



# Designing English For Specific Purpose Materials: A Preliminary Coursebook Product for Informatics Engineering Context

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English for Informatics Engineering (EIE, hereafter) is significantly requisite for tertiary students. Since EIE is one of English for Specific Purposes (ESP, hereafter) branches, it has particular inescapable characteristics. Although the materials can be adapted from various resources, developing materials for EIE should definitely follow pedagogical standardized procedures. This article aims to present how material development for EIE is designed based on need analysis results and developed according to a specific ESP teaching approach. This current study is a further examination of need analysis results implemented in a coursebook for Informatics Engineering students in a private university in Indonesia. As a part of research and development project research, this study focuses on developing preliminary form of product that includes a prototype of EIE coursebook development. A text-based instruction is utilized as a basis approach to design the EIE material. The results of this preliminary product are described in four lessons of EIE materials.

**Keywords:** English for Specific Purpose, Informatics Engineering Context, material development, textbased instruction

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## INTRODUCTION

English for Specific Purposes (ESP, hereafter) plays an important role for designing English vocabulary and tasks related to a particular discipline. This approach helps a specific group of learners to meet their English demand that commonly refers to the need in the workplace or educational institutions Ghafournia and Sabet (2014). Despite the urgency of teaching ESP for specific area of subject, several previous studies have found that many ESP material developments have not designed according to standardized ESP pedagogical approach Alqahtani (2015); Ghafournia and Sabet (2014); Johns (2015); Sari and Atmanegara (2018); Thousny et al. (2018). This issue further contributes to students' assimilation of information and their overall skills and knowledge. Furthermore, selecting ESP materials determines how succeed the class accomplish targets required by the learners Osman (1999). A specified and ESP-based approach material development is significantly intended to increase students' achievement as they need. As a prerequisite of ESP material development, need analysis should be conducted to obtain information needed and to organize meaningful tasks for learners Liton (2016); Malicka and Norris (2017).

Need analysis can be a vital tool to identify which area of English competence the students are inadequate and to decide the best teaching methodology for the class [Alsamadani \(2017\)](#); [Ibrahim et al. \(2013\)](#); [Rahman \(2015\)](#). Therefore, an ESP material-design research-and-development based on need analysis results is necessary to conduct for every particular ESP class.

There are several sub-division classes under ESP course program in Universitas Muhammadiyah Ponorogo, Indonesia. English for Informatics Engineering has received a lot of attention for ESP material research-and- development since it has not had an ESP-based syllabus for years. In 2018, a primary research has examined students' English need analysis for Informatics Engineering study program. The research reports that despite the faculty expected the students to be able read texts in Information and Technology contexts, they also need to be able speak actively in a group discussion or student presentation using English as a foreign language (Nimasari, 2018a). Regarding to the result, it sums up that there are two skills required to design ESP tasks in this class, genre-based text reading skill and academic speaking competence respectively. The objective of the research focuses on further examination of the previous research conducted specifically in the context of English for Informatics Engineering study program in Universitas Muhammadiyah Ponorogo. ESP syllabus for English for Informatics Engineering, its organized materials and tasks according to the research report studied by Nimasari (2018) [Nimasari \(2018\)](#) are presented in this research.

Due to the nature of the research objectives and the limitation of research area in the context of English for Informatics Engineering, the present study is investigated based on qualitative methodology. The aforementioned need analysis result implies that genre-based text or text-based instruction is utilized as the main research instrument to design tasks of English for Informatics Engineering class.

## METHODS

This research adapted text-based instruction or commonly known as genre-based instruction to structure ESP for Informatics Engineering material. In the ESP teaching and learning context, genre-oriented text framework leads learners to work through several strategies of language learning for the specific purpose [Rahman \(2011\)](#). The texts are considered meaningful within social setting since the structure and language patterns help the learners to identify a social purpose. At the same time, texts also provide authentic situation and information in which learners engage in. Systematic context offered by genre-based texts are determined by three variables: field, tenor, and mode [Richards \(2011\)](#). While field is the subject matter being discussed, tenor is a connection among the readers or listeners, how they involve to the context and the situation of the text. In addition, mode focuses on how those participants are communicating, by using spoken or written language. Analyz-

ing these three variables is primary stage for learners to understand the text. Once they are able to identify language features of the text, they will be capable to construct their own texts. There are five phases of ESP classroom activities included in a text- based instruction: building the context, modelling and deconstructing the text, joint construction of the text, independent construction of the text, and linking to related text [Allan and Bahtaji \(2015\)](#); [Cheng \(2007\)](#); [Irshad and Anwar \(2018\)](#); [Johnson \(2017\)](#); [Osman \(1999\)](#); [Roehling et al. \(2017\)](#); [Sari and Atmanegara \(2018\)](#); [Sarigoz et al. \(2019\)](#); [Tyner and Fienup \(2015\)](#); [Wang and Matsumura \(2018\)](#); [Zhang \(2017\)](#).

Focusing on Informatics Engineering context, the texts for material development in the recent study are mainly adopted from Information and Technology or Computer Science article reports. The ESP material is developed for freshmen year of Informatics Engineering study program at Universitas Muhammadiyah Ponorogo. Theoretical framework of text-based instruction five stages is utilized as the main research instrument. Data of the study are information from the faculty about expected learning goals and primary research results which are collected by using interview and library research respectively. Moreover, texts used as the data are the article reports adopted from online resources such as article journals of Information and Technology and online news. Thus, they are analyzed in terms of text-type, technical vocabulary, language register and function, grammatical construction, and sentence patterns. These terms are parts of text-based instruction lesson design.

## RESULTS AND DISCUSSION

ESP syllabus for English for Informatics Engineering according to the research report studied by Nimasari (2018) [Nimasari \(2018\)](#), its organized materials and tasks in form of a lesson of material development are descriptively presented in this part.

### English for Informatics Engineering syllabus

A syllabus is the most important core for preparing teaching and learning process. It provides a comprehensive information about learning goals, lesson objectives, teaching methodology, student's tasks, and teaching time allocation [Burdina et al. \(2018\)](#); [Ludy et al. \(2016\)](#); [Sarigoz et al. \(2019\)](#); [Gestanti et al. \(2019a\)](#). There is a wide range of syllabuses used by the language instructors for English classes. However, designing a syllabus depends on teaching- learning objectives which are commonly determined by the faculty or a study program of a university.

Informatics Engineering study program of Universitas Muhammadiyah Ponorogo proposes English competence in a context of computer, information and technology as a target of learning. The study program emphasizes the importance of reading skill for the students to understand authentic text in the context of computer, information and technology. Yet, both Faculty of Engineering and Informatics Engineering study program have not organized a structured ESP

for Informatics Engineering syllabus. Therefore, the English lecturer of ESP class designs the syllabus before arranging the materials. The syllabus of ESP for Informatics Engineering program includes course description, subject description, learning indicators, learning time allocation, learning methodology, test description, and total assessment. These features of syllabus have been designed by the curriculum unit of Universitas Muhammadiyah Ponorogo. **Figure 1** and **Figure 2** are the ESP course for Informatics Engineering description.

**FIGURE 1 | Lesson plan page 1**

**FIGURE 2 | Lesson plan page 2**

**FIGURE 3 | Sample lesson plan for meeting 1**

Syllabus features used in this syllabus has been designed according to the needs of ESP class students and written under the umbrella of syllabus theoretical framework that a syllabus provides a rich information about the course. While scholars report that syllabuses may have various categories, this syllabus of English for Informatics Engineering is identified as a traditional syllabus and is combined with contractual syllabus as there are some indicators for the students in detail [Burdina et al. \(2018\)](#); [Ludy et al. \(2016\)](#); [Gestanti et al. \(2019a\)](#); [Sarigoz et al. \(2019\)](#).

**FIGURE 4 | Sample lesson plan for meeting 2 and meeting 3**

**Organized Materials**

Detailed lesson description for each meeting is set into 12 daily lesson plans. Each meeting will focus on subject description written in the course description as figure 1 and figure 2 illustrate. Figure 3 and figure 4 show sample daily lesson plans. The daily lesson plan will be the basic framework to develop materials for English for Informatics Engineering study program.

As stated in research methodology, ESP materials developed in this recent study is arranged using text-based lesson design. This framework requires the language lecturer to analyze text type, language used and text grammatical forms. This approach consists of five main activities: building the context, modelling and deconstructing the text, joint construction of the text, independent construction of the text, and linking to related text. In this part, the materials developed are verified to identify how it is built according to text-based lesson framework. Figure 4 presents lesson 1 material.

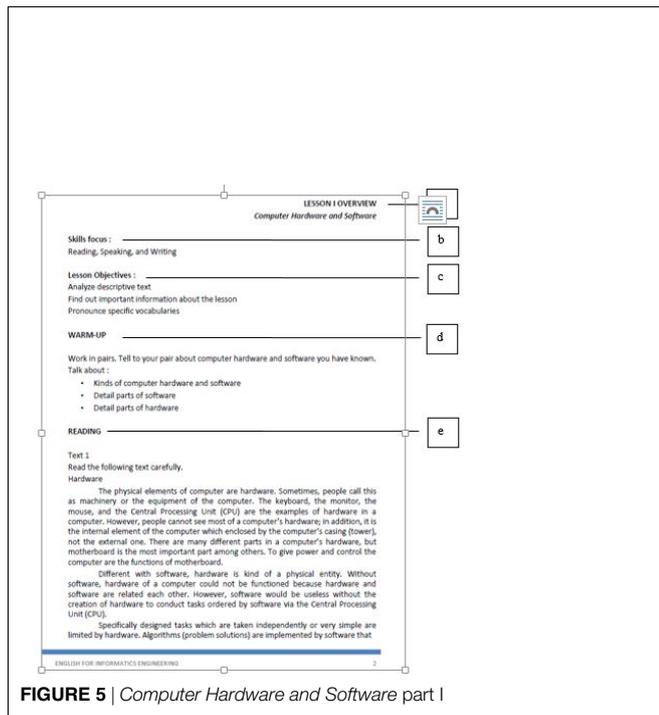


FIGURE 5 | Computer Hardware and Software part 1

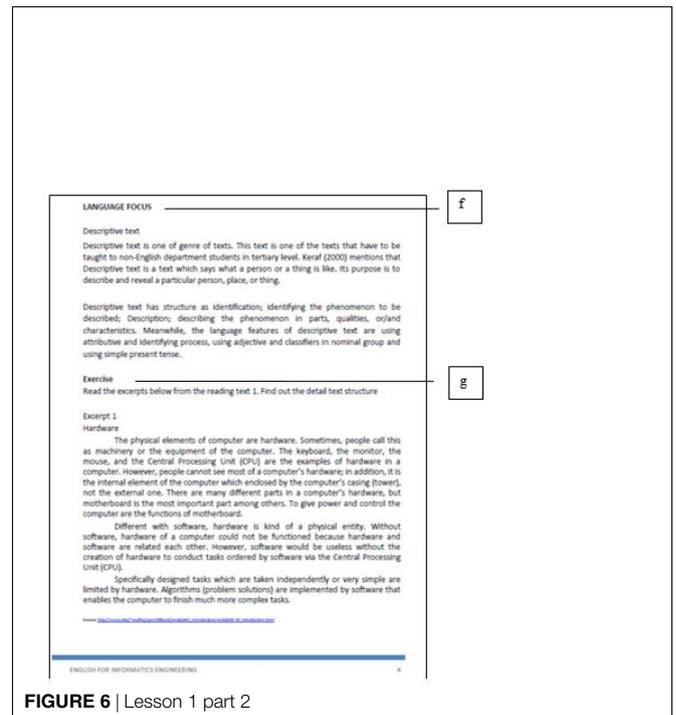


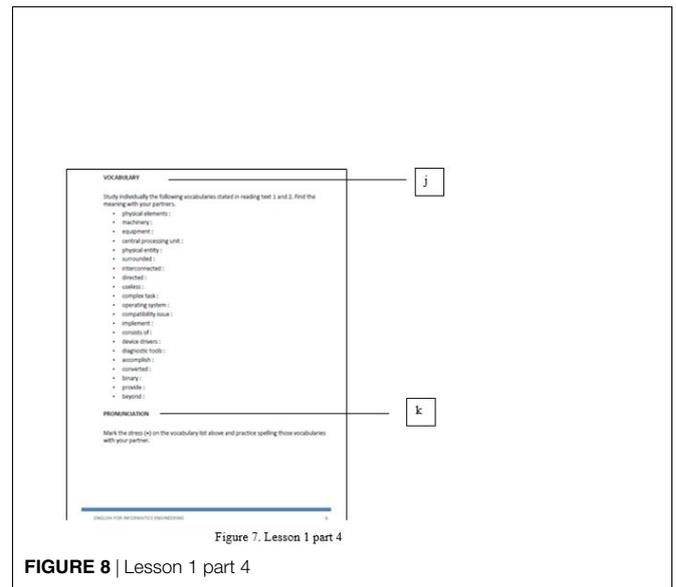
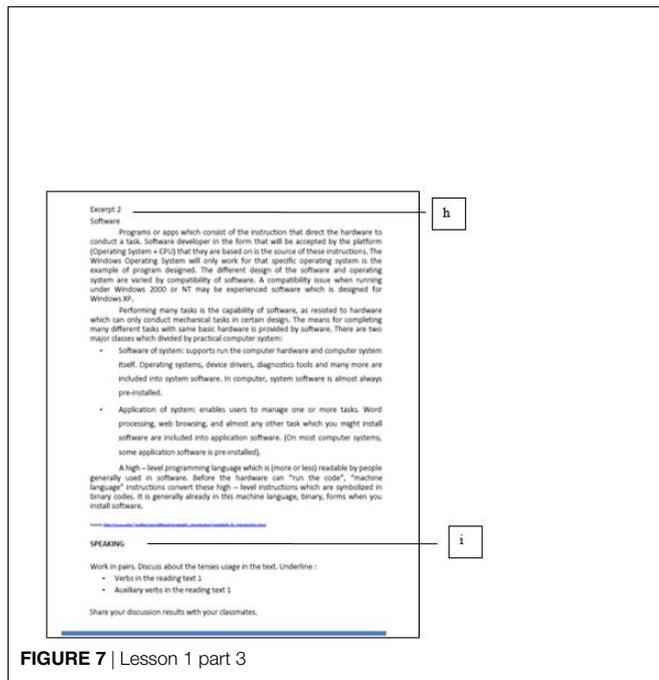
FIGURE 6 | Lesson 1 part 2

Building the context stage aims to establish the purpose of the text and its setting. The activities can be showing pictures to the readers, having discussion task and pre- listening or reading for the content. In **Figure 5**, code [a] describes specific topic that the learners need to study. It gives a summary of idea for them to develop their background of knowledge **Mufanti and Susilo (2017)**. While code [a] is the topic of the lesson, code [b] and code [c] present language skills studied and the target of learning process in lesson 1. The first stage of text-based lesson is delivered by giving a brainstorming activity through pair-work speaking, as shown in code [d]. Although the students may not speak fluently in a correct grammatical structure since they are supposed in the beginning level of competence, mentioning parts of computer hardware and software can activate their knowledge of technical vocabulary that may be used in the lesson **Gestanti et al. (2019b)**.

Reading text given as categorized in code [e] is verified as second stage, modelling and deconstructing the text. This phase is designed to introduce the students a sample of text that may have in their workplace or college as they are students of Informatics Engineering program that have English text references. In this stage, learners will study how to identify features of text organization and language in terms of vocabulary, verb forms, tenses construction, and syntax. **Figure 6** illustrates lesson 1 part 2.

As a part of modelling and deconstructing the text, in code [g] learners are asked to find out detailed structure of the text given in code [e]. Before analyzing the text, learners are given a brief explanation about descriptive text in code [f]. It guides them to examine the text before they are able to analyze texts critically by using inductive approach. The texts are divided into two parts to make the learners easier analyzing the text, stated in code [h]. This activity has confirmed the indicator of syllabus meeting 1 that the students are asked to analyze features of descriptive text.

Modeling and deconstructing the text phase are also proposed in code [i]. Code [i] activity triggers the students to practice their speaking skill while they are attempting to study verb forms and grammatical constructions in the text. It is expected to help them understand the context by having collaboration work with their partners. Pair work activity in code [i] is assumed to facilitate learners a wide range of opportunity to practice their English as a foreign language such as delivering opinion, asking questions, and providing feedback. Furthermore, discussing with peers also reduces students' speaking anxiety and barriers **Mufanti (2016)**. Therefore, having analyzing grammatical structure discussion with classmates may benefit themselves to have more understanding. Activities drawn in code [h] and code [i] are presented in **Figure 7**.



English for Informatics Engineering focuses on technical terms since the expectation from the faculty is that the students are able to read and understand words or phrases used in texts computer, information, and technology. Therefore, activities for identifying vocabulary and describing it according to the context are emphasized as stated in code [i], **Figure 7**. By having vocabulary activity, students are motivated to have deeper understanding about the terminology and how it is used in the context of their discipline [Gestanti et al. \(2018\)](#).

Pronunciation practice of specific vocabulary is delivered after the students find out the meaning of that vocabulary through discussion. The students should find appropriate word stress before they practice the pronunciation of the vocabulary. This activity reported in code [j] of **Figure 8** is also verified as a part of modelling and deconstructing the text stage. In addition, it is also in line with the learning indicator proposed in syllabus meeting 1 that the students are asked to pronounce specific vocabulary. Although vocabulary and pronunciation are already provided, vocabulary development by using various type of tasks such as matching and word grouping are necessary to add in the material for the students. This vocabulary development will help students to comprehend both explicit and implicit details.

While two indicators of learning process have been applied in the aforementioned tasks, one indicator of finding important information of the lesson is given through speaking activity. Discussion establishes students' interaction and engagement in understanding the text. For instance, they are asked to review which part of text is included to identification part. Once they experience the verbal interaction with peers, they are not only practicing their speaking skill but also, they are also learning to identify features of the text and understand the context. Discussions are verbal exchanges in which the learners examine a topic or a list of questions by delivering argumentation, that is, by giving reasons for their perspectives [Vasterling \(2016\)](#). When there is a disagreement or different points of view, interlocutors or persons who engage in the discussion will provide more information to reach a better understanding. Therefore, finding implicit and explicit information is assumed to be more effective and meaningful delivered through discussion with peers. This activity is presented in code [m] figure 8. In code [m], students are asked to read excerpt of main text of reading section, reported in code [l] below. Reading text is divided into two parts to encourage students to read the text carefully since the students of Informatics Engineering have a lack of motivation of reading in English as a foreign language.

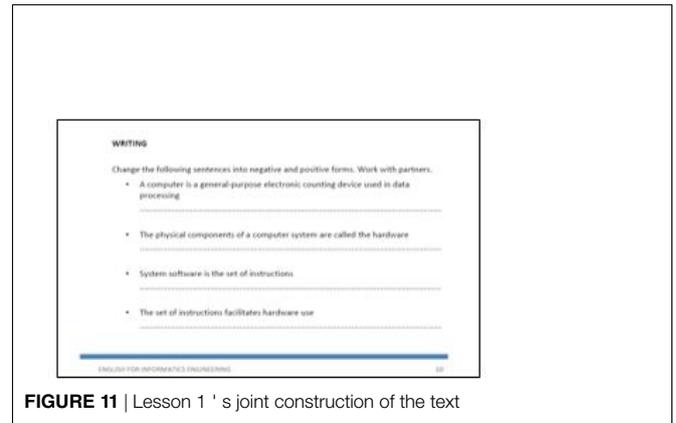
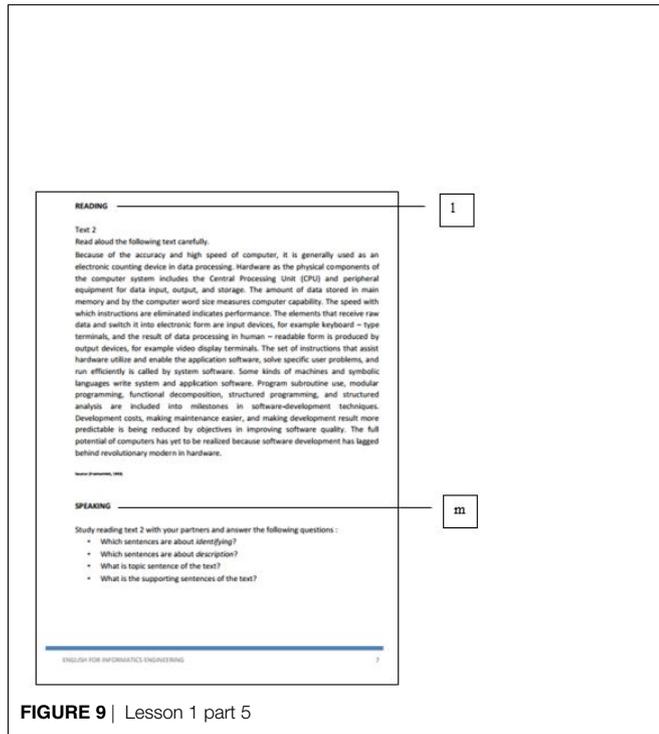


FIGURE 11 | Lesson 1 ' s joint construction of the text

Giving the students opportunity to have more tasks in joint construction can be a more meaningful possibility to develop their analytical thought writing a simple sentence in the same type of text Gestanti et al. (2019a). The number of tasks can be determined according to the need of students. While having writing task, lecturer or language instructor can use observation sheet or field notes to evaluate to what extent the students understand the material or the topic given. When the students fail to grasp the purpose of the task in which they do not conceive the idea of finishing the tasks, additional similar material such as jumbled sentences, gap-fill tasks, and matching words can be given as practices.

Independent construction of the text is the stage in which learners work alone to produce their version of the text. They also learn to develop and structure their idea without copying other ' s work Nimasari (2018). They have studied features of descriptive text, analyzed topic sentence and supporting sentences, defined technical vocabulary and examined how to construct a sentence with different form of grammatical structure of tense used in a descriptive text. Therefore, it is the chance for the learners to apply new skills they have practiced on their own version of descriptive text. In the lesson 1, this stage is arranged in writing practice. The writing practice is displayed in Figure 12.

The material is also provided with language focus about brief explanation of topic sentence and supporting sentence. This will help students to verify their own finding from discussion with their peers. In addition to the descriptive explanation about finding topic and supporting sentences, grammatical structure of sentence is available for learners to guide them construct their own sentences. The following figure is language focus feature for the students.

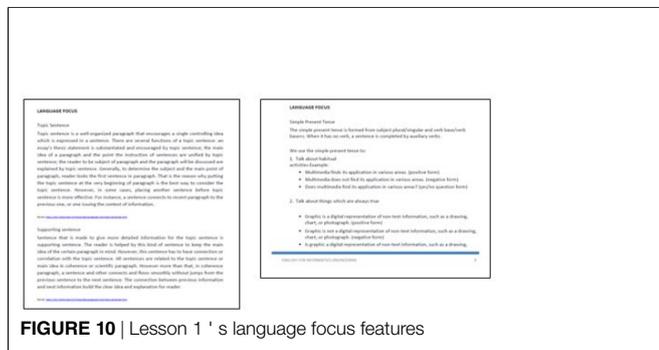


FIGURE 10 | Lesson 1 ' s language focus features

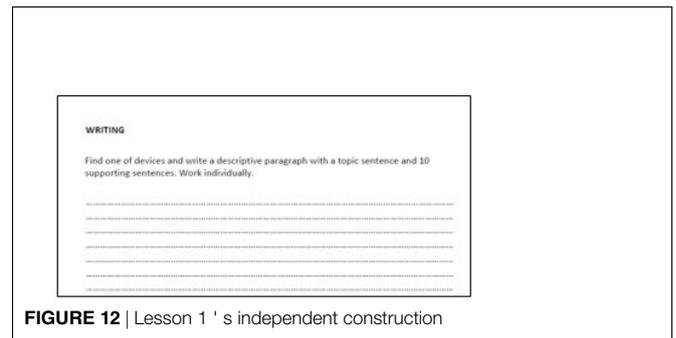


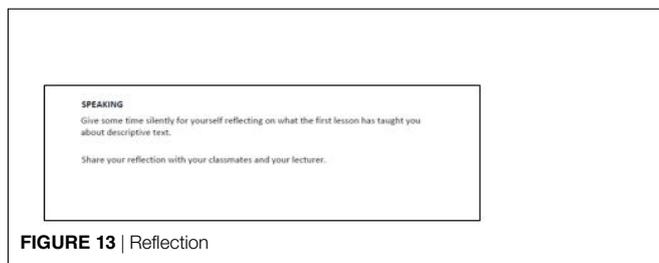
FIGURE 12 | Lesson 1 ' s independent construction

After modelling and deconstructing of the text, joint construction of the text is the third stage of text-based instruction. In this stage learners work together to jointly reconstruct the text. In lesson 1, students are instructed to change sentence form according to tense given in the language focus. Having this task, they work together to produce a similar sentence.

As presented in Figure 11 , the writing task demands the students to produce a descriptive paragraph practicing the same features and grammatical form they have acquired but using different information. Since they are Informatics

Engineering students, finding different computer devices to describe can be a meaningful task to evaluate their understanding about learning English for the specific computer and technology context. Although discussion and pair-work techniques are assumed to be more effective, independent construction is highly required to be done individually to test the students' competence. The students will develop their skills of editing, drafting, and proofreading as they perform in the previous tasks. Additional classroom project can be provided such as student writing presentation through online platform to engage students' attention and motivation towards learning English as a foreign language for their discipline.

The last stage of text-based lesson is linking to related texts in which students look at other authentic texts and identify same text-type. They also can listen to same text-types but identify differences in register. This phase can be given through home-project or homework task if teaching time allocation is not enough. Linking to related texts are highly significant for the ESP learners. Therefore, they can compare with different text types and be able to analyze the language features with their skills they have learnt.



Although linking to related text has not been provided in the material, students are encouraged to reflect lesson they have studied. They can share any opinions and ideas through speaking activity with their peers. The additional material of linking to other type can be delivered by having discussion about how a new text is different from the previous text examined.

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## CONCLUSION

The objective of the research is to address ESP for Informatics Engineering syllabus and the organized materials using text-based approach. The results have described a developed material based on need analysis-syllabus in accordance to the theory of text-based lesson that includes building the context, modelling and deconstructing the text, joint construction of the text, independent construction of the text and linking to related text while detailed syllabus and lessons are attached in appendix. All tasks have confirmed the indicators targeted and designed properly in line with the text-based approach Ludy et al. (2016); Nimasari (2018); Osman (1999); Rahman (2015); Sarigoz et al. (2019). Although four stages have been clearly stated in the material, the fifth stage has not been explicitly delivered. However, reflection stage in the last part of lesson 1 can be useful for learners to summarize what they have studied during the lesson and to review their performance Li and Peng (2018).

The result of the study has provided a teaching innovation for ESP material and development in Indonesia. The use of English as a foreign language and various context have emerged the curriculum design for a better educational achievement. Furthermore, the recent paper is highly expected to enrich the accomplishment of the language instructors and material developers in higher and tertiary education. Future investigation may usefully concern on students' work and achievement analysis result from text-based instruction materials.

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**Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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