CAES 9541 Technical English for electrical and electronic engineering

Unit Nine
Writing an abstract/summary; Workshop 2: Improving your draft FYP Report; Improving coherence in writing; Feedback on writing

Overview

This unit aims to sharpen your sensitivity to language use in highlighting common mistakes in student writing such as the use of modals, connectives, reference markers, etc. This will help you not only identify pitfalls in the cohesion and coherence of your writing but also put a finishing touch on your project report. You will also learn how to interact with the audience in oral presentation by anticipating possible questions and formulating answers.

Learning Outcomes

By the end of this session, you will be able to

- understand the purpose of abstract/summary writing
- recognise the structure of an abstract/summary
- identify key language points in writing an abstract/summary
- draft an abstract/summary for your work

What is an abstract/summary

- An overview of the project/report
  - Provides essential points
  - A condense version of the report
- It is written last but appears first immediately after the Table of Contents. It is because the reader uses the summary to decide whether or not the report is worth reading. It must attract the readers' attention and it must be written in plain, non-technical language as far as possible.

Identifying audience

An abstract/summary is generally written for an expert audience and thus uses technical language. However, engineering abstracts/summaries are often targeted at a much wider audience (any reader who might take interest in the topic for a variety of reasons), but must still provide sufficient technical substance for relative experts.

Jot down a list of who might read engineering abstracts/summaries and why.

Who?	Why?

One of the challenges in writing an engineering abstract is to avoid using jargon that would not be understood by those outside of the field, while providing real technical substance for the experts.

8.2 Writing an abstract/ summary

Similar to a conclusion, an abstract/summary is a compact description of the entire project or research summarizing the major and most important related information.

8.2.1 Differences between an abstract/summary and a conclusion

The best way to identify the purpose of an abstract/summary the differences between the two is to make observations by yourself rather than reading another long text of formal definition.

In the abstract, the author mentioned the importance and the purpose of the study. He/she also stated the methods used and the result of the study.

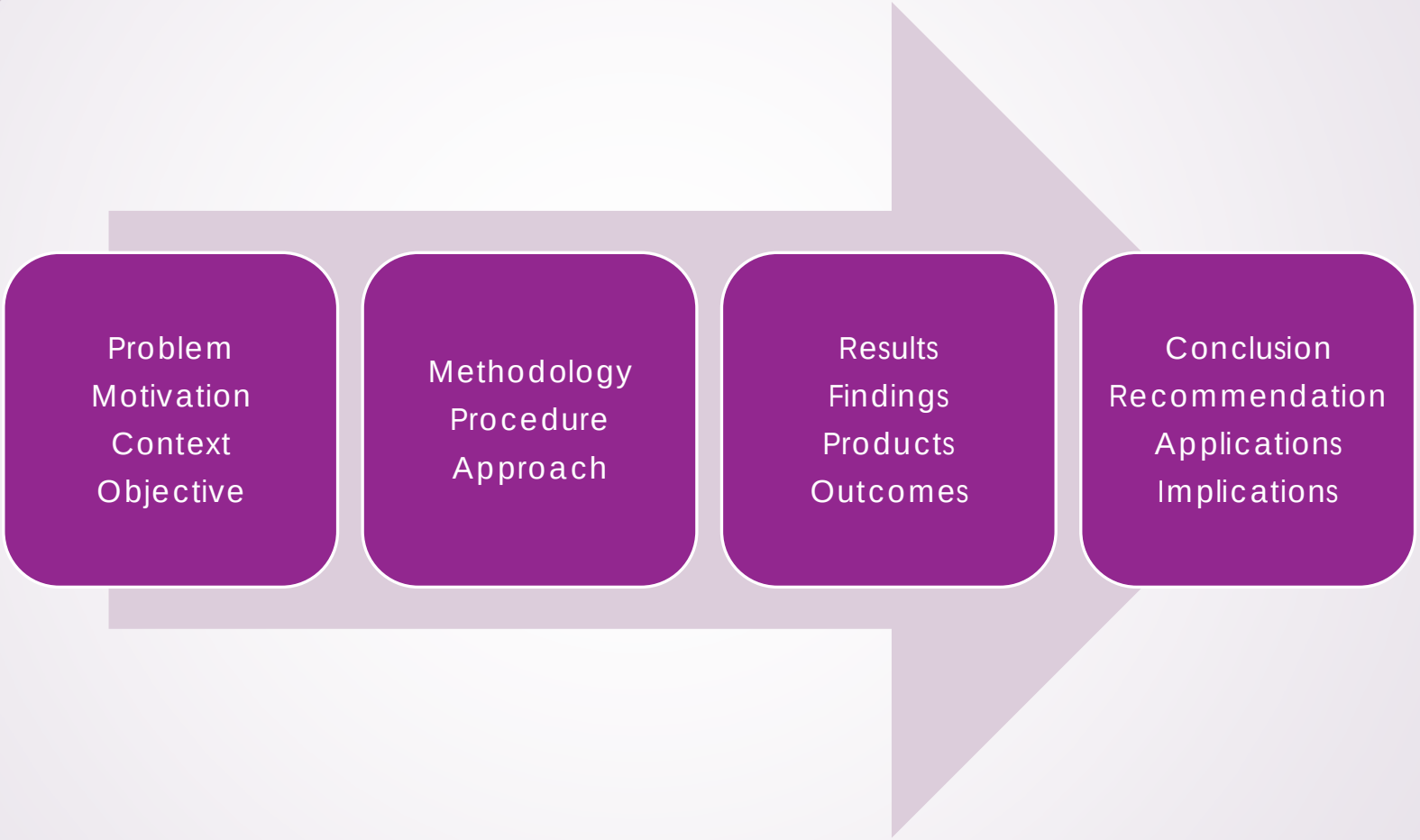
In the conclusion, the author commented on the results and pointed to the future direction of the research.

Difference between a conclusion and an abstract/summary

The purpose of writing any conclusion is to show how the writer has attempted to fill the gap in knowledge or to solve a problem that was identified at the beginning of the report and to illuminate to what extent the investigation has been successful. A conclusion ties together or integrates the various issues covered in the main body of the report, and comments upon the meaning of all of it. That includes making implications resulting from your discussion of the topic, recommendations and the need for further research.

On the other hand, an abstract is a very concise summary of the body of the text that informs readers of all the elements in the report, their order as well as their functions. It aims to attract readers to read the report. An abstract is placed before the body of your writing but is the last section of a report to be written. It can be read to get a quick overview and it tells the reader what to expect in your work.

The structure of an abstract/summary



Writing an Abstract/Summary - Structure

1. **Problem/motivation/context/objective**
   The first few sentences set out the context or problem which motivates the work. The opening should raise interest or point out the significance of what is to follow. The purpose or objective may be stated directly. The opening concisely addresses questions, such as, "Why should we care about this?" or "What is the theoretical or practical importance of the work?"

2. **Methodology/procedure/approach**
   This describes how the work was carried out and should provide some significant specific details. This section may refer to specific processes, numerical simulations, construction of prototypes or experimental testing. It addresses the question: "What did you do?"

3. **Results/findings/products/outcomes**
   Objective (mostly quantitative) results are highlighted. The most central outcomes, such as, answers to problems, research questions or project objectives, are featured precisely and without much commentary. The question here is, "As a result of what you did (2), what has been learned, discovered, or created?

4. **Conclusions/recommendations/applications/implications**
   Some interpretations or conclusions are given which focus attention on the value of the work completed. These may be theoretical or practical in nature. The focus is on only a few key points. The question: "So what are the implications or applications?" "Where should research and development go from here?

TASK 8.4 Identify the four moves of an abstract/summary

Below is an abstract/summary of a report by a previous student on an online event registration system. Identify the four moves.

1. Problem/context
2. Methodology/procedure
3. Results/outcomes
4. Conclusion/recommendations

Text 4 [2]

①As there is currently no generic online event registration system, thousands of conference organizers build their own individual registration websites which adds significantly to the cost of conference arrangements. Therefore, there is need for a generic online registration system which can provide all the fundamental functionalities of a conference registration site at a relatively low cost. ②In this project, a model of a generic online registration system with mail account was investigated and a web application based on this model was developed. The web application was developed using ASP.NET 2.0 with the programming language of C#. By using the Simple Mail Transfer Protocol and the Post Office Protocol, the application is able to connect to the Gmail Server to send or receive emails. With these email functions, the application can embedded the participants' information in an email and send it to the Gmail account provided by the conference organizer, and the information stored in the email account can also be retrieved by the receiving function. ③This application can provide all the fundamental functionalities that conference registration sites need and it can build the registration database using the mail account provided by the conference organizer. This would lower the cost borne by the conference organizer. ④The overall performance of this online registration system proved to be generally acceptable, though occasional instability/delays due to network congestion were observed. It is expected that this problem can be overcome with an increase in network bandwidth.

Recognising abstracts practice

- See handout
- E, B, G, C, F, A, D
- D, H, E, A, C, B, F, G

Writing an Abstract/Summary - TENSE

Abstract/Summary Components	Tense
1. Problem/motivation/context/objective	Present - unless historical fact
2. Methodology/procedure/approach	Past
3. Results/findings/products/outcomes	Present / Past
4. Conclusions/recommendations/applications/implications	Present / future

Writing an Abstract/Summary - TENSE

Present Simple:

- a broad statement about the problem or motivation behind the work
- general truths (common knowledge or belief in the field)
- to make generalisations from the data (results and conclusions)
- to refer to what a paper does, how it is organised, what it contains (as in 2 above)

Simple past:

- to describe what you did in your study (methodology)
- to describe what you found (findings)

Present Perfect:

- to summarise what has previously been presented/done
- to refer to whole areas of enquiry

Simple future:

- to refer to applications, recommendations, and implications

The past, the present, and the future walked into a bar. It was tense.

1. Problem/context
2. Methodology/procedure
3. Results/outcomes
4. Conclusion/recommendations

Title: Effects of Groundwater Table Position and Soil Properties on Stability of Slope during Rainfall	Comments
Rainfall, hydrological condition, and geological formation of slope are important contributing factors to slope failures. Parametric studies were carried out to study the effect of groundwater table position, rainfall intensities, and soil properties in affecting slope stability. Three different groundwater table positions corresponding to the wettest, typical, and driest periods in Singapore and four different rainfall intensities (9, 22, 36, and 80 mm/h) were used in the numerical analyses. Typical soil properties of two main residual soils from the Bukit Timah Granite and the sedimentary Jurong Formation in Singapore were incorporated into the numerical analyses. The changes in factor of safety during rainfall were not affected significantly by the groundwater table near the ground surface due to the relatively small changes in matric suction during rainfall. A delay in response of the minimum factor of safety due to rainfall and a slower recovery rate after rainfall were observed in slopes from the sedimentary Jurong Formation as compared to those slopes from the Bukit Timah Granite. Numerical analyses of an actual residual soil slope from the Bukit Timah Granite at Marsiling Road and a residual soil slope from the sedimentary Jurong Formation at Jalan Kukoh show good agreement with the trends observed in the parametric studies.	Context Methodology Results Conclusion/ recommendation?

Additional exercise

1. Problem/context
2. Methodology/procedure
3. Results/outcomes
4. Conclusion/recommendations

The assessment of rainstorm-induced shallow landslides is still a research topic of wide concern for scientists and engineers. This paper examined the effect of rainfall intensity distribution on shallow landslides. Four synthetic rainfall distributions comprising uniformed, delayed, centralized, and advanced, were selected to examine the effect of rainstorm patterns on slope failure. The infiltration was modeled using Green-Ampt equation, while an infinite slope was selected to model the shallow landslide. Monte Carlo Simulation was applied to analyze the failure probability of the slopes. Two landslide cases were selected to examine the proposed model. The results indicated that among the four representative rainstorm patterns, the advanced rainfall pattern caused worst slope stability. The advanced rainfall pattern resulted in the shortest rainfall duration threshold for landslide occurrence, followed by the central, uniform, and then delayed rainfall pattern. The probabilistic analysis method was suitable to estimate the time of failure for the evaluated landslide cases.	Context/problem/Aim Methodology Findings Conclusion/ recommendation

TASK 9.6 Critique an abstract/summary

Below is an abstract/summary written by a previous student, applied what you have learnt from this unit and suggest ways to improve the abstract/summary.

Student A	Comments
Summary Optical properties are the key properties in optimization the performance of organic optoelectronic device such as Organic Light Emitting Devices (OLED) and Solar Cell. In this project, absolute optical properties of organic materials are being investigated for better understanding of the material's optical behaviors so as to make more efficient devices. The materials under investigation are used to fabricate emissive/emitting layer (EL) in OLED. In this project, four series of light emitting polymers are being investigated, which include white emissive material from SCUT, JK347, Alq3, and F8BT. To conduct a comprehensive study on absolute optical properties of these materials, different methods have been adopted. Variable Angle Spectroscopic Ellipsometry (VASE) Method has been used to measure and fit for the optical constants and thickness of the SCUT samples. Then quantum mechanic modeling of molecular orbitals using Gaussian 03 software is been adopted to investigate the origins of the emission spectrum of F8 and F8BT. Lastly, optical modeling is performed to find the recombination region in emissive layer by fitting to EL spectrum, and predict external	Contexts Methods Results?

Student B

Abstract:

In this paper, three set of 300W LLC converter is built. One set is built with passive diode and two other sets built with current driven synchronous rectifier. The maximum efficiency of the converter is 96% and the full load efficiency is 94.57%.

The Characteristic of LLC resonant converter is presented. The Fundamental Harmonic Approach (FHA) is used to find the equivalent circuit of the converter. Three conditions of achieving Zero Voltage Switching (ZVS) is discussed. They are: direction of the resonant tank current $i_{rt}(t)$, magnitude of $i_{rt}(t)$, and length of phase shift of $i_{rt}(t)$. Also, the method of reducing the conduction loss is discussed in this paper.

Beside, a current driven synchronous rectifier is used to improve the efficiency of the LLC converter. The driver of the current driven synchronous rectifier is presented and discussed.

Contexts?
Results

Methods

Comments on methods

Results?
Conclusion?

9.3 Writing Workshop 2: Improving your draft SDP Report

In this writing workshop, students will seek to improve their SDP reports by discussing feedback provided by the course lecturer. Consultation schedule will be negotiated between you and your lecturer. Sample reports of previous projects will also be provided in-class to facilitate discussions.

Improving Clarity and coherence of your writing

9.4 Additional language points in technical writing

Subtle use of language features is highlighted in the following which will help you to avoid common mistakes. Rather than learning from a set of prescribed rules, raise your own language awareness with the following examples.

TASK 9.7 Identify problems in language use (25 mins)

Read the following sentences and be adventurous to identify the possible strength or issues regarding specific areas of language use. Hints are provided. Discuss them with your partners.

A. Use of modals

Modals such as 'could', 'can', 'should', 'would', etc. can be strategically used to show your attitude and the strength of your arguments/claims. What do you think about the following sentences?

> Sentence: This operating system can be multifunctional. It could operate on normal desktop computers or mobile devices.

Using modals is tricky. ***The degree of likelihood associated with different modals***, e.g. if the writer wants to be more certain, he/she can use 'can' rather than 'could'. The above sentence is inconsistent as 'could' suddenly reduce the likelihood that the writer thinks the system is multifunctional. Do not interchange modals indiscriminately is the key.

B. Use of connectives – additive and contrastive

Adding and contrasting ideas are common in any form of writing, but make sure you are NOT overusing some common connectives that may make your sentences illogical.

Can you identify any problems with the following sentences:

Sentence 1:

The Search API does allow people to get only the most recent tweets (public tweets) and not all data from their database.

Suggested answer: 'and' should be changed to 'but'. It is easy to connect a list of ideas with additive connectives if the relationship seems so obvious.

Sentence 2:

Most countries get excited by the possibilities of doing business with China. Some of these countries are frightened by the language barrier and the foreign currency restrictions. They give up on the idea of doing business with China altogether.

Suggested answer: The lack of contrastive connectives makes the flow of the ideas/sentences illogical.

Sentence 3:

The cost will be saved. Besides, the time required for programming can be shortened.

Suggested answer: 'Besides,' is problematic. It occurs mainly in spoken English. It is generally used for adding to a negative concept/proposition, e.g. "I am not going to the concert because I don't have money; besides, it is raining heavily."

Sentence 4:

In spite of the QA team executed many test cases, many programming mistakes have not been discovered until user testing.

Suggested answer: Use 'Although' or any connective that allows a clause rather than a noun. Common connectives such as "in spite of", "despite" are prepositions to be followed by nouns only.

Sentence 5:

As there is redundant javascript in the client code that severely slows down certain types of programs. So it needs to be removed for faster program execution.

Suggested answer: It is easy to forget that a subordinate clause cannot stand alone, particularly when it is long. Use explicit causative connective such as 'because' rather than 'as' if the cause-and-effect relationship is to be highlighted.

C. Reference Markers – It / This

Pronouns are common but they can refer to different antecedents. It is easy to confuse the two. Look at the following sentences and decide whether you should use 'it' or 'this'.

Sentence 1:

Rapport is a French word but used in English. _____ refers to the ability to create understanding or sympathy with others, perhaps different from yourself, such as people from other culture or age group or social group.

Sentence 2:

The colour of the structure will be cream and green. _____ (the idea of having the structure painted in cream and green) is keeping with the rest of the surrounding building.

Suggested answers: 'It' in sentence 1 and 'This' in sentence 2.

D. Conciseness

Make your sentences direct and efficient unless you wish to emphasize cerntain themes. Rewrite the following sentences to make them direct and efficient.

Sentence 1: For the real-time capture of user data, it is difficult because ...

Sentence 2: As for the deployment schedule, it will be delayed if ...

Suggested answers:

Sentence 1: The real-time capture of user data is difficult because ...
Sentence 2: The deployment schedule will be delayed if ...

E. Formality

Your choice of vocabulary and avoidance of word contractions generally help you enhance the formality of your writing. Rewrite the following sentences to make them formal.

Sentence:

The money spent on the start of the project is a lot. And also, it's difficult to follow up with the support.

Suggested answer:

The cost at the inception of the project/initiative is substantial. In addition, the continuous maintenance/support is difficult.

Reminder for next Week

- Edit your report based on the feedback
- Prepare VAs for next week presentation rehearsal