



Series Editor: Terry Phillips
Roger H. C. Smith

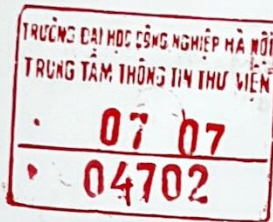
English for **ELECTRICAL ENGINEERING**

in Higher Education Studies
Teacher's Book



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Roger H. C. Smith

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Book map

Unit	Topics
1 What is electrical engineering? Listening · Speaking	<ul style="list-style-type: none"> what is included in the subject of Electrical Engineering different branches of Electrical Engineering: computing and electric power different aspects of Electrical Engineering, e.g., definitions of some basic electrical terms, measuring devices
2 The history of electrical and electronic engineering Reading · Writing	<ul style="list-style-type: none"> the history of Electrical Engineering from the 19th century to modern days key figures in the discipline: their main achievements and inventions the more recent history of Electronic Engineering: solid-state electronics
3 Electric and magnetic circuits Listening · Speaking	<ul style="list-style-type: none"> Ohm's law the applications of Ohm's law to simple electric circuits the limitations of Ohm's law for circuit elements that do not have a constant resistance how Ohm's law can be applied to magnetic circuits
4 The computer Reading · Writing	<ul style="list-style-type: none"> the development of the computer the invention of the integrated circuit, or microchip: its advantages and its impact on society the use of computers in education a guide to a more efficient use of the internet and computers in research
5 The television – from CRT to LCD and 3D Listening · Speaking	<ul style="list-style-type: none"> small electrical items: the technology behind different types of television set and screen some examples of television technology and devices 3D televisions: two types of lens used in 3D technology: passive and active
6 Control systems Reading · Writing	<ul style="list-style-type: none"> control system design a common feedback loop controller: <i>PID</i> examples of control systems: setting the temperature of a domestic oven, cruise control for cars
7 Electric power generation, transmission and distribution Listening · Speaking	<ul style="list-style-type: none"> how electric power is generated in various kinds of power station, such as wind turbines how it is transmitted across long distances how it is delivered to customers issues involved in the power transmission process: energy loss, voltage choices, transformers
8 Telecommunications Reading · Writing	<ul style="list-style-type: none"> the history of telecommunication: the main inventions and developments the processes involved in telecommunication: key stages, elements and related devices examples of the main applications of telecommunication: radio broadcasting, the mobile phone the influence that telecommunication has had on the world
9 Signal processing Listening · Speaking	<ul style="list-style-type: none"> analogue and digital signal processing different types of signal and how and why they are processed filters and processors for both analogue and digital signals applications of signal processing: active noise control and speech recognition technologies
10 Electric cars Reading · Writing	<ul style="list-style-type: none"> the reasons why electric cars have become popular, their advantages and disadvantages the problems that electric cars pose for electrical engineers: the need to balance issues of efficiency, weight, environmental concerns etc.
11 Microelectromechanical systems Listening · Speaking	<ul style="list-style-type: none"> MEMS and NEMS (micro- and nanoelectromechanical systems): how they are manufactured applications: examples of devices using MEMS and NEMS potential future developments
12 Lighting engineering Reading · Writing	<ul style="list-style-type: none"> the main lighting devices: incandescent light bulbs, fluorescent lamps and LEDs how these devices work, their applications, and their advantages and disadvantages technical report writing in the field of simple circuits with LEDs

Vocabulary focus	Skills focus	Unit
<ul style="list-style-type: none"> words from general English with a special meaning in electrical engineering prefixes and suffixes 	Listening <ul style="list-style-type: none"> preparing for a lecture predicting lecture content from the introduction understanding lecture organization choosing an appropriate form of notes making lecture notes Speaking <ul style="list-style-type: none"> speaking from notes 	1
<ul style="list-style-type: none"> English-English dictionaries: headwords · definitions · parts of speech · phonemes · stress markers · countable/uncountable · transitive/intransitive 	Reading <ul style="list-style-type: none"> using research questions to focus on relevant information in a text using topic sentences to get an overview of the text Writing <ul style="list-style-type: none"> writing topic sentences summarizing a text 	2
<ul style="list-style-type: none"> stress patterns in multi-syllable words prefixes 	Listening <ul style="list-style-type: none"> preparing for a lecture predicting lecture content making lecture notes using different information sources Speaking <ul style="list-style-type: none"> reporting research findings formulating questions 	3
<ul style="list-style-type: none"> computer jargon abbreviations and acronyms discourse and stance markers verb and noun suffixes 	Reading <ul style="list-style-type: none"> identifying topic development within a paragraph using the Internet effectively evaluating Internet search results Writing <ul style="list-style-type: none"> reporting research findings 	4
<ul style="list-style-type: none"> word sets: synonyms, antonyms, etc. the language of trends common lecture language 	Listening <ul style="list-style-type: none"> understanding 'signpost language' in lectures using symbols and abbreviations in note-taking Speaking <ul style="list-style-type: none"> making effective contributions to a seminar 	5
<ul style="list-style-type: none"> synonyms, replacement subjects, etc., for sentence-level paraphrasing 	Reading <ul style="list-style-type: none"> locating key information in complex sentences Writing <ul style="list-style-type: none"> reporting findings from other sources: paraphrasing writing complex sentences 	6
<ul style="list-style-type: none"> compound nouns fixed phrases from electrical engineering fixed phrases from academic English common lecture language 	Listening <ul style="list-style-type: none"> understanding speaker emphasis Speaking <ul style="list-style-type: none"> asking for clarification responding to queries and requests for clarification 	7
<ul style="list-style-type: none"> synonyms nouns from verbs definitions common 'direction' verbs in essay titles (discuss, analyze, evaluate, etc.) 	Reading <ul style="list-style-type: none"> understanding dependent clauses with passives Writing <ul style="list-style-type: none"> paraphrasing expanding notes into complex sentences recognizing different essay types/structures: descriptive · analytical · comparison/evaluation · argument writing essay plans and writing essays 	8
<ul style="list-style-type: none"> fixed phrases from electrical engineering fixed phrases from academic English 	Listening <ul style="list-style-type: none"> using the Cornell note-taking system recognizing digressions in lectures Speaking <ul style="list-style-type: none"> making effective contributions to a seminar referring to other people's ideas in a seminar 	9
<ul style="list-style-type: none"> 'neutral' and 'marked' words fixed phrases from electrical engineering fixed phrases from academic English 	Reading <ul style="list-style-type: none"> recognizing the writer's stance and level of confidence or tentativeness inferring implicit ideas Writing <ul style="list-style-type: none"> writing situation-problem-solution-evaluation essays using direct quotations compiling a bibliography/reference list 	10
<ul style="list-style-type: none"> words/phrases used to link ideas (<i>moreover, as a result</i>, etc.) stress patterns in noun phrases and compounds fixed phrases from academic English words/phrases related to research 	Listening <ul style="list-style-type: none"> recognizing the speaker's stance writing up notes in full Speaking <ul style="list-style-type: none"> building an argument in a seminar agreeing/disagreeing 	11
<ul style="list-style-type: none"> verbs used to introduce ideas from other sources (<i>X contends/suggests/asserts that ...</i>) linking words/phrases conveying contrast (<i>whereas</i>), result (<i>consequently</i>), reasons (<i>due to</i>), etc. words for quantities (<i>a significant minority</i>) 	Reading <ul style="list-style-type: none"> understanding how ideas in a text are linked Writing <ul style="list-style-type: none"> deciding whether to use direct quotation or paraphrase incorporating quotations writing research reports writing effective introductions/conclusions 	12