



College of Engineering
Department of Environmental Engineering

Final Year Project I (EnEg5107)

lecture material

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Content

- 1. Technical Report writing**
- 2. Research Methods**
- 3. Proposal writing**

Proposal development

The research process : Steps in planning a research study

- Step 1: formulating a research problem
- Step 2: conceptualizing a research design
- Step 3: constructing an instrument for data collection
- Step 4: selecting a sample
- Step 5: **writing a research proposal**
- Step 6: conducting a study
- Step 7: collecting data. '
- Step 8: processing data
- Step 9: writing a research report

Proposal development

A research proposal is a document which has a main function on detailing the operational plan for obtaining answers to your research questions.

Proposal development

❖ Contents of a proposal document

- Title Page
- Table of Contents
- Executive summery
- Introduction
- Problem statement
- Objectives of the study
- Scope of the study
- Literature Review
- Method /research design
- Work schedule /Gantt Chart
- Budget requirement
- References/ Bibliography
- Appendices

Proposal development



❖ Introduction / background of the study : a brief literature review

- an overview of the main area under study;
- a historical perspective (development, growth, etc.) pertinent to the study area;
- philosophical or ideological issues relating to the topic;
- trends in terms of prevalence, if appropriate;
- major theories, if any;
- the main issues, problems and advances in the subject area under study;
- important theoretical and practical issues relating to the central problem under study;
- the main findings relating to the core issue(s).

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❖The problem /problem statement

Having provided a broad introduction to the area under study, now focus on issues relating to its central theme, identifying some of the gaps in the existing body of knowledge. Identify some of the main unanswered questions. Here some of the main research questions that you would like to answer through your study should also be raised, and a rationale for each should be provided. Knowledge gained from other studies and the literature about the issues you are proposing to investigate should be an integral part of this section. Specifically, this section should:

- identify the issues that are the basis of your study;
- specify the various aspects of/perspectives on these issues;
- identify the main gaps in the existing body of knowledge;
- raise some of the main research questions that you want to answer through your study;
- identify what knowledge is available concerning your questions, specifying the differences of opinion in the literature regarding these questions if differences exist;
- develop a rationale for your study with particular reference to how your study will fill the identified gaps.



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Objectives of the study

Main objective : indicates the central thrust of your study whereas

specific objectives : identify the specific issues you propose to examine, they delineate only one issue.

- ❖ The objectives of the study should be clearly stated and specific in nature.
- ❖ It is important to use action oriented verbs in formulating specific objectives such as;
 - To determine, to investigate/ find out, to assess

Proposal development

- ❖ **Literature review** : in research bring clarity and focus to your research problem
 - Improve your methodology
 - broaden your knowledge base in your research area
 - Contextualize your findings
 - To discuss your findings in contrast and similar way to the existing knowledge/ previous findings
- ❖ **Procedure for reviewing the literature**
 - Search for existing literature (Google scholar, science direct)
 - Review the literature selected
 - Develop a theoretical framework
 - Develop a conceptual framework
 - Writing up the literature

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❖ **Research design/ methods:** are the set of methods and procedures used to collect and analyze data in a study.

- What is the study population
- Will a sample or total population be studied?
- An explanation of sampling design you are planning to use in selection of the sample (simple random sampling, stratified random, quota sampling....)
- How you will collect the sample ?
- How you will collect data
- Instruments used
- How you will analyze data

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❖ Work schedule

You must set yourself dates as you need to complete the research within a certain time-frame.

List the various operational steps you need to undertake and indicate against each the date by which you aim to complete that task.

Remember to keep some time towards the end as a 'cushion' in case the research process does not go as smoothly as planned.

- ❖ [\(1\) Gantt Chart Excel Tutorial - How to make a Basic Gantt Chart in Microsoft Excel - YouTube](#)
- ❖ [\(1\) Timeline and Gantt Chart for Project Proposal | Thesis Proposal | in MS word - YouTube](#)

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Table Developing a time-frame for your study

<i>Tasks</i> (Any tasks which you consider important)	To be completed by														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Proposal writing	→	→	→												
Instrument construction		→	→	→											
Data collection					→	→	→	→							
Coding								→	→	→					
Data analysis										→	→	→	→		
Report/first										→	→	→	→	→	
Report/final											→	→	→	→	→
Typing												→	→	→	→

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Budget table

S.N o.	Items/activities	Quantity	Unit	Unit price (ETB)	Total cost (ETB)	Remarks
I	Stationery					
1	A4 Paper	1	Pack			
2	A3 Paper	2	Pack			
3	A1 Size color Plotting	30	No.	250	7500	
4	A1 Blue print of the final design	30	No	100	3000	
II						
	Total				115,500	
				Tax (15%)	17325	
				Contingencies (10%)	11550	
				Total Grand	144375	