



MANMOHAN TECHNICAL UNIVERSITY

SCHOOL OF ENGINEERING

BUDHIGANGA – 4, MORANG, KOSHI
PROVINCE

GUIDELINES FOR PREPARATION OF MAJOR PROJECT REPORT (Final Year Project)

Introduction

This document serves as a template for the systematic & step wise process to be followed for writing the report of the final year project work conducted by the students in fulfillment of the requirements in bachelor degree. The documents essentially outlines the general report format for the final year project .The Project Report should contain the items as outlined below and is required to be presented in the order as listed:

Requirements for Report Writing:

Your report should meet following standards:

- Font Name:** Times New Roman
- Top Margin:** 1.25 inch
- Left Margin:** 1.5 inch
- Right Margin:** 1.25 inch
- Bottom Margin:** 1.25 inch
- Header and Footer:** 0.5 inch
- Line Spacing:** 1.5
- Paragraph Spacing:** 18 pt
- Font Size:** 12 pt (for normal text)

For headings and sub headings, standards to be followed are as given below

1. Heading1 (16 pt, Bold)

1.1 Heading2 (14 pt, Bold)

1.1.1 Heading3 (13 pt, Bold)

1.1.1.1 Heading4 (12 pt, Bold)

**Justify the report for clean look at both left and right side of page*

Number of Copies to be submitted to the Department

Two copies of the report with hard binding.(Duly signed by Supervisor, External Examiner and HOD).

A soft copy (pdf format) should be submitted to Department in CD along with report. (Name and enrollment no. of the student should be clearly mentioned on the CD).

1. ARRANGEMENT OF CONTENTS:

The sequence in which the project report material should be arranged and bound should be as follows:

1. Cover Page (Specimen copy-1)
2. Title Page (Specimen copy-2)
3. Certificate of Approval (Specimen copy-3)
4. Acknowledgment (Specimen copy-4)
5. Abstract (Specimen copy-5)
6. Table of Contents (Appendix 1)
7. List of Figures (if any) (Appendix 2)
8. List of Tables (if any) (Appendix 3)
9. List of Symbols (if any) (Appendix 4)
10. Abbreviations (if any) (Appendix 5)
11. Main body
- 11.1Chapter 1 Introduction (Appendix 6)
- 11.2Chapter 2.....
- 11.3Chapter 3.....
-
-
- 11.... Conclusion and Recommendation
12. Appendices (if any)
13. References (Appendix 7)

2. **BINDING SPECIFICATIONS:**

Students have to submit tape binded of the report to the respective department at the time of report submission.

Hard binding of the major project report is to be submitted to the department after final year major project defense.

3. **PREPARATION FORMAT:**

Cover Page – Please follow

Specimen copy-1.

Title Page – Please follow

Specimen copy-2.

Certificate – Please follow

Specimen copy-3

. Acknowledgment- Please follow

Specimen copy-4.

Abstract –Abstract should be one page synopsis of the project report and it must clearly give the overview of the

(Specimen copy-5).

Table of Contents – The table of contents should list all material following it as well as any material which precedes it. (**Appendix 1**).

List of Figures- The list should use exactly the same captions as they appear below the figures in the text. (**Appendix 2**)

List of Tables – The list should use exactly the same captions as they appear above the tables in the text. (**Appendix 3**).

List of Symbols - The list should provide the detail of the symbols used in the report. (**Appendix 4**).

Abbreviations – Abbreviation list should provide the details of the abbreviations used in the report in alphabetical order. (**Appendix 5**).

Page numbering - The preliminary parts (Acknowledgement, Abstract, Table of Contents, List of symbols, List of figure, List of Tables) are numbered in roman numerals (i, ii, etc). The first page of the first chapter (Introduction) onwards will be numbered in Arabic numerals 1 2 3 etc at the bottom.

Numbering sections, subsections, equations, figures etc. - A word on numbering scheme used in the project is in order. It is common practice to use decimal numbering in the project. If the chapter number is 2, the section numbers will be 2.1,2.2, 2.3 etc. The subsections in section 2.2 will be numbered as 2.2.1, 2.2.2 etc. Unless essential, it is not necessary to use numbers to lower levels than three stages.

Similarly, it is useful and convenient to number the figures also chapter-wise. The figures in chapter 4 will be numbered as Figure 4.1: Figure Name, Figure 4.2: Figure Name etc. This helps you in assembling the figures and putting it in proper order. Similarly, the tables are also numbered as Table 4.1: Table Name, Table 4.2: Table Name etc. All figures and tables should have proper captions. Usually the figure captions are written below the figure and table captions on top of the table. All figures should have proper description by legends, title of the axes and any other information to make the figures self explanatory.

The same numbering scheme can be used for equations also. Only thing to be remembered is that references to the figures are made like Figure 4.2: Figure Name, and equations as Eqn (5.8).

Chapters – The main text will be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

Chapter 1: (Introduction, Objectives and Scope, Methodology, Project Features, System Requirement)

Chapter 2: Literature Review

Chapter 3: Preliminary design

Chapter 4: (Results, Result Analysis, Application, Challenges encountered, Limitations, Conclusion)

Bibliography (Optional)

References

List of References –The reference material should include the author name, title, year in details as shown **in Appendix 7. Do not mention the references of the websites in the report.**

Appendices – Appendices are provided to give supplementary information, which is included in the main text may serve as a distraction and cloud the central theme. Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc. Tables and References appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters.

**A
Major Project
ON**

“Project Title”

*Submitted in partial fulfillment of the requirement
for the
Degree of Bachelor in Engineering*

Submitted to:

**Department of Engineering
SCHOOL OF ENGINEERING
MANMOHAN TECHNICAL UNIVERSITY**



Submitted by

Name of student1: (Registration no.)

Name of student2: (Registration no.)

Name of student3: (Registration no.)

**Name of the supervisor
Department of
Engineering**

**Name of the HOD
Department of
Engineering**

April 2026

Project Title

Submitted by

Name of the student (Enrollment No.)

...

Project Supervisor

Supervisor Name

Full Designation

Organization Name with Full Details

A final year project submitted in partial fulfillment of the requirement
for the
Degree of Bachelor inengineering

Submitted to

Department of engineering

School of Engineering

Manmohan Technical University

Budhiganga-4, Koshi province

Nepal

April 2026

SPECIMEN-3(Certificate of Approval for Final Year Project)

SCHOOL OF ENGINEERING, MANMOHAN TECHNICAL UNIVERSITY



CERTIFICATE OF APPROVAL

This is to certify that the major project work entitled “Project title” is a piece of work done by **name of the student** (enrollment no.) under my guidance and supervision for the degree of Bachelor in Civil Engineering .We certify that to the best of our knowledge and belief , the major project work :

- i. Embodies the original work of the candidate himself
- ii. Has duly been completed
- iii. Fulfils the requirement of the regulations of the university pertaining to the Bachelors degree in Engineering ; and up to the standard both in respect of contents and language.

.....
(Supervisor Name)
Supervisor
Full designation
Organization

.....
(External Examiner Name)
External Examiner
Full designation
Organization

.....
(HOD Name)
Head of Department
Full designation
Organization

SPECIMEN-4 (Acknowledgement sample)

ACKNOWLEDGEMENT

Please do it yourself.

Student(s) Name with Exam Roll No.

ABSTRACT

Please do it yourself.

TABLE OF CONTENTS

TITLE	PAGE NO.
Acknowledgement	i
Abstract	ii
List of figures	iii
List of tables	iv
Abbreviation	v
Chapter 1: Introduction	
1.1 Background	2
1.2 Motivation.....	2
1.3 Problem Description.....	2
1.4 Objectives & Scope.....	2
1.5 Methodology.....	2
1.6 Limitations.....	2
1.7 Organization of Report.....	2
1.8 Summary.....	3
Chapter II: Technology and Literature Survey.....	4
2.1 Topic 1 (Defining Units).....	4
2.2 Topic 2 (Defining Equations).....	4
2.3 Topic 2 (Write References).....	5
2.4 Summary.....	5
Chapter III: Methodology / Modeling / Experimental Set-up (What ever is appropriate).....	6
3.1 Topic 1.....	6
3.2 Topic 2.....	6
3.3 Summary.....	8
Chapter IV: Results and Discussions	
4.1 Results.....	9
4.2 Result Analysis.....	9
4.3 Problems and Challenges Encountered.....	10
4.4 Limitations	10

Chapter V:Conclusion and Future Work	11
References.....	12

LIST OF FIGURES

Figure Name	Figures	PAGE NO.
1.1	Site plan of the proposed building	2
1.2	Idealization of structure	2
2.1	Idealization of load	9
3.1	Plan of building	17
3.2	Elevation of building	19
3.3	Location of center of mass	22

LIST OF TABLES

Table Number	Table	PAGE NO.
1.1	Soil profile and its properties at the proposed site	2
2.1	Summary of additional shear due to torsion	2
.....		
.....		
.....		
.....		
.....		
.....		

Appendix – 4: List of symbols

LIST OF SYMBOLS

Ag	Gross area of the section
	...
Ast	Area of tensile steel in flexure member
B	Breadth of the beam
D	Overall depth of the beam or slab
Φ	Diameter of the bar
Emin	Minimum eccentricity
	...
Fck	Characteristic compressive strength of the concrete
Fy	Characteristic yield strength of the steel
h	Height of the column
	...
L	Length of the column or span of the beam(clear)
Ld	Development length of the bar
	...
I	Moment of inertia of the section considered
	...
Mu,lim	Limiting factored moment of resistance
Pu	Factored design axial load
Sv	Spacing of the stirrups

ABBREVIATIONS

DOR	Department of Road
NGS	Nepal Geological Society
NESU	Geo-Environment and Social Unit
CM	Center of mass
DL	Dead load

.....
.....
.....

Chapter 1: INTRODUCTION

1.1 Background

In an engineering project, the background is a foundational section that provides the context, rationale, and history behind the project, explaining why the project is necessary. It outlines the problem, existing solutions, and the specific needs the new project will address. Its purpose is to justify the investment and ensure alignment among stakeholders.

High voltage engineering (HVE) is a critical field within electrical engineering that focuses on the generation, transmission, distribution, and application of electrical energy at voltages significantly higher than standard operating levels. Historically, the primary focus of HVE has been the design and testing of electrical equipment, insulation systems, and power transmission networks to ensure safe, reliable, and efficient operation.

With the rapid evolution of power systems and the increasing demand for electricity, high voltage engineering has become indispensable for modern energy infrastructure.

The discipline encompasses a wide range of topics, including but not limited to:

- **Insulation technology:** Understanding and improving dielectric materials to withstand higher voltages.
- **High voltage testing techniques:** Ensuring equipment can operate safely under transient and steady-state high voltage conditions.
- **Power system reliability:** Minimizing losses, reducing outages, and managing high-voltage faults.
- **Electrical safety:** Preventing accidents due to flashovers, corona discharges, and insulation breakdown.

Recent developments in high voltage engineering are driven by multiple factors: the push for **renewable energy integration**, the deployment of **smart grids**, and the evolution of **ultra-high voltage (UHV) transmission systems**. These trends require engineers to innovate in insulation materials, diagnostic techniques, and high-voltage

equipment design. For instance, advancements in **gas-insulated switchgear (GIS)**, **high-voltage direct current (HVDC) systems**, and **nanocomposite dielectric materials** are enabling transmission. Over longer distances with reduced losses and enhanced reliability.

Furthermore, the field is increasingly influenced by computational tools and digital technologies. Simulation, modeling, and artificial intelligence are now being applied to predict insulation aging, optimize grid design, and enhance fault detection in high-voltage networks. These innovations are not only improving system performance but also reducing operational costs and environmental impacts.

In summary, high voltage engineering continues to evolve in response to technological, environmental, and economic challenges. Understanding the latest trends in this field is essential for researchers and practitioners aiming to design resilient, efficient, and sustainable electrical power systems.

The field of high voltage engineering is undergoing rapid transformation due to the evolving demands of modern power systems. Several emerging trends are shaping research and industrial practices, driven by the need for higher efficiency, sustainability, and reliability.

One of the most significant developments is the growing adoption of high-voltage direct current (HVDC) transmission systems. Unlike conventional alternating current (AC) transmission, HVDC systems offer lower transmission losses over long distances and energy integration of renewable energy.

sources such as offshore wind and solar farms. Advances in voltage source converters (VSC) and modular multilevel converters (MMC) have further enhanced the flexibility and scalability of HVDC technology, making it a cornerstone of future power grids.

Another important trend is the development of **ultra-high voltage (UHV) transmission systems**, both AC and DC. UHV systems, operating at voltage levels above 800 kV, are increasingly being deployed to transmit bulk power over vast distances. These systems reduce transmission losses and land usage but require sophisticated insulation design and advanced testing techniques to manage electrical stresses and environmental factors.

The evolution of **advanced insulation materials** is also a key area of research. Traditional insulating materials are being supplemented or replaced by **nanocomposite dielectrics**, which exhibit superior electrical, thermal, and mechanical properties. These materials enhance the lifespan and reliability of high-voltage equipment while enabling compact and lightweight designs. In addition, environmentally friendly alternatives to sulfur hexafluoride, a potent greenhouse gas widely used in gas-insulated systems, are being actively explored.

Digitalization is playing an increasingly important role in high voltage engineering. The integration of **smart monitoring systems**, sensors, and data analytics allows for real-time condition assessment of high-voltage equipment. Techniques such as **partial discharge detection**, thermal imaging, and online diagnostics are being combined with machine learning algorithms to predict failures and optimize maintenance strategies. This shift toward predictive maintenance is improving system reliability and reducing operational costs.

1.2 Objective

In an engineering project, **objectives** refer to the specific, measurable, and actionable targets a project intends to achieve within defined time and resource constraints. For example:

- Design a 220kV/33kV substation layout with a maximum footprint of 5,000 m² to minimize land usage.
- Complete protection and control schematics, including SCADA integration, within 6 months while complying with IEC 61850 standards.
- Develop a grounding and lightning protection scheme that limits grid resistance to less than 0.5 , Ω .

References

[1] Kaile Zhou, Chao Fu, and Shanlin Yang, “Big Data Driven Smart Energy Management: From Big Data to Big Insights,” *Renewable and Sustainable Energy Reviews*, vol. 56, pp. 215-225, 2016.

[2] Yuanshi Zhang et al., “Minimization of AC-DC Grid Transmission Loss and DC Voltage Deviation Using Adaptive Droop Control and Improved AC-DC Power Flow Algorithms,” *IEEE Transactions on Power Systems*, vol. 36, no. 1, pp. 744-756, 2020.

[3] H. Yumura et al., “Update of YOKOHAMA HTS Cable Project,” *IEEE Transactions on Applied Super Conductivity*, vol. 23, no. 3, pp. 5402306-5402306, 2013.