Final Year Project/Thesis (2024 – 2025) Proposal Report Guidelines

ELEC/CPEG

Your proposal report has two main purposes: 1) to propose your project and identify your objectives and 2) to set out a step-by-step plan for future work on your project.

Plagiarism refers to paraphrasing or quoting of other people's work and/or using others' ideas without appropriate acknowledgement. Be very careful about rephrasing or excessive quoting from other sources and make sure to cite all sources. Reports will be checked through Turnitin. Those suspected of containing plagiarized material, including unreferenced diagrams, **will be referred to the department for investigation and will be penalized accordingly, including failure of the FYP.**

GUIDELINES PART I—PROPOSAL REPORT FORMAT

FORMATTING REQUIREMENTS

Your report should be formatted as follows:

- Font: 11pt Calibri for main text; 14pt bold Calibri for section headings; 11pt bold Calibri for subsection headings
- Line spacing: single or 1.15
- Paragraphs: single line space between paragraphs, no indentation
- Margins: top 2.54, bottom 1.27, left 1.27, right 1.27cm
- Page numbers: bottom right corner

These requirements are the same or similar to the format used in these guidelines, so use them as a visual guide.

REPORT OUTLINE

Cover Page

Table of Contents

Section 1 Introduction

1.1 Background and Engineering Problem

1.2 Objectives

1.3 Literature Review of Existing Solutions

Section 2 Methodology

2.1 Overview

2.3 Objective Statement Execution

Section 3 Project Plan

3.1 Project Schedule

3.2 Budget

References

Appendices

Appendix A – Meeting Minutes

Appendix B

REPORT CONTENT

(No page numbers here)

COVER PAGE

- Title of the report
- Project I.D. number
- Name and I.D. number of authors
- Date of report
- List of main objective/s and objective statements (copy from Section 1.2)

TABLE OF CONTENTS

List the sections and subsections using the decimal point numbering system (Sect. 1, 1.1, 1.2 and so on). Include headings and page numbers.

Please note that Section 1 starts at Page 1. All other pages before this should be numbered using small Roman numerals, i.e., i), ii), iii), iv), v) etc.

(Start your numbering from here)

SECTION 1—INTRODUCTION

1.1 Background and Engineering Problem (minimum ½ page)

Using 2 – 3 paragraphs, introduce the background to your project.

Engineering is about identifying a meaningful problem or need that can be solved or met by a technical approach. What is the current situation in your area of research? What is the problem/need you have identified in this area and will try to solve in your project? What would be the impact of solving this problem or fulfilling this need, i.e., what will be the benefit to this area of research or to society/users?

1.2 Objectives (minimum ¼ page)

Briefly introduce your proposed solution to the problem in Sect. 1.1 and the objectives behind it. In other words, what are you going to design/build/do to solve the problem and what are the goals you/it needs to meet?

For example, *"This project aims to design and build a smartphone-based blood pressure monitoring system that maintains the accuracy of traditional cuff-based measurement results while making blood pressure monitoring more accessible to users."*

1.2.1 Objective Statements

To complete your project, you will need to finish a series of modules/stages that have their own objectives. Here, you should create a list of objective statements that reflect the milestones or modules/stages to be completed in your project and the target of each module/stage. This is the most important step in your project. It requires careful consideration. You should include a minimum of three objective statements. However, most projects will have more. Each objective statement should begin with a verb that shows your observable action and must include the measurable target of that action.

Objective Statements should:

- be specific
- have verifiable/measureable targets (specifications in engineering terms). Later, when you compare your objectives (targets) with your actual results, you will know whether you have reached your objective or to what extent.
- be realistic (not too ambitious) so that you can achieve them within the FYP period.
- be challenging enough so that you can learn and improve your engineering knowledge and skills by achieving them. This is the reason you should carefully think them through in the proposal stage.

Example Objective Statements

Objective 1: "To write and debug the code so that the camera can recognize the road features with an accuracy of X",

Objective 2: "To design and fabricate a visual motion sensor for the remote home security system that is able to accurately sense motion up to X meters.",

Objective 3: "To fabricate and calibrate the pressure sensor switch to…",

Objective 4: "To simulate the proposed amplifier design in SPICE to verify its feasibility".

Do NOT use the following examples: *"to learn……", "to understand……", "to do a literature search/survey……", "to choose/identify/purchase components…."* and alike. These show no observable action.

1.3 Literature Review of Existing Solutions (minimum 1 page)

Has anybody provided a solution to your problem before? The answer in most cases is yes, but the solution may not be perfect.

This section requires you to do a literature search. Find related works in this area, study those existing solutions or approaches, then summarize them here (using proper literature citations). What are the strengths and shortcomings of those solutions? Reference all sources that you have cited. (See REFERENCING in Part II of these guidelines.)

Briefly outline how your solution would address those drawbacks? What would be the distinguishing feature of your work in relation to existing solutions?

SECTION 2—METHODOLOGY

2.1 Overview

2.1.1 System Description (minimum ½ page)

Using 2–3 paragraphs, give an overview of your proposed system/process; i.e., what is it and what does it do?

If you are designing a hardware/software system, give details of the proposed components/function blocks of your system and their interactions, including the functions each proposed component/module serves, technical specifications, parameters and values.

If you are designing a simulation- or experiment-based project, outline your proposed process design, including what will be measured and how.

In addition to describing your design, you should justify any design choices you have made. In other words, explain why you have chosen a particular approach or component. What are its advantages over other competing approaches/components?

2.1.2 System Block Diagram

Provide a block diagram that visualizes the system/design you described in Section 2.1.1, including all components/modules and their interactions. Your block diagram should be given a figure number, e.g., Figure 1, and a caption, e.g., "Smartphone-based Bluetooth blood pressure monitoring system" or "Simulation process for…."

2.1.3 Components List

Include a table or list of the main components of your product (those included in your block diagram) and their required specifications. For a simulation- or experiment-based project, list parameters to be measured. (See Table 1)

Table 1. List of Specifications

Item*	Specifications/Model
Component Name	
Component Name	

Component Name	

*List your components. Add rows as needed. Do not include consumables such as solder and chemicals.

2.1.4 ECE Knowledge **(minimum ½ page)**

The ECE FYP aims at providing you with an opportunity to synthesize knowledge and practice techniques you have learned in various engineering courses in the ECE curriculum through a well-defined year-long project execution.

In this section, describe how knowledge and techniques from specific ECE courses (2000-level and above) will be applied to your project. State course codes and titles (e.g., ELEC2300 Computer Organization; ELEC3300 Introduction to Embedded Systems) and explain how knowledge and techniques from these ECE courses will be utilized in your project.

2.2. Objective Statement Execution **(minimum 2 pages)**

For each Objective Statement listed in Section 1.2.1:

Give the Objective Statement an appropriate heading.

Restate the objective in full.

Plan in detail all the steps required to realize this Objective Statement. Break down your plan into specific tasks. For group FYPs, each task should be taken charge of by (i.e., led by) only one group member. For each task:

- Identify the task
- Identify the group member in charge (for group projects only)
- Describe the planned task
- If you have already worked on some of the tasks, describe the work that was done.

If relevant, include as one of your tasks (usually the final one) your plans for testing the outcome/s of this Objective Statement. What will be tested and how will you test it? What testing results will you be looking for?

A suggested format of this Section 2.2 could be

2.2.1 Objective Statement 1 Name *(e.g.,* ***Road Recognition Coding for the Camera****)*

This objective is to……. (e.g., *"To write and debug the code so that the camera can recognize the road features with an accuracy of X",*

Tasks:

Task 1 Name (e.g., Installation of camera and coding software)

Group member in charge

Task description (including any work that was done)

Task 2 Name

Group member in charge

Task description (including any work that was done)

Task 3 Name

Group member in charge

Task description (including any work that was done)

SECTION 3— Project Planning

This section presents the organization and planning of your project. Number and label all tables.

3.1 Project Schedule

Include a Gantt chart for the entire project. List all Objective Statements (from section 1.2.1/2.2) and the tasks to realize each Objective Statement (from section 2.2) and mark their intended start dates and durations (use weeks for the timescale). Write the names of the objectives and tasks in the table; i.e., do not write "Objective Statement 1" or "Task 1". Make sure that the timeline for each Objective Statement and those of its tasks correspond. For group FYPs, include a column indicating which group member is responsible for each task. **Use the table layout given on the next page.** Your Gantt chart should be presented in landscape for easier visualization.

Table 2. Project Schedule

Objective Statements	**Task**	Group Member in charge	WK1 Date	WK2 Date	WK3 Date	WK4 Date	WK5 Date	WK6 Date	WK7 Date	WK8 Date	WK9 Date	WK10 Date	WK11 Date	WK12 Date	Wk 13 Date	Wk 14 Date	Wk 15 Date	WK16 Date	WK17 Date
Objective Statement 1 Name ***(e.g., Road Recognition Coding for the Camera)***																			
	Obj. 1 Task 1 Name *(e.g., Install camera and coding software)*																		
	Obj. 1 Task 2 Name																		
	Obj. 2 Task 3 Name																		
Objective Statement 2 Name																			
	Obj. 2 Task 1 Name																		
	Obj. 2 Task 2 Name																		
	Obj. 2 Task 3 Name																		
	Obj. 2 Task 4 Name																		
Objective Statement 3 Name																			
	Obj. 3 Task 1 Name																		

3.2 Budget

Include a table that lists the cost of your planned components, materials and significant equipment expenses. At the proposal stage, these may be only approximate or anticipated costs. Include a total cost. If all components, materials and equipment are available from HKUST at no cost, then state so.

Table 7. Expected budget

Items*	Cost
Component Name	$100
Component Name	$250
Component Name	$40
Material Name	$550
TOTAL	$900

*Write down each of your components and corresponding expected cost. Add more rows if you have more components.

REFERENCES

List all reference sources cited in the body of your report. Use IEEE style. Begin this list on a new page. See details in Part 2—Grading—Referencing.

APPENDICES

Begin the appendices on a new page.

Appendix A—Meeting Minutes

Include the minutes (i.e., notes taken) of group meetings and meetings with your supervisor. Minutes should be taken at all meetings as a record of what was discussed and should clearly list Action Items with due dates and group members assigned. They will help all group members to keep track of the work being done, what work is planned and who is responsible for it.

To write the minutes, list the date, time, location and attendees of the meeting. Then, in point form, summarize your discussions and decisions made in the meeting with their justifications. In the minutes, you must:

- Follow up on Action Items from previous meeting (fill in Table 1 accordingly; see below).
- Verify those items are successfully completed.
- Briefly discuss those items not overdue yet and still in progress.
- Discuss mainly the items incomplete or partially completed and the challenges behind. Seek potential solutions.
- Discuss contingency plans and anticipate challenges.

Include two tables: Table 1, which lists the status of the Action Items from the previous meeting, and Table 2, which lists the Action Items to be completed before the next meeting. (See the example minutes below for the format of these tables.) **All meeting minutes must contain Table 1 and Table 2** except for the minutes of the 1st meeting, which will contain only Table 2.

Example Minutes

Date: 1/09/2022

Time: 12pm

Location: HKUST, Room X

Attendees: Group Members A, B & C

Absent: Group Member D

Minutes taken by: Group Member B

- Group Member C is working on….but he has found a problem in….He is researching a solution and will aim to complete the work by September 10th.
- Group Member B is now making good progress with Task 1 of Objective Statement 2 since Group Member A joined her. They aim to finish the task by September 15th. Group Member B will next move on to Specific Task 3 of…..
- Professor X has suggested that…..Group Member A will follow up with Professor X to…..
- ……

Table 1. Action Items from Previous Meeting

Action Item to be completed	By when	By whom	Status
Task 1 of Objective Statement 1	Aug. 30th	Member A	Completed
Task 1 of Objective Statement 2	Sept. 1st	Member B	70% complete due to ….
….	Sept. 22nd	Member C	In progress (not overdue yet)

Add more rows if needed

Table 2. Action Items for Next Meeting

Action Item to be completed	By when	By whom
Task 2 of Objective Statement 1	Oct. 10th	Member C

Task 1 of Objective Statement 2 (70% complete from Table 1)	Oct. 15th	Members A & B
….	Oct. 20th	Member B

Add more rows if needed

Next Meeting: Date/time/location

Appendix B (if necessary)

Further appendices may be included to present other relevant materials. DO NOT include any materials that should belong to the main body of the report.

GUIDELINES PART II—PROPOSAL REPORT REQUIREMENTS

SUBMISSION

Reports must be submitted to the department on or before the stipulated due date.

Check FYP website for the submission procedures.

Note that your report will be checked by the "**Turnitin" System** (www.turnitin.com)—The system highlights the parts that can be found on the Internet and calculates a percentage of similarity. Your supervisor will check the statistics provided by the system and decide whether your report has plagiarized other works. **Reports containing plagiarized text will be referred to the department for investigation and will be penalized accordingly, including failure of the FYP.**

Consult your supervisor well before the submission deadline and take account of his or her comments before finalizing the report.

Communication Tutors—The Communication Tutors in the department are available to help you with the presentation of your written work.

If you would like help with your proposal, contact your assigned Communication Tutor either by email or by calling into their new office in Room 2395 **well before the submission deadline**.

Please note, after submission you will be required to meet with your assigned communication tutor to discuss your proposal and any improvements that can be made toward writing your progress report. You will be contacted by email about arrangements for this meeting.

GRADING

The report must meet the following conditions:

Length of the Report

A recommended page minimum is suggested for each sub-section in Section 1—Introduction and Section 2—Methodology of your report. There is no specific page limit for subsequent sections as each project must be the length necessary to communicate your project work clearly. Avoid using excessive, irrelevant materials or an excessive number of pictures, particularly photographs, to extend the length of your report. Unnecessary use of blank spaces and pictures are easily noticeable and will cause a grade reduction.

Please note that the final grade is NOT based on the length of the report. The final grade is based on whether Objective Statements (1) are clearly defined, specific, realistic, and measurable and (2) whether they have been met by the end of the project.

REFERENCING

All sources of information used in the report must be cited. **Plagiarism** refers to the direct quoting of other people's work or the using of others' ideas without appropriate acknowledgement. Be very careful about excessive rephrasing or excessive quoting from other sources. Reports suspected of containing plagiarized material, including unreferenced diagrams, **will be referred to the department for investigation and will be penalized accordingly, including failure of the FYP.**

Referencing should follow the IEEE style: Use a sequential numbering system, place the number (i.e., [1], [2], [3]) in the text of the report in the same number order as in the list of References. Write the number ([1] etc.) and then the full reference as follows. (Please note that the examples below are for illustration only and your references should be listed in number order and not grouped by type.)

A book—

Name of author(s), name of book (italics), place where published, name of publisher, date (year); for example:

[1] J. Brown, *Solid-State Circuits*, New York: Harper & Row, 1998.

A chapter in a book—

Name of author(s), name of chapter, name of book (italics), place where published, name of publisher, date, page numbers; for example:

[2] J. Brown, "On the uniform EDC bit precision and clip level computation for a Gaussian signal", *Gaussian Signals*, New York: Harper & Row, 1998.

An article in a journal—

Name of author(s), name of article, name of journal (italics), vol. no., page numbers, date (Month, year); for example:

[3] C.E. Landwehr, A.R. Bull, J.P. McDermott, and W.C. Choi, "A taxonomy of computer program security flaws", *ACM Computer Survey*, Vol.16, No. 10, pp. 613-615, 1973.

Off the web—

[4] http://www.xyz.com/xyz_user/exact_page.htm/

Include the date of access

A paper at a conference—

Name of author(s), name of paper (italics), where presented, page number, date, for example:

[5] G. D. Forney and A. Vardy, "Generalized minimum distance decoding of Euclidean space codes and lattices", *Proc. IEEE Int. Symp. Information Theory* (ISIT'96), Haifa, Israel, June 1996, pp. 288-293.

A Final Report by students in a previous year—

Name of author(s), name of publication (italics), name of university, year; for example:

[6] J. Brown, "*Animated Graphics*", Final Year Project Report, HKUST, 1998.

Lecture notes—

Title of topics, course number, course name, name of university, year; for example:

[7] "Communication Networks", ELEC214: Communication Systems, HKUST, 1999

CLARITY AND ORGANIZATION

- The report must be logically organized.
- Make sure you correctly number the pages, chapters, and the various sections within the chapters. (Carelessness will be penalized by deduction of half a grade.)
- There must be a clear statement of the project objectives, the proposed solution to the engineering problem, and the design specifications.
- Any pictures used MUST illustrate or further clarify a concept introduced in the text. DO NOT use pictures simply because they look good or they lengthen the report.
- Writing must be coherent, and the quality of the written English must be acceptable.

TECHNICAL CONTENT

- The work proposed in the report must be relevant and technically challenging.
- The report should show that the student is motivated to seek viable and inspiring solutions to the problems.