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Analyzing Vocabulary in an ESP Engineering Textbook: A Corpus-Based Linguistic Approach

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Abstract

This study investigates the lexical coverage and vocabulary demands of an engineering English textbook used at a Thai public university, with the main aim of determining whether the vocabulary aligns with learners' expected language proficiency levels as defined by the Common European Framework of Reference for Languages. The significance of the study lies in addressing the increasing need for English for Specific Purposes materials that not only meet students' disciplinary requirements but also match their actual language capabilities. The study used a collection of texts to look at how often words appear, where they are used, and how they are grouped in three textbooks. It also compared the words to well-known word lists. The results show that over 83% of the words are common everyday words. About 8% are academic words, and around 8% are engineering words. The textbook includes a good mix of general, academic, and engineering vocabulary. However, the overall vocabulary level is mostly B2 to C1, which is higher than the students' expected B1 level. Even though the content is strongly related to engineering, the language may be too difficult for B1 students to learn new words easily. Based on the results, the study recommends instructional scaffolding, pre-teaching of technical terms, and adaptation of teaching strategies to bridge proficiency gaps and enhance learning outcomes in ESP settings.

Keywords: Common European framework of reference for languages, corpus-based analysis, engineering vocabulary, English for specific purposes textbooks, lexical coverage, and tertiary education

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Introduction

In language instruction, the quality of teaching materials, especially textbooks, is as important as teaching methods. Textbooks help guide what students learn, how fast they learn, and how their progress is checked. They are also very important for helping students build their vocabulary, which is needed to understand, speak, and use the language well. Using a method called corpus linguistics, especially looking at how often words appear, can show how vocabulary is chosen and shown in textbooks (McCarten, 2007).

Despite improvements, concerns remain about vocabulary selection in English textbooks. There are often no clear rules, so sometimes rare words are added that don't match the students' language level. Udaya (2021) said there is not much research about how ESL textbooks teach vocabulary. He also found that many textbooks include rare words that people do not often use in daily conversation.

This problem is even bigger in English for Specific Purposes (ESP). In ESP, students need vocabulary from their own field to do well in their studies and future jobs. The vocabulary should fit the students' English level and their work needs. If students do not know enough words, it is harder for them to understand texts and communicate.

Nation (2001) said students need to understand about 95% of the words in a text to understand the main meaning and succeed in study, especially at university, where English is often used in professional settings.

Recent studies say it is useful to check how often words appear in a textbook. Researchers can use common word lists like the General Service List (GSL) and the Academic Word List (AWL). These lists help show if a textbook uses important, common words and also show when it includes too many rare words. This study looks at the words used in English textbooks for university students in Thailand by using a group of texts, called a corpus-based approach. It checks the level of the words using the CEFR, puts the words into groups (GSL, AWL, OWL), and finds out which words are used the most.

The study uses a corpus-based ESP evaluation by providing empirical data on vocabulary level, frequency, and distribution. Aligning vocabulary with CEFR and frequency lists supports better textbook selection and curriculum development for academic and professional readiness.

Based on these objectives, the study explores the following research questions: (1) What is the CEFR vocabulary level of the ESP textbooks, and is it appropriate for undergraduate students at a Thai public university? (2) What types of vocabulary, including the General Service List (GSL), Academic Word List (AWL), and Other Word List (OWL), occur most frequently in the ESP textbooks? (3) What are the top 100 high-frequency words found in the ESP textbooks?

Literature Review

This review outlines essential literature supporting the present study. Vocabulary development is a vital and exciting part of language learning, and textbooks serve as core tools in helping learners build a broad and functional vocabulary.

CEFR Vocabulary in Language Teaching in Thailand

Thailand's Ministry of Education has adopted the Common European Framework of Reference for Languages (CEFR) as the foundation for English language teaching. This includes curriculum design, assessment, and teacher development, aiming for Thai undergraduates to reach at least B1 proficiency, based on a 2,000-word core (Milton & Alexiou, 2009, p. 196). This

highlights the importance of selecting vocabulary that aligns with CEFR proficiency levels and supports meaningful language use in classroom resources.

Vocabulary Selection Criteria in EFL Contexts

Vocabulary selection is informed by several frameworks. West (1953) prioritized frequency and readability, later expanded by White (1989) and Richards (2001) into frequency, range, and repetition. Frequent words form the basis of West's GSL, while Coxhead's (2000) AWL focuses on academic vocabulary. Schmitt (2000) classified vocabulary into types such as technical and classroom language. Coxhead, Dang, and Mukai (2017) emphasized the field-specific nature of vocabulary, while Hajiyeva (2023) introduced the University Vocabulary List (UVL), achieving 97.3% coverage in academic texts—underscoring the importance of research-based word lists tailored to learners' goals.

Textbook Use in Vocabulary Development

Textbooks guide both teaching and vocabulary exposure in EFL settings. However, studies show that many fail to meet vocabulary needs or reflect widely accepted lists like the GSL and AWL (Rahmat & Coxhead, 2021; Nguyen, 2020). Lack of vocabulary recycling further hinders retention (Sun & Dang, 2020), and misalignment with students' academic needs remains an issue (Hajiyeva, 2023; Chuying, 2019). Therefore, corpus-based studies are recommended to improve vocabulary coverage in textbooks.

The Role of Vocabulary in ESP Instruction

Vocabulary in ESP is vital for success in academic and professional contexts. After acquiring 2,000–3,000 core words, learners should move to field-specific terms (Nation, 2001, p. 187). Alber-Dewolf (1984) and Jiangwen & Binbin (2005) highlight its importance for advanced learners. However, its integration in textbooks remains limited. Lacková (2025) promotes corpus-based ESP lists that reflect authentic, discipline-specific language better than traditional lists.

Vocabulary Deficiencies in EFL Textbooks

Textbooks often lack sufficient vocabulary input, limiting student engagement and hindering CEFR-level achievement (Rahmat & Coxhead, 2021; Nguyen, 2020). Such gaps extend to specialized vocabulary, with ESP terms often underrepresented (Lacková, 2025). This calls for focused vocabulary evaluations to determine whether textbooks support sustained lexical development effectively.

Corpus-Informed Assessment of Vocabulary Knowledge

Corpora are now effective tools for examining vocabulary knowledge. Sun and Dang (2020) stress that corpus data provide insight into how well learners acquire vocabulary. Through analysis of both learner output and textbook input, educators can evaluate coverage, recycling, and alignment with CEFR goals. Lacková (2025) also supports using corpus-informed lists in ESP instruction to ensure exposure to practical, useful vocabulary. In ESP, assessments must address specific academic and workplace needs. Once learners pass the basic 2,000–3,000 words, specialized vocabulary becomes essential (Nation, 2001, p. 187). Ultimately, assessments should ensure both general and technical vocabulary competency in real-world contexts.

The Contributions and Limitations of Previous Studies

Past studies point to insufficient vocabulary input in EFL textbooks (Rahmat & Coxhead, 2021), with little evaluation based on word lists such as GSL or AWL. Researchers like Chuying (2019), Coxhead et al. (2017), and Hajiyeva (2023) noted that many texts lack diverse expressions and field-specific terms. While frequency-based lists are widely endorsed, gaps remain: textbooks are rarely aligned with them, recycling is low, and ESP vocabulary is often overlooked. This study uses corpus methods to address such issues and explore how vocabulary aligns with CEFR standards and learner needs.

Types of Vocabulary Lists

There are three main vocabulary list types:

(1) General Service List (GSL): Compiled by West (1953, cited in Hou, 2014), includes 2,000 general-use English words.

(2) Academic Word List (AWL): Developed by Coxhead (2000), includes 570 word families from 28 academic disciplines and accounts for 10% of academic texts.

(3) Outside Word List (OWL): Technical terms unique to specific fields, critical for ESP learners (Nation, 2001, p. 18–19). These specialized words often pose difficulties for non-native learners (Cambridge University Press ELT, 2018).

Method

Research Setting

The textbook examined in this research was Engineering (Lloyd & Frazier, 2015), released by Express Publishing. The textbook series has three books. Each book has 15 units that help students learn language for their specific field. The textbooks featured a diverse array of genuine reading passages, industry-specific dialogues, 45 reading and listening comprehension exercises, over 400 vocabulary words and phrases, as well as structured speaking and writing tasks Each unit systematically engages learners across the four fundamental language skills: reading, listening, speaking, and writing. It commenced with topic-focused brainstorming questions, followed by passages and a compilation of reading and vocabulary exercises, which included matching, fill-in-the-blank, multiple-choice, and comprehension questions.

Research Design

A mixed-methods design was employed to evaluate the integration and consistency of vocabulary levels in the textbook. The study began with quantitative analysis of lexical coverage using corpus tools, then expanded into qualitative interpretation of vocabulary use to better understand its pedagogical relevance and alignment with learners' needs.

Research Instruments

Two key tools were used for the corpus-based vocabulary analysis:

VocabProfile (VP): Also known as the Range program, VP categorizes words into frequency-based levels (e.g., 1K, 2K, Academic Word List) based on their occurrence in large corpora such as the BNC-COCA (Cobb, 2021; Laufer & Nation, 1995). It helps to determine how much of the vocabulary in a text falls within high-frequency and specialized word groups, which is crucial for evaluating the lexical demand and accessibility of the material for learners.

AntConc: AntConc is a tool for studying texts. It can count how often words appear, find important keywords, and show examples of how words are used in sentences (Anthony, 2014). In this study, AntConc was used to compile vocabulary lists and to examine technical word patterns within the textbook content, further supporting both the quantitative and qualitative dimensions of the analysis.

Data Collection

Engineering textbooks were processed and scanned to create a 'ready-to-analyze' corpus. The text processing steps were adapted from Rahmat & Coxhead (2021), and consisted of the following steps:

1. Converting the textbook into text files (via PDF extraction and manual entry).
2. Cleaning the data by correcting technical errors, removing inaccessible content, and adjusting formatting (e.g., changing hyphens to spaces for multi-word items).
3. Using VocabProfile (VP), a tool that categorizes words by frequency bands (e.g., K1–K25), to evaluate lexical coverage.
4. Using AntConc, a corpus analysis tool, to identify word frequencies and keyword patterns across the text.
5. Conducting multiple pilot tests to ensure accuracy before final analysis.

Data analysis

Quantitative analysis involved determining the lexical coverage of the textbook using BNC-COCA 1–25K frequency lists generated through VocabProfile. Every word token was quantified and grouped into frequency bands to assess which proportion of words contributed to 95% and 98% coverage—key thresholds for learner comprehension (Nation, 2006). Furthermore, the distribution of high-frequency, mid-frequency, and low-frequency word families was examined across individual units to assess lexical progression and consistency throughout the textbook. AntConc also helped list words by how often they appear, so it was easier to see which words are common in the subject area. After making the word lists, the researchers looked closely at the 100 most common words that appeared only in the textbook. This helped them see the main vocabulary used in the engineering topics.

Though primarily driven by quantitative methods, qualitative analysis was integrated through interpretive evaluation of vocabulary presentation. This dimension of analysis involved examining how vocabulary was used in instructional tasks, identifying technical terminology characteristic of engineering discourse, and assessing the extent to which vocabulary input aligned with the communicative and academic objectives of ESP instruction. Here, “qualitative” refers to the manual and interpretive assessment of how vocabulary functions pedagogically within texts, task formats, and thematic coverage—insights that cannot be quantified but still contribute to understanding lexical appropriateness for the target learner group.

Results

The results revealed the outcomes corresponding to the three research questions that guided this study. Each question was addressed through a detailed lexical analysis of the Engineering ESP textbook. The findings encompassed three main areas: (1) the appropriateness of the CEFR vocabulary level represented in the ESP materials for undergraduate learners in a Thai public university, and (2) the types of vocabulary most frequently occurring in the

textbooks—classified under the General Service List (GSL), Academic Word List (AWL), and Off-List Words (OWL), and (3) the composition of the top 100 high-frequency words within the corpus. Collectively, these findings offered an extensive insight into the lexical characteristics and linguistic appropriateness of the ESP textbooks, emphasizing both their advantages and the aspects that may necessitate pedagogical modifications to better align with learners' proficiency levels and curriculum goals.

Research Question 1: What is the CEFR vocabulary level of the ESP textbooks, and is it appropriate for undergraduate students at a Thai public university?

CEFR Vocabulary Level in the ESP Textbook

The Common European Framework of Reference for Languages (CEFR) serves as a benchmark for articulating language proficiency. It defines approximate vocabulary size parameters:

A1-A2 (Beginner/Pre-intermediate): Approximately 1,000-2,000 lexical items.
B1-B2 (Intermediate/Upper-Intermediate): Approximately 3,000-6,000 lexical items.
C1-C2 (Advanced/Proficiency): In the vicinity of 8,000+ lexical items.

Based on the combined lexical data from the three subsets of the Engineering ESP textbook (Book 1–3), Table One shows the vocabulary distribution in the ESP textbook. The total number of identified word types reached 4,705, while the recognized word families amounted to 2,510. According to approximations derived from the Common European Framework of Reference (CEFR), this vocabulary range is most congruently associated with the C1–C2 (Advanced/Proficiency) tier.

It's really important to recognize the natural limitations that arise when we try to connect CEFR classifications to vocabulary size all on its own. The descriptors outlined by the CEFR encompass a comprehensive array of linguistic competencies (including grammar, discourse, and pragmatics), whereas lexical profiling constitutes merely one component of language application. Therefore, while the vocabulary coverage in the ESP textbook suggests an upper-intermediate to advanced lexical range, this should not be interpreted as a definitive indicator of CEFR alignment in terms of overall learning outcomes or linguistic complexity.

The vocabulary integrates general, academic, and technical items, reflecting the specialized nature of engineering discourse. This suggests that the textbook incorporates a relatively sophisticated vocabulary beyond general English courses.

Table 1. *The vocabulary distribution in the ESP Textbook (Book 1-3)*

Book	Tokens	Types	Families	Lexical density [percentage]
1	6533	1,330	752	57.55
2	8181	1,569	848	55.97
3	9697	1,806	910	55.56
Total	24,411	4,705	2,510	56.23

Appropriateness of Vocabulary Level for the Target Group

When compared with the expected CEFR level for undergraduate students in Thai public universities—B1 (Threshold Level) as stated in national education policy—the vocabulary level of the ESP textbook was not fully appropriate for the target learners. While the advanced vocabulary range (B2–C1) supported exposure to academic and technical language, it may exceed the general proficiency level of non-English-major students. This linguistic disparity indicated that learners might face difficulties in understanding specialized texts, especially those that include advanced academic and technical terminology. Consequently, it was advised to implement pedagogical scaffolding, pre-instruction of essential vocabulary, and incremental familiarization with domain-specific lexicon to close the proficiency gap and guarantee successful learning outcomes.

Research Question 2: What types of vocabulary, including the General Service List (GSL), Academic Word List (AWL), and Other Word List (OWL), occur most frequently in the ESP textbooks?

Types of Vocabulary Occurring Most Frequently (GSL, AWL, OWL)

The analysis of the Engineering ESP textbook revealed clear patterns in the distribution of vocabulary across the General Service List (GSL), the Academic Word List (AWL), and the Off-List Words (OWL). Table Two presents the types of vocabulary in the ESP Textbook (Book 1-3). Overall, the vocabulary was dominated by GSL items, which accounted for the largest proportion of tokens (83.29%). Within the GSL coverage, the majority were K1 words (the first 1,000 most frequent words of English), representing 75.13% of the total tokens, while K2 words (the second 1,000) contributed 8.16%.

In comparison, AWL items appeared less frequently, comprising 8.04% of the total vocabulary. Although this percentage was considerably lower than the GSL coverage, the presence of academic vocabulary was consistent across units, indicating an effort to incorporate discipline-related academic language. Off-List Words (OWL), representing vocabulary not included in either GSL or AWL, account for 8.68%. This category reflected specialized technical terms and subject-specific lexis essential to engineering contexts.

These results suggested that the ESP textbook relied heavily on high-frequency general English vocabulary (GSL), ensuring accessibility for learners. At the same time, the inclusion of AWL words enhanced students' exposure to academic discourse, while the OWL coverage introduced domain-specific terminology. Together, this distribution illustrated a balanced lexical profile: it maintained comprehensibility through general vocabulary while progressively integrating academic and technical vocabulary necessary for professional and academic purposes in engineering.

Table 2. *Types of vocabulary in the ESP Textbook (Book 1-3)*

Book	K1 Words (1000) [Function ; Content]	K2 Words (1001 - 2000)	K1 + K2 (GSL)	AWL Words (academic)	Off-List Words (OWL)
1	75.13 [42.60 ; 32.53]	8.16	83.29	8.04	8.68
2	76.19 [44.95 ; 31.24]	7.42	83.61	7.55	8.84
3	73.79 [44.95 ; 28.83]	8.25	82.04	9.09	8.88

Research Question 3: What are the top 100 high-frequency words found in the ESP textbooks?

Top 100 High-Frequency Words in the ESP Textbook

The lexical frequency analysis of the ESP textbook identified the 100 most frequent words, revealing a distribution typical of English for Specific Purposes (ESP) materials that combined general and technical vocabulary (see Appendix A). The most frequent items were function words—such as the, a, of, to, is, you, and are—which occupied the highest ranks and account for the largest proportion of tokens. These words served grammatical and cohesive functions essential for sentence construction and discourse organization, confirming that the textbook language remained anchored in the core lexicon of English.

Beyond function words, the frequency list contained high-value content words that reflected the disciplinary focus of engineering. Notably, the words engineer (rank 25), engineering (28), design (37), problem (36), computer (50), system (55), materials (60), energy (66), software (71), process (81), project (82), models (86), and testing (91) appeared among the top 100. The presence of these technical terms indicated that the textbook integrated specialized vocabulary with general English, thereby fostering both linguistic and disciplinary competence.

Overall, the high-frequency vocabulary profile demonstrated a balanced lexical structure. Approximately two-thirds of the most frequent words were general service or function words, ensuring comprehensibility and fluency in reading, while the remaining high-frequency items were content-specific, supporting the development of learners' technical language. This balance was characteristic of well-designed ESP materials that aimed to bridge general English proficiency with professional communication needs in engineering contexts.

Together, the four analyses demonstrated that while the ESP textbook exhibited an advanced vocabulary profile (B2–C1) with extensive lexical diversity, its content may exceed the proficiency range of general undergraduate learners. Nevertheless, its well-integrated mix of advanced, scholarly, and technical terminology established a robust groundwork for enhancing learners' linguistic proficiency and professional preparedness in the field of engineering.

Discussion

The current investigation analyzed the lexical coverage and the CEFR vocabulary classification of an Engineering English for Specific Purposes (ESP) textbook utilizing a corpus-based methodology. The findings provide significant perspectives regarding the allocation of vocabulary within general, academic, and technical domains, in addition to the extent to which this allocation aligns—or does not align—with the language proficiency levels of its target group.

First, in response to the first question regarding the CEFR vocabulary level, the analysis revealed that the textbook's lexical profile predominantly aligns with the B2–C1 levels. This is higher than the usual B1 English level expected from Thai university students, according to the Thai Ministry of Education. Although this indicates that students are exploring a remarkably advanced level of genuine academic and professional language, it might also introduce some cognitive and linguistic challenges for students who haven't fully attained this level yet, potentially making comprehension and fluency growth somewhat challenging. These findings match earlier

studies that say vocabulary should fit students' current English level to help them learn better (Rahmat & Coxhead, 2021; Nguyen, 2020).

In relation to the second research question concerning the types of vocabulary most frequently occurring in the textbook, corpus tools (e.g., VocabProfile and AntConc) revealed that 83.29% of vocabulary items came from the General Service List (GSL), followed by 8.04% from the Academic Word List (AWL), and 8.68% from Off-List Words (OWL). This balance reflects a General-English foundation that supports overall comprehension, while also introducing students to academic and technical terms necessary for disciplinary familiarity. As Nation (2001) suggested, learners need to understand at least 95% of words in a text to ensure effective comprehension—thus the textbook's lexical structure provides a reasonable platform for navigating new professional vocabulary.

For the third research question, examining the top 100 high-frequency words in the textbook, findings indicated consistent usage of discipline-specific terms such as "engineering," "design," "material," "process," and "system," integrated alongside common function words. The recurrence of these technical terms across multiple units demonstrates that the textbook facilitates repeated and meaningful exposure to domain-relevant vocabulary, promoting long-term retention and practical application.

The overall lexical strategy observed in the textbook supports several key themes from the literature. The integration of authentic, content-focused vocabulary corresponds with Lacková's (2025) suggestion for ESP-specific wordlists that are based on empirical corpora instead of just depending on traditional resources. This addresses what Chuying (2019) and Coxhead et al. (2017) worried about: that too many EFL textbooks skip over multi-word expressions and the academic vocabulary students need in real contexts to do well in their studies.

A recurring pedagogical theme highlighted by both the findings and prior research is the tension between General English and ESP instruction. General English helps students communicate in many situations, but ESP requires accurate word use and knowledge of words from a specific field. The textbook under analysis resolves this tension by embedding technical vocabulary within integrated language tasks—a strategy that supports development of general fluency while building the field-specific accuracy needed for academic and professional success. Furthermore, the material's alignment with CEFR-based curricular goals in Thailand reinforces the importance of systematic and frequency-informed vocabulary selection. The results show that corpus tools can help when creating learning materials. They make sure the vocabulary is useful and not too hard for students at different levels. In short, this study shows the value of using corpus methods to examine the vocabulary in ESP materials. What's particularly important is that the findings emphasize how word frequency, distribution patterns, and difficulty levels are all key to whether ESP textbooks actually succeed in the classroom. The material has strong and detailed vocabulary, and it is well connected to the lessons. But the English level is quite high, so many students may struggle. Teachers will need to give extra support and step-by-step help so students can learn it well.

For educators and curriculum designers, the findings suggest two core implications. First, vocabulary selection in ESP textbooks must be empirically grounded and clearly aligned with learners' realistic proficiency levels. Second, ESP teaching should aim to strike a balance between general and specialized vocabulary in ways that correspond with learners' academic development and future career needs.

In the end, the textbook examined truly reflects the objectives of ESP education: assisting learners as they transition from general proficiency to confident, field-specific communication. Its corpus-informed vocabulary framework illustrates how focused vocabulary exposure can enable students not just to comprehend but also to engage meaningfully in their academic and professional fields.

Conclusion

This study set out to evaluate the vocabulary coverage of an Engineering English for Specific Purposes (ESP) textbook using a corpus-based methodology, with the specific aim of determining how well the textbook aligns with the CEFR B1 proficiency level expected of undergraduate students at Thai public universities.

The analysis shows that the textbook uses many different words at B2–C1 level. This is higher than the intended B1 level, so the book may be too difficult for the students. This inconsistency could obstruct understanding and create difficulties for learners striving for academic achievement through English-medium instruction.

Most of the words in the textbook are common GSL words. Because of this, the text is easier for students to read and understand before they meet harder academic or technical words. The book also includes some Academic Word List (AWL) words and some other special words not on these lists. This combination helps students read the text more easily and learn technical words little by little, which works well in ESP classes. Nevertheless, the frequent presence of specialized terms indicates that instructional scaffolding—like pre-teaching or contextual assistance—is essential to facilitate effective learning. After examining the 100 most common words, the textbook has a balanced combination of general words and engineering words. This can help students communicate better for study and future work.

In conclusion, although the textbook offers a comprehensive and domain-relevant lexical profile, closer alignment with learners' actual CEFR proficiency is essential. Curriculum developers and instructors are encouraged to adapt materials using corpus-informed strategies to ensure vocabulary input is both pedagogically and linguistically appropriate.

Research Limitations

This study focused on only one textbook, so it may not represent all ESP books used in similar schools or universities. Additionally, the results are limited to vocabulary profiling and don't cover other important aspects of language learning, like grammar skills or how engaged students are. Future studies should look at more teaching materials and also ask students for feedback, so we can better understand how well ESP textbooks work.

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Appendices

Appendix A

Top 100 High-Frequency Words Data from the ESP Textbook

	Type	Rank	Freq	Range		Type	Rank	Freq	Range
1	the	1	1509	1	51	Than	50	61	1
2	a	2	808	1	52	Was	52	60	1
3	of	3	686	1	53	Used	53	57	1
4	to	4	593	1	54	conversation	54	56	1
5	is	5	519	1	55	System	55	55	1
6	you	6	385	1	56	Think	55	55	1
7	are	7	332	1	57	Water	55	55	1
8	that	8	320	1	58	Our	58	54	1
9	and	9	317	1	59	all	59	53	1
10	what	10	282	1	60	materials	60	51	1
11	it	11	262	1	61	would	60	51	1
12	in	12	241	1	62	some	62	50	1
13	for	13	222	1	63	work	62	50	1
14	I	14	218	1	64	fuel	64	49	1
15	an	15	175	1	65	up	64	49	1
16	we	16	174	1	66	energy	66	48	1
17	do	17	165	1	67	help	67	47	1
18	about	18	161	1	68	task	68	46	1
19	can	19	160	1	69	one	69	44	1
20	not	20	157	1	70	which	69	44	1
21	with	21	142	1	71	software	71	42	1
22	how	22	138	1	72	material	72	41	1
23	on	23	134	1	73	using	73	40	1
24	will	24	133	1	74	create	74	39	1
25	engineer	25	130	1	75	right	74	39	1
26	be	26	128	1	76	its	76	38	1
27	use	27	124	1	77	power	76	38	1
28	engineering	28	115	1	78	these	76	38	1
29	from	29	114	1	79	did	79	37	1
30	this	30	112	1	80	there	79	37	1
31	your	31	110	1	81	process	81	36	1
32	have	32	109	1	82	name	82	35	1
33	engineers	33	100	1	83	project	82	35	1
34	new	34	98	1	84	also	84	34	1
35	they	35	93	1	85	am	84	34	1

36	problem	36	78	1
37	design	37	73	1
38	so	37	73	1
39	why	37	73	1
40	as	40	71	1
41	make	41	68	1
42	by	42	67	1
43	or	43	66	1
44	has	44	65	1
45	well	44	65	1
46	but	46	63	1
47	more	46	63	1
48	at	48	62	1
49	need	48	62	1
50	computer	50	61	1

86	like	86	33	1
87	models	86	32	1
88	does	88	32	1
89	when	88	32	1
90	yes	88	32	1
91	just	91	31	1
92	must	91	31	1
93	something	91	31	1
94	testing	91	31	1
95	too	91	31	1
96	woman	91	31	1
97	force	97	30	1
98	many	97	30	1
99	study	97	30	1
100	write	97	30	1