

Introduction

Water sciences and engineering comprise a wide range of different majors which are developing and changing rapidly, therefore students of these majors, in different levels, need to use the most up-to-date texts and articles. This can only be done through reading the original texts. This book has been compiled and written bearing this goal in mind and includes various texts on different related subjects.

In addition to reading the texts and articles in English, students and graduates of water sciences and engineering need to write in English as well, therefore there has been an emphasis on frequent and practical grammatical and writing points as well as basic general English instruction throughout the book.

Every research and writing may have shortcomings and mistakes. The writers welcome and appreciate any criticisms and suggestions from the experts, teachers, students and other specialists and will consider them in the future. The main goal of this book is to enable students in the B. S. level to use the original English texts, and ultimately to enhance their general knowledge in their fields of study. In this regard, if only one student benefits from this book and helps the water industry of the country, the writers believe that they have achieved their goal.

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International Phonetic Alphabet (IPA) Pronunciation Key

Vowels and Diphthongs

| | | | | | | | |
|----|----|-------|-------------------------------------|----|----|-------|------------------------------------|
| 1 | i | as in | laundry /'lɔ:n.dri/ | 14 | aɪ | as in | fight /faɪt/ |
| 2 | i: | as in | seen /si:n/ | 15 | ʌ | as in | run /ʌʌn/ |
| 3 | ɪ | as in | city /'sɪti/ | 16 | ɑ: | as in | arm ¹ /ɑ:m/ |
| 4 | eɪ | as in | play /pleɪ/ | 17 | aʊ | as in | now /naʊ/ |
| 5 | ɛ | as in | bed /bed/ | 18 | u: | as in | soon /su:n/ |
| 6 | ɛə | as in | there ¹ /ðɛə (ɹ)/ | 19 | ʊ | as in | put /pʊt/ |
| 7 | æ | as in | cat /k ^h æt/ | 20 | ɔ: | as in | saw /sɔ:/ |
| 8 | ə | as in | about /ə ^h baʊt/ | 21 | əʊ | as in | go ¹ /gəʊ/ |
| 9 | ɝ | as in | winner ² /'wɪnɝ/ | 22 | oʊ | as in | go ² /goʊ/ |
| 10 | ɐ | as in | cut ¹ /kɐt/ | 23 | ɔɪ | as in | coil /kɔɪl/ |
| 11 | ɜ: | as in | bird ¹ /bɜ:d/ | 24 | ɪə | as in | here ¹ /hɪə (ɹ)/ |
| 12 | ɝ | as in | bird ² /b ɝ:d/ | 25 | ɒ | as in | cough /kɒf/ |
| 13 | a: | as in | last ¹ /lɑ:st/ | | | | |

Consonants

| | | | | | | | |
|----|------------------|-------|--------------------------------|----|---|-------|---------------------------------------|
| 1 | p | as in | spin /spɪn/ | 18 | ʃ | as in | she /ʃi/ |
| 2 | p ^h * | as in | pin /pɪn/ | 19 | ʒ | as in | pleasure /'pleɪʒ ɝ/ |
| 3 | b | as in | but /bʌt/ or /bət/ | 20 | ç | as in | huge /'çju:dʒ/ |
| 4 | t | as in | stop /stɒp/ | 21 | x | as in | loch ³ /lɒx/, /lɒk/ |
| 5 | t ^h * | as in | top /t ^h ɒp/ | 22 | h | as in | ham /hæm/ |
| 6 | d | as in | do /du/ | 23 | ɦ | as in | ahead ³ /ə ɦɛd/ |
| 7 | tʃ | as in | chair /tʃɛɹɹ/ | 24 | m | as in | mare /'me(ə)ɹɹ/ |
| 8 | dʒ | as in | gin /dʒɪn/ | 25 | ŋ | as in | emphasis /'emfəsɪs/ |
| 9 | k | as in | queen /kwi:n/ | 26 | n | as in | no /noʊ/ |
| 10 | k ^h * | as in | cat /k ^h æt/ | 27 | ŋ | as in | canyon ² /'kæŋən/ |
| 11 | g | as in | go /goʊ/ | 28 | ŋ | as in | singer /'sɪŋɝ/ |
| 12 | f | as in | fool /fu:l/ | 29 | l | as in | left /left/ |
| 13 | v | as in | voice /vɔɪs/ | 30 | ɫ | as in | pill /pɪɫ/ |
| 14 | θ | as in | thing /θɪŋ/ | 31 | ɾ | as in | better ³ /bet.əɾ/ |
| 15 | ð | as in | this /ðɪs/ | 32 | ɹ | as in | run /ɹʌn/ |
| 16 | s | as in | see /si/ | 33 | w | as in | we /wi/ |
| 17 | z | as in | zoo /zu:/ | 34 | j | as in | yes /jes/ |

1 British English.

2 American English.

3 In some Pronunciations.

* “h” is a symbol shows aspiration, that is the consonant at the beginning of a syllable is pronounced with a small explosion of air.