Logo Tripoli university
Logo Biomedical Engineering Department

BME 490
PROJECT PROPOSAL

[Title]

By

Student Name , ID number

Supervisor

Supervisor Name

Month 20xx
Tripoli - Libya

Index (List of contents)

 # Title **Page number**

1. Abstract

An abstract very briefly summarizes the entire project. Someone should be able to read the abstract and determine:

- Project main purpose
- The problem it solves.
- The methodology used / method.
- Expected results / outcomes.

Note :

- Do not cite any references or place any figures or tables in the abstract.
- A short summary (150-300 words)

---

2. Introduction

A general introduction of the proposal project:

- Scientific background on the topic (its importance in biomedical engineering).
- The research problem the project will address and solution
- The hypothesis or main idea.

---

3. Needs / Problem Statement

What are the drawbacks of existing technologies? (e.g., large, inaccurate, expensive devices).

Clearly state the problem that your proposed work will answer.

What are your motives for choosing this specific problem?

---

4. Goals/Objectives

Clearly state the objectives of the study. This section includes . Make sure that the objectives of your study are Logically/ conceptually linked and are attainable within the expected timeframe and available resources for the study.

- State the desired goals and objectives to address the needs/problems stated above. Also include key benefits of reaching goals/objectives.
- Specific & measurable goal 1
- Specific & measurable goal 2
- Specific & measurable goal 3

or

- Establish a primary objective and clear sub-objectives to be single, measurable, and time-bound.

- Main objective: The solution the project offers.
- Sub-objectives: Detailed steps to achieve the main objective.

Example:
- Design a prototype of a blood oxygen meter.
- Improve measurement accuracy compared to existing devices.

---

5. Methodology/ Procedures/Scope of Work

Please provide detailed information about the proposed procedures.
1. Project implementation steps (technical details)
2. Data collection: Data sources (clinical, simulation, etc.)
3. Design: Hardware/software used (e.g., Arduino, Matlab, LabVIEW).
4. Experiments: How the project will be tested (laboratories, volunteers, simulation).
5. Analysis: How the results will be evaluated (compared to clinical standards).
6. Developmental: How to design a new product or program (medical devices, artificial intelligence applications).
7. Artificial Intelligence (AI/ML) : For projects that rely on machine learning or medical signal processing.
8. Mixed Methodology : Combining more than one methodology (e.g., experimental + analytical).

How do you choose the appropriate methodology?
Nature of the research question:
- Do you need real data? (Choose clinical or experimental).
- Do you want to design a product? (Choose developmental).

Available resources:
- Availability of equipment, data, and time.

Supervisor guidelines:
- Discuss with the supervisor to choose the best one.

The following may also be included in this section:
- A flowchart illustrating the stages.
- Block diagrams of the device.
- Programming algorithms (flowchart).

---

6. Timetable

Provide detailed information on the expected timetable for the project. Break the project into phases and provide a schedule for each phase.

Stage	Description of Work	Start and End Dates
Phase One		
Phase Two		
Phase Three		

You can also use a Gantt chart for more detailed project timetable:

ACTIVITY	IMPLEMENTATION TIME		
	Month 1	Month 2	Month 3
Literature Review	XXXXXXX		
Data collection		XXXXXX	
Data analysis			XXXXXX
Results and Discussions			XXXXXX
First draft	XXXXXXX	XXXXXX	XXXXXX

---

7. Requirement / Budget

State the proposed costs and budget of the project or requirements that you need in your project. List of costs (hardware, software, raw materials) for example as follows:

Title	Type	Price
XXX Biosensor	hardware	100 LD
Development board (Arduino)	hardware	150 LD
XXX Platform	Software	80 LD
		330.00 LD

Note: Also include information on how you intend to manage all of them.

---

8. Expected results / Outcomes

What will the project achieve?

Example:
"A prototype capable of measuring heart activity with 95% accuracy compared to commercial devices."

9. Conclusion and Recommendations for future work

Conclude the whole work in 1 or max 2 pages if needed

As recommendation on how to Develop it to Final project

Explain other ideas for how to develop your mini project to Graduation (Final project) in brief ?

10. References

Cite research, papers and books (10 or more).
Follow the standard writing style of references (APA style or IEEE style).

11. Appendices

Cite data sheets , codes, maps , flowcharts. (If necessary)
Follow the standard writing style as mentioned before.

Additional tips:

- Other points may be added if you feel they are important to the proposal.
- Focus on the engineering aspect (design, analysis, innovation).
- Avoid unnecessary complexity, be clear and precise.
- Use illustrations (diagrams, images, tables).

Instructions:

Two copies (in Arabic and English).
Follow this proposal template in (5-8 Pages).