Research Proposal Title

*A research proposal submitted* *in partial fulfilment of the requirements for the degree of Doctor of Philosophy (or Master of Science) in the Department of ………. at the College of Engineering, King Saud University*

**Student’s full name**

**Month and Year of Submission**

Evaluation Committee

The committee for

**[Student Full Name]**

certifies that this is the approved version of the following research proposal and formally accepts it as the guide by which the thesis research will be conducted.

**Proposal Title [English]**

Evaluation Committee Members:

Committee Supervisor: [insert name]

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Committee Co-Supervisor *(if appropriate*): [insert name]

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Committee First Member: [insert name]

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Committee Second Member: [insert name]

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Committee Third Member *(if appropriate*): [insert name]

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**King Saud University**

Date

Abstract

Put your abstract here (do this last).

الخلاصة

قم بكاتبة الخلاصة باللغة العربية هنا ...

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List of Abbreviations

If appropriate, list any abbreviations in alphabetic order used in the proposal.

|  |  |
| --- | --- |
| **CDF** | Cumulative Distribution Function |
| **KSU** | King Saud University |
|  |  |

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# Introduction

The introduction chapter needs to state the objectives of the proposed research, include definitions of the key concepts and variables and give a brief outline of the background and research approach. The aim of the introduction is to contextualise the proposed research.

## Background

Give the background of the problem to be explored in your study and what led you to doing the thesis. For example, you might discuss educational trends related to the problem, unresolved issues, social concerns.

## Problem statement

Outline the context of the study (i.e., the major focus of your study) and give a statement of the problem situation (basic difficulty – area of concern, felt need).

## Purposes

Define the purpose and specific **aims and objectives (SMART)** of the study. Emphasise the practical outcomes or products of the study. Delineate the research problem and outline the **questions** to be answered or the overarching objectives to be achieved.

## Significance, Scope and Definitions

Discuss the importance of your research in terms of the topic (problem situation), the methodology, and the gap in the literature. Outline the scope and delimitations of the study (narrowing of focus).

# Literature Review

The literature review chapter should demonstrate a thorough knowledge of the area and provide arguments to support the study focus. The aim of the literature review chapter is to delineate various theoretical positions and from these to develop a conceptual framework for generation of hypotheses and setting up the research question. The literature review chapter needs to:

* Critically evaluate the literature rather than merely describe previous literature (i.e., what is good/bad about the body of literature?).
* Show a synthesis and be integrated rather than being more like an annotated bibliography.
* Identify key authors and the key works in the area, thus acquainting the reader with existing studies relative to what has been found, who has done work, when and where latest research studies were completed and what approaches to research methodology were followed (literature review of methodology sometimes saved for chapter on methodology).
* Constitute an argument.
* Clearly identify the gap in the literature that is being addressed by the research question.

Suitable sources for the literature review include:

* General integrative reviews cited that relate to the problem situation or research problem such as those found in psychological and sociological reviews of research.
* Specific books, monographs, bulletins, reports, and research articles – preference shown in most instances for literature of the last 10 years.
* Unpublished materials (e.g., dissertations, theses, papers presented at recent professional meetings not yet in published form, etc.).

The literature review chapter can be arranged in terms of the questions to be considered or objectives/purposes set out in the Introduction chapter.

Start with an overview of this chapter by outlining the topics to be discussed. For example [your proposal may have more than 3 topics and therefore more sections]:

This chapter begins with a historical background [optional] (section ‎2.1) and reviews literature on the following topics: [topic 1] (section ‎2.2) [briefly describe the topic]; [topic 2] (section ‎2.3) [briefly describe the topic]; and [topic 3] ….. [briefly describe the topic]. Section ‎2.4 highlights the implications from the literature and develops the conceptual framework for the study.

## Historical Background [optional]

Write here …

## Topic 1

Present and discuss your first topic.

## Topic 2

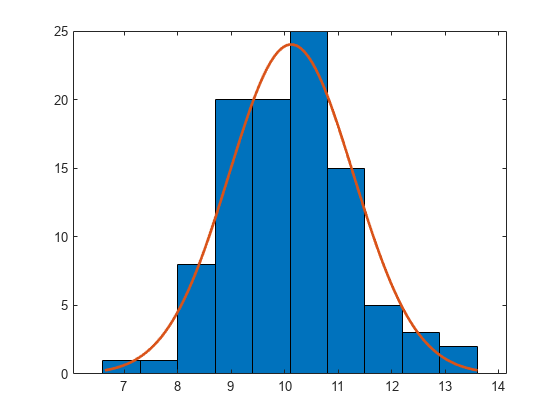
Present and discuss your second topic.

## Summary and Implications

Summarise the literature review and discuss the implications from the literature for your study – the theoretical framework for your study. Here you can make an explicit statement of the hypotheses, propositions or research questions and how they are derived from existing theory and literature. Establish from the literature (or gap in the literature) the need for this study and the likelihood of obtaining meaningful, relevant, and significant results. Outline any conceptual or substantive assumptions, the rationale and the theoretical framework for the study. Explain the relationships among variables or comparisons, and issues to be considered. This section should demonstrate the contribution of the research to the field, and be stated in a way that leads to the methodology.

## Using Figures

Figures must be numbered consecutively throughout the entire proposal. A decimal system (1.1, 1.2, 1.3, 2.1, 2.2, etc.), in which the first digit corresponds to the chapter number and the digit after the decimal point is the figure number within the chapter, should be used. For example, Figure 2.1 shows a histogram with a distribution fit.



**Figure ‎2.1** Histogram with a distribution fit (Centre Alignment)

Do not number figures by section (e.g., 1.2.1, 1.3.2, or the like. Using this method, figures in Appendix A, B, C, and so forth would be numbered A.1, A.2, B.1, B.2, C.1 and so on). If using figures from external sources, obtain necessary permissions and provide appropriate citations to acknowledge the original source. Follow citation guidelines for images or figures as mentioned in **References**.

## Using Tables

Tables serve as indispensable tools in a proposal, aiding in the systematic organization and presentation of complex data, statistical findings, or other tabulated information. Table must be numbered consecutively throughout the entire proposal by using a decimal system as well (1.1, 1.2, 1.3, 2.1, 2.2, etc.). Tables should be accompanied by a descriptive title that summarizes its content. Additionally, tables should be referenced appropriately within the text, allowing readers to easily locate and contextualize the information presented. It is essential to ensure that tables are formatted consistently throughout the proposal, with clear headings, properly labelled rows and columns, and appropriate units of measurement. When designing tables, prioritize simplicity and readability, avoiding overcrowding with excessive data or unnecessary details. Finally, when presenting data from external sources, ensure proper citation and attribution to maintain academic integrity. Table 2.1 shows an example of using a table in a proposal.

**Table ‎2‑1** An example of using a table in a proposal (Align Left)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table | C1 | C2 | C3 | C4 |
| R1 | a | b | c | d |
| R2 | e | f | g | h |

## Using Equations

When incorporating equations, it is essential to ensure clarity and accuracy to facilitate understanding for readers. Each equation should be numbered sequentially, typically the equation number is aligned to the right side of the page, and accompanied by a brief explanation to provide context and interpretation. Equations should be referenced within the text, allowing readers to locate the corresponding mathematical expressions easily. It is crucial to use standard notation and formatting conventions consistently throughout the proposal to maintain coherence and readability. Additionally, when introducing complex equations or mathematical derivations, consider providing step-by-step explanations or supplementary materials to aid comprehension. For example, Equation 2.1 shows the cumulative distribution function (CDF) of random variable *X*.

|  |  |  |
| --- | --- | --- |
|  |  | **(****‎2.1)** |

# Methodology/ Research Design

This chapter of the proposal should outline the design and methodology of your research. The basis for the choice of research method should be whether it will help you answer your research question(s).

Give an overview of what is to be included in this chapter. For example:

This chapter describes the design adopted by this research to achieve the aims and objectives stated in section ‎1.3 of Chapter 1 [if you wish, you can restate those objectives]. Section ‎3.1 discusses the methodology [to be] used in the study, the stages by which the methodology was [will be] implemented, and the research design; section ‎3.2 details the participants in the study; section ‎3.3 lists all the instruments [to be] used in the study and justifies their use; section ‎3.4 outlines the procedure [to be] used and the timeline for completion of each stage of the study; section ‎3.5 discusses how the data was [will be] analysed; finally, section ‎3.6 discusses the ethical considerations of the research and its [potential] problems and limitations.

## Methodology and Research Design

### Methodology

Discuss the methodology [to be] used in your study (e.g., experimental, quasi-experimental, correlational, casual-comparative, survey, discourse, case study, analysis, action research). If using stages, outline them here. The methods used must link explicitly to the research question and must be suited to the nature of the question. Discuss any methodological assumptions.

### Research Design

Outline the research design (e.g., quantitative, qualitative). If quantitative, spell out the independent, dependent and classificatory variables (and sometimes formulate an operational statement of the research hypothesis in null form so as to set the stage for an appropriate research design permitting statistical inferences). If qualitative, explain and support the approach taken and briefly discuss the data gathering procedures that were [will be] used (observations, interviews, etc.)

## Data Collection/ Participants

Give details of who/ what were [will be] the participants in your study (including, if applicable, sample type and size, reasons for the number selected and the basis for selection).

## Instruments

List and briefly describe all the instruments (e.g., tests, measures, surveys, observations, interviews, questionnaires, artefacts) [to be] used in your study for data collection and discuss their theoretical underpinnings, that is, justify why you used [will be using] these instruments. So that the line of argument is not broken, it is useful to place copies of instruments in Appendices to which this section can refer.

## Procedure

Outline the procedure across and within the techniques [to be] used in your study for collecting and recording data. This could include how, when (in what order) and where the instruments were [will be] administered (for example, field, classroom or laboratory procedures, instructions to participants or distribution of materials) and how the data was [will be] recorded. Include the rationale for the procedures used.

## Analysis

Discuss how the data was [will be] processed and analysed (e.g., statistical analysis, discourse analysis). This section needs to link the analysis of the research to the methods and demonstrate why this is the best approach to analysis. For qualitative research, justification needs to be provided for methods such as coding and dealing with divergent data. For quantitative research, justification of the choice of statistics and the expected results that they will provide [confirmation document] should be described. There should be enough detail for the reader to replicate the analysis. For example, “SPSS will be used” is not adequate. Rather, the approach to coding, including how categories were [will be] derived and validated, how the data was [will be] structured, and specific analytical techniques applied, should be included.

## Ethics and Limitations

Outline the ethical considerations of the research and any [potential] problems and limitations (weaknesses), as well as any [anticipated or actual] threats to the validity of the results.

# Conclusion and Research Plan

This chapter contains conclusions, expected contribution to the field and the research limitations.

Again, the chapter should begin with a summary paragraph of the chapter structure. The opening section(s) of the chapter should be a brief summary of everything covered so far. Follow this with your conclusions. This is the “so what” of the findings – often the hypothesis/research question(s) restated as inferences with some degree of

## Contribution to knowledge

You will need to explain the proposed research significance, and locate it within the relevant literature. A convincing statement is required as to why your topic is worth scientific research, i.e. how it will contribute to and enrich the academic knowledge. This contribution results from your research activities, which are conducted to discover new information, as well as to expand and verify existing knowledge. You need to provide indication of how you feel your research can make an original contribution, how it may fill gaps in existing work and how it may extend understanding of particular topics in your particular subject area.

## Research Plan

Your research plan should include a detailed timeline outlining the key phases of your project. The timeline must demonstrate that your research is achievable within the allocated period (e.g., no more than two semesters for MSc or six semesters for PhD). The plan should include the following elements:

* Milestones and Phases: Clearly define the major phases of your research (e.g., literature review, data collection, data analysis, writing), breaking these down into smaller, manageable tasks. Ensure that each milestone is realistic and contributes directly to the completion of your thesis.
* Timeline and Gantt Chart:
  + Provide a rough timeline for completing each phase of the project.
  + A Gantt chart should be included (Table 4-1 is an example for MSc thesis), detailing each research task, its duration, and any overlap between tasks. This chart should show how your research will progress over the specified number of semesters.
  + Ensure that you include specific milestones such as draft submissions, data collection deadlines, and thesis writing phases.
* Progress Reviews: Schedule regular review meetings with your supervisor or research committee. These should align with your key milestones to ensure steady progress and timely feedback.
* Conferences and Journals:
  + Identify relevant conferences or journals where you plan to present or publish your work-in-progress.
  + Link these dissemination activities to specific milestones in your Gantt chart. Indicate when draft papers or presentations will be prepared and submitted.
* Contingency Planning: Consider any potential risks or delays that may affect your timeline (e.g., delays in data collection, equipment issues). Include a contingency plan to address these challenges and ensure your project stays on track.

**Table ‎4‑1**  An example of master thesis planning (Gantt Chart)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Semester 1 | | | | Semester 1 | | | |
| Task | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Month 6 | Month 7 | Month 8 |
| Literature Review | █ █ █ █ | █ █ █ |  |  |  |  |  |  |
| Methodology Design |  | █ █ █ | █ █ |  |  |  |  |  |
| Data Collection |  |  | █ █ █ | █ █ █ █ | █ █ |  |  |  |
| Data Analysis |  |  |  |  | █ █ █ █ | █ █ █ █ |  |  |
| Thesis Writing |  |  |  |  |  | █ █ █ █ | █ █ █ █ |  |
| Submission/  Defense |  |  |  |  |  |  | █ | █ █ █ █ |

By carefully structuring your research plan with these elements, you can demonstrate the feasibility of your project within the allocated time and ensure it aligns with available resources and facilities.

## Research Budget and Cost Estimation

In addition to the timeline, providing a clear budget outlining the estimated costs associated with your research project is essential. Table 4-2 shows an example of a breakdown of anticipated expenditures across key categories and the total budget. The budget will help ensure the proposed research is feasible and aligns with the available financial resources. The budget should cover the following categories:

1. Equipment and Materials:

* List all the specialized equipment, tools, or instruments required for your research. This can include:
  + Laboratory equipment
  + Software licenses
  + Consumables (e.g., chemicals, specimens, 3D printing materials)
* Provide estimated costs for each item or a total budget for this category.

1. Research Travel and Fieldwork:

* Include travel costs related to conducting research outside your institution, such as fieldwork, site visits, or collaborative work with other institutions.
* Specify travel costs for conferences, workshops, and meetings, including transportation and accommodation.
* Indicate the locations you intend to visit, their relevance to the research, and the frequency or duration of these trips.

1. Data Collection and Analysis Costs:

* If your research involves surveys, interviews, or focus groups, include the costs associated with data collection (e.g., hiring survey staff and incentives for participants).
* Mention any costs for data analysis software or outsourcing data processing services.

1. Publication Costs:

* Outline any expected costs for publishing your work in scientific journals or presenting at conferences, including submission fees, open access fees, or travel to present.
* Budget for printing and binding of the thesis if required.

1. Miscellaneous Costs:

* Allocate a portion of the budget to unexpected or incidental expenses, such as equipment repairs, additional training, or software upgrades.

1. Sources of Funding:

* Clearly outline the sources of funding for the project. This might include university funding, research grants, industry sponsorship, or personal funds.

Final Considerations:

* The total cost should be realistic and justifiable, considering the scale and scope of the research.
* Explain how each cost category contributes to the successful completion of the project.
* Provide a clear indication of any external funding already secured and detail any future funding applications you plan to submit.

**Table ‎4‑2** Research Budget and Cost Estimation

|  |  |  |
| --- | --- | --- |
| Cost Category | Description/Details | Estimated Cost (SAR) |
| Equipment and Materials | Laboratory equipment, software licenses, consumables | [Enter Amount] |
| Research Travel and Fieldwork | Travel costs for fieldwork, conferences | [Enter Amount] |
| Data Collection and Analysis | Surveys, incentives, analysis software | [Enter Amount] |
| Publication Costs | Journal submission, conference travel, printing | [Enter Amount] |
| Miscellaneous Costs | Unforeseen expenses, additional training | [Enter Amount] |
| Other | Any additional costs not covered above | [Enter Amount] |
| Total |  | **[Total Amount]** |

References

Referencing in a proposal is an essential component that provides credibility and support to the arguments and claims made within the document. It involves acknowledging the sources from which information, data, or ideas have been drawn, ensuring academic integrity and honesty. Proper referencing not only lends authority to the proposal but also allows readers to trace the origins of the information presented, facilitating further exploration and verification. Referencing should be done according to the IEEE referencing styles. For more details, please visit ([IEEE Reference Guide](https://journals.ieeeauthorcenter.ieee.org/wp-content/uploads/sites/7/IEEE_Reference_Guide.pdf)).

Several reference tools, such as Zotero, Mendeley, and EndNote, offer functionalities that allow users to collect, organize, and cite references efficiently. They typically feature browser extensions or plugins that enable users to capture citation information directly from websites, databases, and academic articles. Additionally, referencing tools often provide citation style formatting options, automatically generating reference lists. Overall, referencing tools significantly reduce the time and effort required for managing citations, freeing researchers to focus on the content and analysis of their work.

Appendices

* + 1. Title

Start each appendix on a new page. Place appendices in the same order as they are referred to in the body of the proposal. That is, the first appendix referred to should be Appendix A, the second appendix referred to should be Appendix B, and so on. Appendix formatting can be different to the main document.