

Detailed Guidelines for B. Tech. Project Documentation

[I] INTRODUCTION

The final year project work in B. Tech. should represent a coherent body of original work by the students using the technical knowledge and skills acquired during the four years of engineering. It should portray a scholarly approach and thorough knowledge of the subject. B. Tech. Project Report is an organized documentation of this work, involving correlation of facts already known (analytical, experimental, hardware oriented/simulation based etc.). This report should demonstrate a quality as to make a definite contribution to the advancement of knowledge and the students' ability to present the findings in an appropriate manner along with actual accomplishments of the work plainly stated and honestly appraised.

In view of above, detailed guidelines and formats for B. Tech. Project Report documentation are explained in the succeeding paragraphs-

(1) B. Tech. Project Report will be submitted hard bounded. The following 'Color Code Format' should be followed by each department for the purpose of binding:

Department	Binding Color Code
EN & EE	Blue
EC	Green
CS	Maroon
IT	Yellow
ME	Grey
CE	Black

(2) Students should submit Three Copies of the project report in the department office. The department will retain one copy, second copy will be send to the library for records and the third one will be the individual student's copy, which will be returned back. e.g.:- If a Project Team consists of 3 students then in total the team has to submit:

5 copies of Project Report-

Library Copy	:	1
Department Copy	:	1
Individual Copy	:	3 (1 each)
Total	:	5

(3) Due to current situation of Covid-19 students may submit the soft copy (.pdf) of their final project report in Google Classroom. Project Coordinator may evaluate this soft copy and award the corresponding marks. The soft copy of all the project reports should be retained at department level for future references as well as records.

- (4) (a) Students should be encouraged to publish a research paper (based on their project work) in any conference proceedings or journals. If the research paper of any students published/selected for publication then they must be appraised by awarding extra **15% marks** of total project lab marks.
- (b) However, students have to submit a plagiarism report with similarity less than 20%. If plagiarism report is not submitted by students or similarity in submitted plagiarism report is more than 20% then students are not eligible for benefit of extra 15% marks.

[II] GENERAL TYPING INSTRUCTIONS

- (1) (a) Standard A4 size (297mm x 210mm) paper should be used for preparing the report. The report should be printed on a good quality white paper (20-40 lb bond).
- (b) Oversize or undersize papers can be included but should not be binded in the report. They can be placed in a pocket at the back side of the report.
- (c) Complete project work report will be typed in English using MS Word.
- (d) Tables and figures should conform to the margin specifications (i.e. inline with the text). Large size figures should be photographically or otherwise reduced to the appropriate size before insertion.
- (2) For copying and binding purposes-
- (a) The margins of every page of the report should be as follows:
Top:- 1” Bottom:- 1” Right:- 1” Left:- 1.5”
- (b) To ensure that the margins are correct:
Header:- 0.5” Footer:- 0.5”
- (c) All the data/text should fit within the above specified margin requirements (including tables, figures, graphs etc.). Full paper points of diagrams/image should confirm to the sure margins as specified above.
- (d) Right Header: Project Title (In Italicized Font)
- (e) Left Footer: Name of Deptt, College
[E.g.: ECE DEPARTMENT, SRMGPC, Lucknow]
- (f) Right Footer: Page No.
- (3) Other specifications will be as under-
- (a) Font type - Times New Roman
- (b) Chapter Headings - Center/Right Aligned, Bold and Underlined with
Font Size 18-20.
- (c) Sub Heading - Bold & Font Size 14-16 (may be underlined if required)
- (d) Contents - Font Size 12
- (e) Paragraphs - Justified
- (f) Line spacing - 1½
- (g) Single line spacing should be used for typing: Long Tables; References.
- (h) Foot notes/contents within header/footer can be 9 or 10 point size. (i.e. should be less than normal text).
- (i) The Title of the Project should be in ‘Title Case’ or ‘All Caps’.
- (j) The Title of all the entries in the ‘Table of Contents’ should be in Title Case.

[III] NUMBERING INSTRUCTIONS

(1) All the page numbers (whether it is in Roman or Arabic number) should be typed without punctuation in sequence. The preliminary page of the report (such as Title page, Acknowledgement, Table of Contents etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered (ii) and it should appear at the right hand corner in the footer as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals. Please ensure that there are no missing, blank, or duplicate pages.

(2) Minimum font size is 10-point for page nos. and should be kept consistent throughout the text.

(3) Equations appearing in each Chapter or Appendix should be numbered serially; the numbering commencing a fresh for each Chapter or Appendix. All the equations can be either center or left aligned. However, this should be followed consistently throughout the text.

(4) Tables and Figures appearing anywhere in the project should bear appropriate numbers. The rule for assigning such numbers is illustrated through an example. Eg:- If a figure in Chapter 3 happens to be the fourth then assign Figure 3.4. Identical rules apply for tables except that the word 'Figure' is replaced by the word 'Table'. If figures (or tables) appear in appendices then figure 3 in Appendix 2 will be designated as Figure A 2.3.

[IV] TABLES & FIGURES

The term 'Table', is meant for tabulated numerical data in the body of the report as well as in the appendices. All other non-verbal material used in the body of the report and appendices such as charts, graphs, maps, photographs and diagrams may be designated as 'Figures'.

(a) A 'Table' or a 'Figure' including their caption should be accommodated within the prescribed margin limits. It should appear on the page following the text where their first reference has been made.

(b) Tables and Figures one half or less in length may appear on the same page along with the text. However, they should be separated from the text both above and below by appropriate spacing.

(c) Two or more small tables or figures may be grouped if necessary in a single page.

(d) Unless colors are significant; Figures, Images are Tables should be printed on gray scale.

(e) The Figures captions are always appended at the bottom of the figure, while the Table caption is included at the top of the table.

[V] MANUSCRIPT PREPARATION

The headings of all items listed under this head should be typed in capital letter without punctuation. The page numbering for all items mentioned under (A) & (C) should be done using lower case Roman Numerals and the pages thereafter under (B) should be numbered using Arabic Numerals. (from Chapter-1)

The sequence in which the Project Report should be arranged and bound should be as follows-

(A) Preliminary Pages (to be numbered with lower case Roman Numerals)

Cover Page

Certificate

Declaration

Acknowledgement

Preface

Abstract

Table of Contents

(B) Main Pages (numbered with Arabic Numerals)

Chapter-1: Introduction

Chapter-2: Literature Survey

Chapter-3: Proposed Methodology

Chapter-4: Result Analysis and Discussion

Chapter-5: Conclusion

Chapter-6: Future Scope of the Project

(C) Appendices [Continuation of lower case Roman Numerals from (A)]

List of Figures

List of Tables

List of Abbreviations and Symbols Used

Publications/Award (If Applicable)

Data Sheets

Glossary

References & Bibliography

- Cover/Title Page: The first page of the report is the cover page; and the print-out of this should be taken on glossy paper (refer format in Appendix 'A'). This title page will be also printed on the hard bound cover of the Project Report.
- Certificate: The Certificate shall be typed in double line spacing using Font Style Times New Roman, Size 14 (refer format in Appendix 'B'). The certificate should bear original signatures of Project Guide and HOD appended with the HODs stamp and the Departmental seal. (Please ensure that HODs stamp and Departments' seal are available in department)
- Declaration: This should be written as per the format mentioned in Appendix 'C'. It should be signed in original by all the students (project team members).
- Acknowledgement: The acknowledgement shall be brief and should not exceed one page. The students' signature shall be made at the bottom of the page (above their name typed in capital). Over here the students can acknowledge the help and guidance received from different persons.
- Preface: The first paragraph of the preface should give a brief introduction to the work and the subsequent paragraphs should cover the overview of how the material is structured and covered chapter-wise in the body of the Project Report.
- Abstract: This is the most important part of the Project Report. It should be a distillation of the entire work: - a concise description of the problem addressed, methodology used to solve it along with obtained results and the conclusions drawn. It should be always written in third persons' language and not exceeding one page.
- Table of Contents: This should list all the material following it as well as any material which precedes it. The Title Page, Certificate and Acknowledgement will be placed in the Table of Contents along with the page numbers in lower case Roman Numerals. Page starting with Introduction (Immediate after the Table of contents) should be consecutively numbered using Arabic Numerals. The contents page should be typed in Times New Roman; Font Size- 14 and 1.5 line spacing.(refer format in Appendix 'D').

- Introduction: The introduction should detail out the actual overview to the project. This should cover the identification of need, preliminary investigation and feasibility study. This study (feasibility) includes the technical, economical as well as operational feasibility.
- Literature Survey (Literature Review): The Report should contain a detailed account of the historical origin and significance of the associated technology and its related theory on which the entire project is based. (This should be organized as per individuals requirement.) This should include a review/survey of previous works done, their identified limitation as well as any recent developments done in the same area.
- Proposed Methodology: This chapter should cover the following heads as applicable-
 - (a) Formulation & Presentation of Problem: This should cover the problem definition along with its aims and objectives.
 - (b) Solution Approach: This should detail the proposed path of solution of the problem. The complete block diagram (supported with flow diagrams) of the project should be given and explanation should be mentioned block-wise in detail. It should detail out the entire methodology used.
 - (c) Software/Hardware Requirements and Specifications: Depending upon whether the project is a hardware model/software model or both the basic requirements and specifications for the hardware/software set-up should be given for the implementation of the problem. (Other necessary details such as various parameters used during the course etc. can be appended.) Software models may also include the 'Software Engineering Paradigm' applied.
 - (d) Implementation (Design & Coding):
 - (i) The implementation part covers the modular description of the entire work as how the work has been classified and worked out under different modules so as to fulfill the objective. Detailed explanation of each module is required. It gives a complete idea of how the proposed design methodology works.
 - (ii) Module description in case of hardware projects should be supported by circuit diagrams and their operational explanations. This should be followed by the details of Module Assembly; Demonstration; List of Components; Complete Circuit Diagram; Designing Procedure and the Images of entire Hardware Layout.
 - (iii) In case of Software Projects the Software Design approach and the choice of platform should be highlighted. Module description covers the working of each module along with its algorithm/flowchart followed by the Source Code of the particular sub-routine/function. If the coding part is very lengthy; a print-out of the source code should be annexed in the appendices. It should also contain a User's Manual/Help File. (To be customized as per the individual project requirement).
 - (iv) Sequence Architecture, ER. Diagrams, Database Schematic Diagrams etc. may be included in software projects as and where applicable.
- Result Analysis and Discussion-
 - (a) Testing (Inputs/Outputs, Test Data or Validation Checks):
 - (i) In case of Hardware Projects this is supported by Input/output waveforms at various stages or bit-sets given at inputs and corresponding outputs. For software projects qualitative and quantitative analysis of the proposed algorithms should be done.

(ii) Initial set points, threshold values should be highlighted and screen shots/clippings of test data should be attached showing inputs given and the corresponding outputs.

(iii) Any other obtained result, can be presented in the form of figures or tables as applicable. This can contain comparative analysis of the results obtained from the proposed as well as existing methods.

(b) Inferences: This should contain the inferences/logical findings drawn on the results obtained from the current proposed technique.

(c) Advantages & Applications/Limitations of the Project: This should cover the various merits and demerits of the project. The advantages should be associated and elaborated as Applications.

- Conclusion: This covers the various set of conclusions that are derived at the end of the work.
- Future Scope of the Project: The Limitations (discussed previously) serves as a source for the future improvements/updating of the project. Enhancements done in the project, can serve as guidelines for further extension to the junior students. In exceptional cases, chapters on Conclusion and Future Scope can be combined together.
- Appendices: Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction to the central theme under discussion. Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc. Mathematical Relationships, Tables, Figures and References appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters. This should cover the Glossary; List of Abbreviations (optional); List of Tables & List of Figures (refer format in Appendix 'E'); List of Symbols (if any); Data Sheets of various ICs used. If the source code is lengthy, font size may be reduced to 9 to 10 and can be also attached as a part of appendix.
- References & Bibliography: The format for writing 'Bibliography' & 'References' should be followed as per the instructions given earlier. The listing should be listed in the order of appendices in the body of the text. Reference should be written as per standard IEEE pattern (refer format in Appendix 'F'). Typing font size should be 10 or 11 (Times New Roman). The extracted text from the sources should be indexed in the body of the Project Report serially, i.e. the reference numbers should be included within the body of the report.
- Except for the standard formats; it is not mandatory to stick exactly to the headings stated above. The idea and the content should be the same while the chapter headings may vary. The other concerned details (in exceptional cases) should be appended or updated as per the requirements specific to a particular project work.



Prof. (Dr.) Bhavesh Kr. Chauhan
Director

PROJECT REPORT

On

**PROJECT TITLE PROJECT TITLE
PROJECT TITLE, PROJECT TITLE**

Submitted For Partial Fulfillment of Award of
BACHELOR OF TECHNOLOGY

In

**Electronics & Communication Engineering
(2021)**

By

[Name(s) of the Student]

Under the Guidance

Of

[Name of the Project Guide]



**SHRI RAMSWAROOP MEMORIAL GROUP OF
PROFESSIONAL COLLEGES, LUCKNOW**
Affiliated to
**Dr. APJ ABDUL KALAM TECHNICAL UNIVERSITY,
LUCKNOW**



**< NAME OF DEPARTMENT >
SRMGPC**

CERTIFICATE

Certified that the project entitled “<Project Title>” submitted by <Name of Student-1> [Unv. Roll No.] and <Name of Student-2> [Unv. Roll No.....] in the partial fulfillment of the requirements for the award of the degree of Bachelor of Technology (<Branch>) of Dr. APJ Abdul Kalam Technical University, is a record of students’ own work carried under our supervision and guidance. The project report embodies results of original work and studies carried out by students and the contents do not forms the basis for the award of any other degree to the candidate or to anybody else.

<Name of the Project Guide >
<Designation>
(Project Guide)

<Name of HOD>
<Designation>
(Head of Department)



< NAME OF DEPARTMENT >
SRMGPC

DECLARATION

I/We hereby declare that the project entitled “<Project Title>” submitted by me/us in the partial fulfillment of the requirements for the award of the degree of Bachelor of Technology (<Branch>) of Dr. APJ Abdul Kalam Technical University, is record of my/our own work carried under the supervision and guidance of <Name of Project Guide along with designation>

To the best of my/our knowledge this project has not been submitted to Dr. APJ Abdul Kalam Technical University or any other University or Institute for the award of any degree.

<Name of Student-1>
Unv. Roll No.

<Name of Student-2>
Unv. Roll No.

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LIST OF ABBREVIATIONS AND SYMBOLS USED

VLSI	:	Very Large Scale Integration
FPGA	:	Field Programmable Logic Controller
DSP	:	Digital Signal Processing
$x[n]$:	Filter Input Signal
$y[n]$:	Filter Output Signal
$\delta[n]$:	Delta Function
$h[n]$:	Filter Impulse Response
$H[n]$:	Transfer Function
*	:	Convolution Operator

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