merge the linguistic, procedural and social-cultural aspects that intervene in the process of writing technical documents.

## 2. Book organization

This book has been organized into three main parts:

- Part I. Introduction to Technical Writing
- Part II. The Writing Process
- Part III. Handbook

Part I, as its name indicates, introduces the basic concepts of technical writing: its importance, definition and main characteristics, as well as a brief description of the main functions found in this register.

Part II focuses on the process of writing. Its three main stages—pre-writing, writing and post-writing—are fully developed. Substages and their associated linguistic and structural aspects are also studied in detail.

Part III complements the former two by providing a summary of some language-related aspects such as the main linguistic constituents and punctuation rules. Besides, it includes further practice on the grammatical and stylistic points seen in Part II.

The parts are internally organized into an introduction and one or more chapters. The introduction is aimed at contextualizing and unifying the content of the part. Likewise, the chapters begin with a somewhat theoretical explanation of the topic in question which is complemented with illustrative examples and, whenever possible, visual information, thus facilitating understanding and appeal.

Finally, we would like to highlight the fact that this textbook is best complemented by a good array of the most common technical documents that engineers and technical professionals need to write at the workplace. For reasons of space and length, we decided to devote this textbook to the writing process only, but students should, either simultaneously or after Part II (or Part III), be exposed to a wide range of texts and have extensive and intensive practice in writing all kinds of technical documents for different purposes and situations.

### 3. Methodology

Because this book is intended to be a practical and useful manual, the theoretical explanations are followed by a wide range of tasks. In addition, in order to meet our students' needs, we have selected a variety of authentic texts from different sources (e.g. textbooks, research articles, magazines, lab manuals, Internet web pages and even newspaper articles) so as to cater for diverse engineering specialities. Having a considerable amount of tasks and texts is a valuable resource for teachers as it allows them to select those they find most convenient for their students. Keeping in mind that the activities are fundamentally task-based, combined with some problem-solution ones, the criterion adopted to organize them was to group the tasks according to whether they could be done individually or collaboratively. We should point out that this task division is not fixed or closed in the sense that individual tasks are only meant to be done individually and collaborative tasks only collaboratively. On the contrary, this classification is quite flexible as teachers can decide how the task can be carried out in class. Taking this into account, the different types of tasks included in this book fall into the following categories:

- ***Reflecting on questions.*** All chapters begin with what we called a *reflecting on* activity whose main function is to make students aware of different aspects that will be dealt with within the chapter. These awareness-raising questions also anticipate what the chapter is about.
- ***Task-based activities.*** These tasks aim to make students work with the different writing techniques previously explained within the chapter. Their increasing level of difficulty allows students to gradually become skilled at these techniques. This way, students acquire the different skills necessary to succeed in the more global and authentic problem-and-solution tasks.
- ***Problem-and-solution tasks.*** With these types of tasks technical students will be trained to work under similar circumstances to those they will find themselves in their future professional career.
- ***Critical thinking tasks.*** At some key points, evaluative thinking tasks have been included to make students critically analyze different topics and situations. These tasks go beyond subject-matter considerations and allow students to identify weaknesses, assess alternatives and evaluate evidence by making reasoned judgements.
- ***Project.*** This globalizing activity is divided into three main parts corresponding to the three main stages of the writing process and builds on the tasks within each stage. This project can be carried out according to two main approaches, namely top-down or bottom-up, so that students can choose the option that better suits their idiosyncratic learning style.

Both the flexibility of the tasks and the methodology described above enable this book to be used within the incoming European Educational System as it caters for students' individual needs and learning styles and promotes collaborative learning (which allows for teamwork with assignment of roles) and project work. Besides, the key to the exercises allows for great flexibility and dynamism because teachers can decide which tasks are to be done and corrected in class or at home, peer-reviewed or teacher-reviewed. In a word, the book can also be used as a kind of self-study book, where students become more responsible for their learning process by actively monitoring it.

The book can be used with both undergraduate and graduate students. Undergraduate students who have not received any instruction on technical communication will probably need to carefully read the theoretical explanations preceding most chapters and sections. In contrast, more mature students will either skip or merely glimpse at the introductory framework on their own at home and go straight to the tasks that will help them improve those skills in which they might be less proficient.

Finally, the materials also adapt to teachers with different teaching styles and with different degrees of experience in written communication. For example, teachers with little experience in written communication may well appreciate a structured and reasoned theoretical explanation before plunging into the tasks, whereas more experienced teachers can exploit this theory as a critical thinking or reflecting on task, thus making lessons more dynamic.

### **Acknowledgements**

We thank the authors and publishers of the material cited in this book for kindly giving us reprint permission. Although every effort has been made to contact authors and publishers, this has not always been possible so any information from them will be welcome and omissions or errors will be corrected.

To our students we owe their kind permission to use their written work and their comments because they greatly contributed to a better version of this book.

Thanks are also due to Brian Tomlinson and Hitomi Masuhara from Leeds Metropolitan University for their encouragement and their endless suggestions on innovative possibilities. They made us realize that this book is just a first attempt that will certainly need future revisions, as a textbook can never be a finished product. We are also indebted to Helen East from the Language Unit at the University of Cambridge for her wise and discerning suggestions.



# PART I

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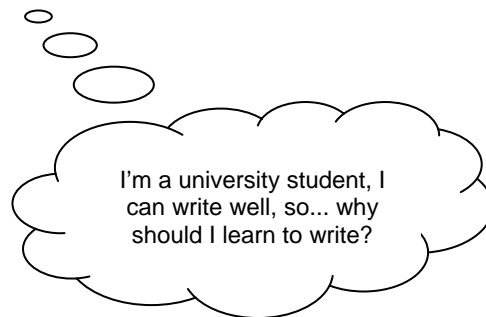
## INTRODUCTION TO TECHNICAL WRITING

### CHAPTER 1 What is technical writing?



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## Technical writing at university



Haven't you ever had this thought, or a similar one? Of course, most of you are more or less competent writers in your first language—maybe some even in English. In fact, many people can get through their lives with just a first language literacy to write postcards, recipes, shopping lists, or odd messages. These documents are quite spontaneous and transient and therefore do not require a large amount of planning. But we are not addressing you as apprentice writers or as English language beginners. Not even as proficient writers in general English. We are addressing you as future skilled professionals who need to perfect their writing skills in English from a professional point of view. This implies that you will need to be acquainted with certain types of documents, known as *genres*, which have specific characteristics (e.g. layout, content or style). The examples mentioned above (a recipe, a postcard or the shopping list) stand out as everyday life genres you already know very well. Yet, in your professional life you may very well need to write formal business letters and reports of different kinds. Each of these genres has its own characteristics and conventions that make it a genre and, as engineers, you'll be expected to write them appropriately.

One of our objectives in this book is to provide you with an awareness of the differences in language use that are associated with different contexts: engineers today are expected to be *multiliterate* (i.e. be able to use different registers according to the different communicative situations). As engineers you will soon realize that being literate is not enough and that

writing an email to a friend is not the same as writing in a job-related context. Although at this point we are just scratching the surface, you should be aware of what readers will expect your documents to look like. You should then be competent enough and deploy writing skills that allow you to adapt your documents to every writing situation. Being multiliterate in the sense defined above is not usually an easy task because you need to have a good command of:

- *content* knowledge: technical and scientific knowledge that is transferred to you at university,
- *context* knowledge: you should be sensitized about the importance of the scientific community or academic context in which your documents will be read,
- *English language* knowledge: level of proficiency in terms of syntax, grammar, vocabulary, etc. in general-purpose English *and* in technical English,
- *genre* knowledge: knowledge of the different written genres used in the technical professions, and
- *writing process* knowledge: knowledge of the most efficient writing skills and techniques for a writing task.

See how the above categories of knowledge can help you identify some of your knowledge gaps and self-assess your current level of writing competence at this very initial stage. More specifically, try to find out with which categories you would encounter difficulties when writing the documents below:

- |   |   |
|---|---|
| ✓ Request for detailed figures of faulty end products | ✓ MSc final project or thesis           |
| ✓ Evaluation of a machine breakdown                   | ✓ Technical manual                      |
| ✓ Laboratory report                                   | ✓ Brochure                              |
| ✓ Departmental monthly report                         | ✓ Journal (research) article            |
| ✓ Report on a meeting or visit                        | ✓ Email to a business contact           |
| ✓ Newspaper article                                   | ✓ Letters of rejection, complaint, etc. |

Finally, there are different techniques that can help you improve your writing skills as engineers. For example, it has been demonstrated that reading plays a crucial role in learning a foreign language and, most importantly, that good readers make good writers. Reading is very beneficial, but only if you read voluntarily, extensively and for pleasure. As you can imagine, however, reading is not enough. Apart from reading, you should also write and write because while you are learning to write you are also writing to learn the language and to be an efficient communicator. The more you read and the more you write, the better writers you will become. Last but not least, it can also be very helpful for you to acquire some autonomy to allow you to actively participate in your learning process, for example by monitoring your learning and choosing the tasks that best suit your needs and preferences.

# CHAPTER 1

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## What is technical writing?

1.1 Why is it important to study technical and professional communication?

1.2 Characteristics of good technical writing

1.3 Functions of technical discourse

### Reflecting on...

Do you think communication skills are of minor importance in scientific and technical studies?

Do you think a technical student can write as well as a humanities student?

What characteristics do you think distinguish a technical text from a non-technical one?

How can your knowledge of general purpose English help you towards writing technical documents?

## 1.1 Why is it important to study technical and professional communication?

In a world of rushing and pressure to save time, writing documents seems slow and time-consuming. Why write a letter or a memo if you can make a quick phone call? Why spend time thinking about how to put into words information that can be transmitted spontaneously without the extra effort of heeding syntax and punctuation? This logical reasoning fails, though, when we come to consider the type of documents technical writers need to develop as well as the audience they are addressed to. On many occasions, communication is not just from one emitter to one receiver but rather from one to many, as is the case of memos addressed to company staff, or a report meant to be read by more than one person, for example. In addition, most documents generated in the technical field include information that cannot be easily transmitted unless it is orderly displayed on a document. In other words, oral communication may fall short when we need to transmit the information technical documents require. Hence, writing skills can be considered an important factor in the technical and scientific field because:

1. *In many different types of work, writing constitutes an important part of the everyday workload.* In a company, people write to inform about a project or activity (progress reports), to help managers in decision-making (recommendation reports), to communicate within the organization (memos), to ask questions (inquiry letters) and to contact colleagues, distributors, and mates in the same workplace (email messages). These various tasks reveal that writing is a key activity for many technical professionals.

2. *They facilitate communication with co-workers, clients and supervisors, that is, inside and outside the workplace.* Engineers and scientists' writing skills must be of a high standard in order to effectively communicate with the people with whom they work. It is not enough for them to be technically good, they must be skilful in communicating what they are doing and why it is important. As a last resort, their technical and professional value will very much depend on their capacity to convince others of the importance of their work.

3. *They are necessary for a successful career.* Organizations know the advantages of a well-written document since the way they construct their documents reflects their image. Poorly written documents will reveal not only writers' inefficiency but also organizations' lack of seriousness. Thus, engineers who can communicate their thoughts clearly and efficiently are bound to be promoted to more challenging positions. Additionally, being good at written communication skills (in whatever language) is likely to act as an *added value* that enhances your curriculum vitae and helps you stand out from other applicants in a job selection process.

4. *Writing skills contribute to saving time and money.* Good technical writing saves time and, therefore, money. If you create a document, a report, for example, for your superior, which is clear and easy to understand, no time will be wasted on pondering the meaning. In

# PART II

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## THE WRITING PROCESS

CHAPTER 2  
Pre-writing stage

CHAPTER 3  
Writing stage

CHAPTER 4  
Post-writing stage





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## Introduction to the writing process

Try to remember the last time you had to write a more or less formal (academic or professional) document. With the help of the questions below, reflect on your usual writing habits and their usefulness.

- ❑ Did you do anything before beginning to write (for example, mentally scan the main ideas you wanted to transmit and/or jot them down, look for information, schedule your work in terms of time, outline before or after your first draft)?
- ❑ What did you do when writing (simply sit in front of the computer, create a new document and begin writing your final version, write several drafts)?
- ❑ What did you do once you had completed your first version (allow for thorough revision, quickly scan for any mistakes, print it and hand it in)?

Beginning to write may be a hard task for most people as ideas come mixed up in a disorderly manner. In trying to get started, many different aspects come into mind: content, style, grammar, etc. and it may be difficult to cope with them all at the same time: In order to seek guidance and to acquire confidence, the writer may find it useful to resort to some kind of systematic and integrative approach which takes into consideration the most important aspects of writing.

The integrative approach adopted in this book draws on knowledge of different approaches to writing (see Figure 1). On the one hand, it takes into account the linguistic knowledge about texts, namely, grammar and text structure. Mastering syntax, an appropriate use of vocabulary and cohesive devices as well as patterns of information organization become essential to produce well-written texts. This is known as *product approach*. On the other hand, the integrative approach also pays attention to the writing skills or stages involved in writing. Novice writers should be made aware of writing as a process consisting of different stages (planning, drafting, revising, etc.) when creating a text (*process approach*). Finally, this approach also heeds the social context, mainly the purpose and audience the document is addressed to, as well as the writing conventions established by the technical and scientific community (*genre approach*).

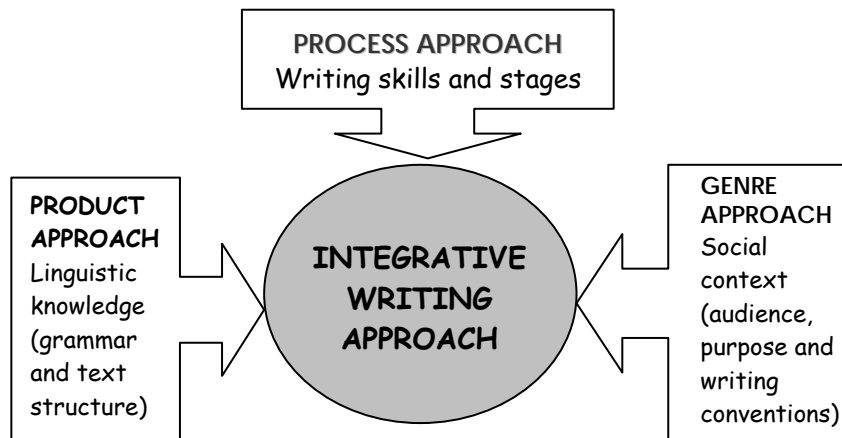


Fig. 1

At this point it is useful to clarify that the three approaches mentioned above will be combined into one by subsuming the product and the genre approach under the process approach which, in turn, will serve as the guide to organizing the information in the following chapters. However, the writing approach presented below is by no means intended to be prescriptive. Instead it has been designed to provide guidance allowing enough room for manoeuvre so that writers can adapt these guidelines to their own writing preferences and style. We view writing as a non-linear and recursive process composed of three main stages:

1. **Pre-writing.** Before beginning to write you should invest some time planning what to write and how to transmit the information. In order to do this you should consider (a) *audience and purpose* (who you are writing to and why), (b) *tone and style* (how you transmit the information), (c) *gathering of information* (brainstorming, analysing sources of information, etc.) and (d) *outlining* (organization of information).
2. **Writing.** Once you have gathered and organized the information, you can begin writing a first draft. At this stage, it is important to consider the main parts of the text, paragraph development and coherence as well as genre conventions. As you revise and consider all these aspects, it may be helpful to use representative models as a reference.
3. **Post-writing.** The final stage of the writing process involves (a) *revising content and organization*, (b) *checking for grammatical accuracy* (c) *editing for style* and (d) *proofreading and peer review*. These steps will help you spot any inconsistencies in your document so as to produce a flawless final version.

The three main stages of the writing process together with their corresponding substages are shown in Figure 2 below.

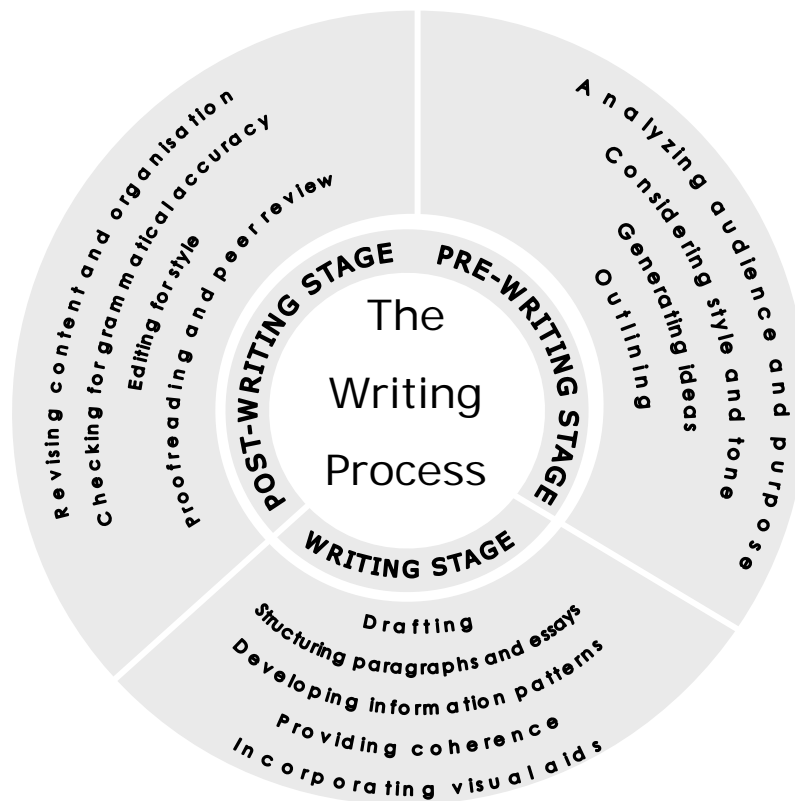


Fig. 2

Some of the benefits that can be obtained from adopting this process approach are outlined below:

- It helps the writer overcome the blank page syndrome and therefore get started.
- It serves the writer as a guide to writing since it suggests possible steps to follow in the writing process.
- It makes the writer aware of contextual considerations such as audience and purpose.
- It promotes awareness of the writing process.
- It accounts for individual variation, that is, it encompasses different learning styles and preferences.

The chapters that follow develop in detail the three main stages of the writing process—pre-writing, writing and post-writing—to help you improve your writing skills. Chapter 2 focuses on the pre-writing stage, in which you must examine your purpose(s), determine your audience, consider the style and tone to adopt, gather data and decide how to organize information. Chapter 3 is based on the writing stage itself. In this chapter you will learn to develop paragraphs, to order information and to provide coherence to your document while drafting your text. Chapter 4 deals with the final stage of the writing process, the post-writing stage. This stage is essential for successful writing as it allows you to polish your document for a perfect final version. For practical purposes, the three stages of the writing process are described in this book in the order described above but remember that this process is dynamic and flexible, and that the different stages often overlap. Therefore, you may go back and forth at your convenience while you draft your document.

# CHAPTER 2

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## Pre-writing stage

- 2.1 Introduction
- 2.2 Analyzing audience
- 2.3 Analyzing purpose
- 2.4 Considering style and tone
- 2.5 Generating ideas
- 2.6 Outlining

### Reflecting on...

By and large, writers are usually recommended to bear in mind 'contextual factors' when it comes to writing a text. Can you guess what these 'contextual factors' might be?

Imagine you have to write a document that describes the latest improvements on a particular product. How may this document differ when aimed at the head of the technical department and the general public? Could you provide a list of different groups of readers an engineer may address his/her documents to?

How is your attitude towards the topic and your relationship with readers reflected in your writing?

Can you think of different ways of organizing ideas before writing a document? Which method do you usually prefer? Why?

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## 2.1 Introduction

Imagine you have just been told to write a short report. What is your usual reaction? Do you sit in front of the computer, create a new document and begin jotting down sentences as ideas come to your mind? If this is what you do, you have a slim chance of writing an appropriate, coherent and effective document. Unless you are an expert writer, you should spend some time on what is known as the *pre-writing stage*.

The pre-writing stage is a very important stage with many aspects to be considered before you actually begin writing. As you will make decisions that will affect and determine the content, approach, or structure of your document, it pays to devote time to answering relevant questions and seriously considering the different alternatives available. In the pre-writing stage the following questions should be addressed:

- WHO am I writing to and WHY?  
*Consider audience and purpose.*
- HOW should I transmit the information?  
*Consider tone and style.*
- WHAT ideas should I include in my document?  
*Gather information (by generating ideas, analyzing information sources, etc.).*
- HOW should I organize and structure this information to best suit the audience's needs and to accomplish my purpose?  
*Outline (organize information).*

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## 2.2 Analyzing audience

Before writing a document you need to know your audience in order to satisfy its needs. It may be a good idea to develop a profile of the audience you are addressing by answering the following questions:

*Who is going to read the document?* Here you should analyze the audience's characteristics such as educational and cultural background, position within the company and English competence. In addition, you should take into account whether the text is addressed to a single person or a large group and consider the possibility that a secondary audience might also read your document.

# PART III

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**HANDBOOK**

CHAPTER 5  
Grammar, style and punctuation





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## Introduction to the handbook

As we mentioned at the beginning of the book our main purpose is that you become acquainted with certain types of documents, known as *genres*, and also that you become competent enough and with sufficient writing skills to adapt your documents to every writing situation. However, we know that engineering students come from heterogeneous backgrounds and exhibit different language competence levels. In the light of this, the final part of this book has been designed as a tool to help you improve your competence with respect to different aspects: main constituents in language, inter and intra-paragraph coherence, grammar, style and punctuation. The tasks included to practise these aspects have purposely been designed for individual work, so you can choose those tasks and materials that best suit your needs, English competence and learning style. In this sense, we encourage you to learn effectively and individually and to become responsible for your own learning process.

Apart from the practical tasks included in this final chapter, remember that there are other ways to improve your writing competence. As you probably know, the Internet is a powerful tool for language learning as it fosters the use of authentic communication in English, basically through the integration of reading and writing skills. Some Internet resources you can use when designing your own learning route are:

- *Web-based learning materials.* Some of their advantages are that they are highly interactive, provide immediate feedback (often with explanations) and contain resources classified according to criteria such as level of difficulty or type of task. Particularly useful are placement tests, which will provide you with information about your actual level of English and will allow you to identify your strong and weak points.
- *Search engines.* They may help you learn more about specific expressions and terms by exploring how they are used in authentic texts posted on the web. In this sense, search engines may be used as “dictionaries” that provide you with actual examples of language use.

- *Online concordancers.* By entering a word, phrase or structure, they provide you with a list of examples of terms within their immediate context from a corpus or collection of texts gathered for language study.
- *Online collocation samplers.* They can be used to retrieve a word's most significant collocates from a corpus.

These are just some examples of the online resources that foster an exploratory approach to language and that encourage you to be a more reflective and informed learner as they require you to evaluate your own performance, find answers for yourselves and contrast language forms and texts. The Internet may, in this sense, be particularly helpful if you want to assume a more active role in your learning process. By working autonomously and making informed decisions (concerning the choice of activities, self-assessment, etc.) you will become a more effective learner and thus improve your writing skills and competence.

# CHAPTER 5

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## Grammar, style and punctuation

### 5.1 Introduction

### 5.2 Main constituents in language: the phrase, the clause and the sentence

### 5.3 Revision of intra- and inter-coherence

### 5.4 Revision of grammar and style

### 5.5 Punctuation

#### **Reflecting on...**

What is most important for you when writing in English? What are your priorities, just to communicate or to communicate accurately?

What kinds of skills (listening, speaking, writing and reading) are you particularly good or bad at?

What are the main difficulties you encounter when writing in English? Can you recall the most common grammatical and stylistic mistakes you make?

Does your motivation to learn technical English writing arise from your professional or academic development, or from a personal interest?

What sort of language learner would you say you are? First choose the adjectives that best describe you (analytical, intuitive, careless, motivated, perfectionist, autonomous, impulsive, cooperative). Now reflect on the advantages and disadvantages of the learning style you most identify with.

What are your strengths and weaknesses as an English language learner?

## 5.1 Introduction

This last chapter is devoted to providing further practice to those students who feel they need some extra exercises and want to work autonomously to improve their written communication in English. The exercises are intended to help students reinforce linguistic aspects that can be troublesome. The chapter opens with a summarized description of the main linguistic elements of the text, that is, the sentence, the clause and the phrase. Given that these linguistic elements are constantly referred to throughout the course, both in the theoretical and in the practical parts, we thought it would be very useful to include a definition of each, together with some clarifying examples. In general, students at technical schools are very prone to forgetting grammatical concepts they once learned at primary or secondary school, as the main emphasis in technical studies is basically placed on numerical material rather than on any other type of written communication. As a result, we are setting forth a practical revision of intra- and inter-coherence, and grammatical and stylistic aspects, a revision developed through a rich variety of exercises. Finally, another important point is punctuation—often disregarded by technical students—which has been included with the purpose of helping you write more clearly and punctuate appropriately.

## 5.2 Main constituents in language: the phrase, the clause and the sentence

Before beginning with a practical revision of the aspects mentioned above, and in order not to clutter you up with a long and tedious description of grammatical concepts, we will be giving a cursory glance at the hierarchical structure of language. This will provide you with a sufficiently general picture of the different levels in language hierarchy, essential for you to understand the grammatical and linguistic concepts dealt with in this book. Another advantage of looking at the main constituents in language is that you will become familiar with the most basic terminology and associated concepts. Good writing certainly calls for a clear understanding of the sentence and of at least the next two lower levels that constitute a sentence (i.e., the clause and the phrase). We believe that basic grammatical definitions will enable you to improve your command of the English language.

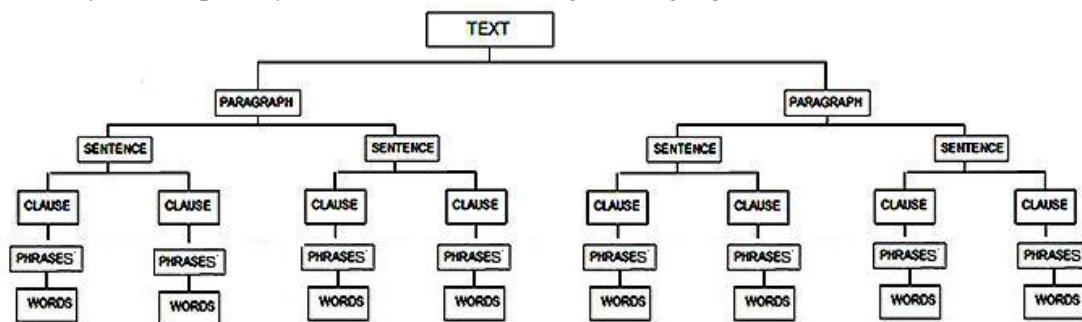


Fig. 5.1 Main constituents in language

## ***The phrase***

A *phrase* is a linguistic element made up of one or more than one word and has no subject-predicate structure. In a scale of complexity, it is found between the word and the clause. The main types of phrases are listed below:

- Noun phrase  
e.g. The resistor, the flat resistor, the old flat resistor
- Verb phrase  
e.g. corrode, has corroded, to avoid corrosion, are seriously corroding
- Prepositional phrase  
e.g. on the surface, through the pipe, before the test
- Adverbial phrase  
e.g. yesterday morning, slowly, there

## ***The clause***

A *clause* is a group of words comprising a subject and a predicate (Verb, Complement, Object and Adverbial) that constitutes a sentence or part of a sentence. Clauses can be *dependent* or *subordinate* and *independent* or *main*. In the sentence *He went to the lab because he had to use the oscilloscope*, *He went to the lab* is a main clause whereas *because he had to use the oscilloscope* is a dependent clause. Note that a *main clause* makes sense on its own and therefore can be equated with a sentence. On the other hand, a *dependent* clause cannot stand by itself since it depends on some other element in the sentence and cannot be punctuated as an independent clause. This can be seen in the following examples:

e.g. Although he graduated at the age of 26.

As soon as the gas enters the engine.

Since the mechanism failed.

So that the mistake is not repeated.

Which didn't come out successfully.

Clauses can also be *finite* and *non-finite*. Nearly all independent sentences are finite as they contain verbs that can be used with a subject to make a verb tense (i.e. the verb is inflected for tense, person and number). For example, both *He graduated in engineering* and *Since he is still writing the report*, are finite clauses. On the other hand, *non-finite clauses* are clauses that cannot be used with a subject to make a verb tense. There are four main types of non-finite clauses:

- Present participle clause, e.g. *Leaving the library*, the student dropped his ID
- Past participle clause, e.g. *Covered with sand*, the thermometer was found working.
- Infinitive with *to* clause, e.g. The next step is *to assemble the fittings*.
- Infinitive without *to* clause, e.g. Rather than *copy the document*, he faxed it.

# APPENDIX

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## KEY TO THE EXERCISES

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## Key to the exercises

This key aims to guide both teachers and students but it should not be taken as a closed, prescriptive answer key. On many occasions, we are providing one possible version of the task, which does not mean other ways of answering certain questions or approaching a given problem are not possible.

### CHAPTER 1

#### TASK 1-1

**Writing** is necessary to transmit the merits of your work, your ideas and aspirations. It can be mostly improved by reading as much as you can and by asking a peer or colleague to review your writing.

**Reading** is necessary to improve your vocabulary, your grammar and your storytelling abilities; it is necessary to improve your writing. Reading can be improved by reading more.

**Speaking** is necessary to convey your ideas at meetings, to brief your peers after a business trip, to adapt a proposal to a client, to present a project to the general public, etc. Speaking can be improved by gathering as much information as possible to make you feel confident, by analyzing your audience's needs and accommodating your speech to them accordingly, by using PowerPoint or any other audiovisual aid with confidence, by practicing and rehearsing before your presentation, by sticking to the allotted time, and finally by looking for opportunities to speak.

**Listening** is necessary to communicate, whether in face-to-face interactions or over the telephone, for example. It can be improved by paying attention to what is said as well as to the speaker's intention, feelings and body language, by trying to reduce distractions, by looking at the speaker and responding appropriately (e.g. nodding), or by asking if you don't understand. You should always respect the speaker and never interrupt him/her.

## TASK 1-2

The first text is certainly non-technical. There are many reasons that support this. If, first of all, we analyze the title, we realize that despite being somehow related to the technical field, it is not introducing a properly technical topic. If we go on reading, we come to the conclusion that the content is not technical due to the following reasons:

- 1) **Absence of technical vocabulary.** No technical expressions are used; instead we find some compound nouns, which are not really very technical (*information-carrying bits, savvy information-age citizen, hard-earned bits*). The acronym *IQ* appears without a definition as it is well-known.
- 2) **Absence of functions** such as definitions, description, instructions, etc.
- 3) **Absence of formulas, statistics, graphs and numerical expressions.**
- 4) **Use of informal style.** This is shown through some direct questions, personal pronouns (*I, you, we*) and informal expressions (*the right to bath daily in tubs of bits, watch the excess of information drain away, savvy*).
- 5) **Use of subjective tone.** Subjective tone is conveyed here with the use of expressions such as *I'm not sure, since we don't seem to have a lot of choice, when I no longer have the strength and ability...*
- 6) **Use of ironic tone.** From beginning to end an ironic tone is used and is reflected in expressions like *the era to come will be much better than the Ice Age, no one has told me what I'm supposed to do with all those bits, can I hide bits in my mattress, against the rainy day when I find myself bitless?*

The second text is clearly technical. It is technical because it displays many of the characteristics that define a technical text. As for the title, however, we cannot say that it introduces a technical topic by the way it is stated; it is too general to be taken as an early indication of the technical content of the text. Apart from the title, there are many more characteristics that corroborate the technicality of the text, among which we have:

- 1) **Use of technical vocabulary, compound nouns and acronyms.** There are many technical terms (*error burst, interleaving, interpolation, muting*), terms of Latin origin (*minimal, imperfection, erroneous*) and compound nouns (*compact disk digital audio, novel audio storage approach, digital storage technique, powerful error control coding scheme*) used all through the text. There are also two acronyms which are properly defined (*CD and CIRC*).
- 2) **Use of rhetorical functions,** specifically definitions of some of the technical terms previously mentioned (*interleaving, interpolation, muting*), function and process description in the last paragraph and finally visual-verbal relationship (*see Table 4*).
- 3) **Use of a numerical expression:** *two millimetres into an error burst of 2400 bits in length.*
- 4) **Use of a short list to organize information.** Some of the information in paragraph two is organized in a formatted list [(1) and (2)].

Finally, it should be noted that the tone is objective and straightforward as opposed to the subjective and ironic tone in the previous text.