**DESIGN PROJECT (802499-3) FINAL REPORT ON**

**TITLE**

**By**

**NAME\_\_\_\_\_\_\_\_\_ I.D.: \_\_\_\_\_\_\_\_\_\_\_**

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**Group #\_\_\_\_\_\_\_\_\_\_\_,** **Track: \_\_\_\_\_\_\_\_\_\_\_\_**

Fall 2018 / Term- 1, 1439 /1440 AH

Date of Submission: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (month/date/year, e.g., May 10, 2018)

Submitted to:

Name(s) of Project Advisor(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**ACKNOWLEDGMENT**

The acknowledgement page portrays the gratitude, admiration and thankfulness of the students towards the persons who helped them in pursuing the project successfully and warranted successful completion and implementation of the project. In this page, the authors express their gratitude and appreciation by using praising and gracious words.

Remove this red text and type your acknowledgement in black color!

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**LIST OF ABBREVIATIONS**

All the acronyms or abbreviations used in this report are listed as follows:

**S.# Acronym/ Description**

 **Abbreviation**

**1 IEEE Institute of Electrical and Electronics Engineers**

**2**

**LIST OF SYMBOLS**

All the Symbols used in this report are listed as follows:

**S.# Symbol Description**

 **1**  Earth Ground: Used for zero potential reference and

 electrical shock protection.

**2**

**TITLE**

***ABSTRACT:***  Start writing here

**INTRODUCTION**

Start typing first paragraph here. The introduction should be approximately two to three pages in length, and should contain the following information:

* ***Problem Statement/Definition***: State the problem to be solved.
* ***Solution Statement***: State your solution to the problem along with

***Associated Engineering Standards***: State the associated engineering standards,

***Safety Instructions***: State instructions for human and equipment safety, and

***Realistic Constraints & Assumptions***: Identify realistic constraints & assumptions under which your team must design and implement the solution.

Remove this red text and type Introduction in black color!

**CHAPTER 1**

**BACKGROUND**

 Start typing first paragraph here. Review background using different resources, e.g., Internet, Journals, Books, and others. This chapter evaluates the current work with the previous one. State who else has worked on this problem or similar problems and state alternative solutions worked on by others.

**1.1 PROBLEM IDENTIFICATION**

Start typing first paragraph here. Write to establish the importance and need of solving the problem based on customers’ needs, realistic constraints, and assumptions. Why is it important to solve this problem? What kind of solutions to this problem are already available?

* 1. **PROBLEM DEFINITION**

Start typing here. Define the Problem your team is planning to work. The problem definition is a general statement that suggests your plan to design an electrical system to solve the problem at hand. Problem definition does not reveal (show) any solution but indicates your goal.

 In this sub-section, you set up the problem or problems, to prepare the reader, without discussing the proposed design solutions. The reader will know the proposed design solutions in the following sections.

* 1. **OBJECTIVES & MULTIPLE REALISTIC CONSTRAINTS**

Start typing here. Write two to four objectives in a vertical list. These objectives are based on the problem definition, customers’ needs, realistic constraints and assumptions.

 Normally, the design has two to four definite objectives. You might consider listing them vertically as follows:

(1) first design objective,

(2) second design objective, and

(3) third design objective.

 In this section, you would discuss in detail what you mean by the different design objectives. You would discuss what you intend to do to achieve those objectives. You will also give justification of what you will not do that your audience might assume. You might consider writing a paragraph for each objective. Please indent all paragraphs and do not skip a line between paragraphs in the same section or subsection. However, feel free to insert up to 6 points between paragraphs, as is done in this template.

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**CHAPTER 2, 3, … 4**

**WRITE THE TITLE OF THE CHAPTER**

 Start typing first paragraph here. Do not change the font or size and indent each paragraph as indicated. The font color must be black.

These chapters describe the overall in-depth information about the project. These chapters also involve the basic theoretical information about each and every component & aspect of the project, such as [circuit design](http://localhost/elpro/types-circuit-boards/) (hardware implementation), simulation implementation and modeling, software implementation, statistical analysis and calculations done, results gained, and so on.

 The appropriate information should always be accompanied with pictorial representations, tabular demonstrations, diagrams, flow charts, visible graphs, Images, photos other representations and depictions of the project, along with simulation results with good resolution and clarity.

 Start typing second paragraph here.

 Start typing third paragraph here.

 **……………….**

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**CHAPTER 5**

**PROJECT MANAGEMENT**

 Start typing here. In this section you will write the team’s plan for managing the project. This plan should be presented in a logical sequence. Write a transition paragraph between the heading “Project Management” and the subheading “Time-Line Chart.” That paragraph should introduce and explain the Time-Line of the project in the form of a Gantt chart (Table or Excel Sheet). An example of such a table is shown in Figure #.

 For example, you may write the following lines:

 Our team worked cohesively on the project and all steps of the project were performed according to the tasks divided among the team members and the time allocation. The actual Time-Line chart of the program is shown in the Figure # as follows:

 **5.1 TIME-LINE CHART**

The following time line chart depicts the amount of time spent on each step of the project.

|  |  |
| --- | --- |
| **Description of Task** | **WEEKS** |
| 1.
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1.
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Week # 🡪** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** |

**Figure #:** Time-Line Table for the project. The solid bars depict the part of the tasks accomplished.

 **5.2 SCOPE OF WORK (SOW) STATEMENT**

Provide a brief narrative describing the business needs to be addressed by the proposed scope of this project considering specific needs and opportunities. Write what your project is going to perform and what is not to be performed by your project.

 **5.3 DELIVERABLES**

Provide a brief narrative describing the planned deliverables that will be produced as part of the proposed scope of this project. (e.g., Product or Device or System, Instructional Manual, Safety/Environmental/Societal/Economical/Ethical/Health Constraints, Safety and Engineering Standards, Final Report, Power Point Presentations, etc.)

* 1. **BUDGET**

This sub-section contains a paragraph or paragraphs that explain the budget for the project.

* + 1. **Bill of Material (BoM): Name of Parts (Components used),**

**Quantity, and the Price of the components if applicable**

Start typing here. Write a few sentences to explain the following Tables for the BoM. The following table is required if the Design Project involves hardware design otherwise remove it and update the sub-titles

**Table # \_\_\_: Bill of Material of the Design Project Involving Hardware**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.#** | **Part Description** | **Part Number** | **Quantity** | **Unit Price** | **Total Price** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| **Total Cost** |  |

* + 1. **Cost in Terms of Design Time**

 Start typing here. Write a few sentences to explain the following Tables for the cost involved in terms of time spent on system design (Hardware) for the project or cost of the algorithm developed (Software) for the project.

**Table # \_\_\_: Bill of Material of the Design Project Involving Cost in terms of Design Time**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.# | Task Performed | Name of Team Member Responsible | # of Hours | Cost per Hour | Total Cost |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Total Cost |

* + 1. **Algorithm Development Time /Application Software Usage Time**

 Start typing here. Write a few sentences to explain the following Table for the time involved in designing the Algorithm and / or Application Software Usage. This table is required if the Algorithm is developed or Software Application is used for Simulation.

 If **NO** Algorithm is developed or no Software Application is used for Simulation then this table is not required and you may remove this section.

**Table # \_\_\_: Bill of Material for of the Design Project Involving Time Spent for Algorithm Development / Application Software Usage**

|  |  |  |
| --- | --- | --- |
| S.# | Name of Team Member | Total Number of Hours Worked |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |

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**CHAPTER 6**

**ASSOCIATED ENGINEERING STANDARDS**

Start typing here. List the appropriate Engineering Standards associated with the project. Explain briefly how you incorporated these standards in your project.

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**ENGINEERING MANUAL**

Start typing here. State appropriate number of frequently Asked Qestions (FAQs) by the user of your designed system (project). Write answer to those questions to assist the user for the appropriate functionality of your project. The FAQs may involve questions regarding methods you have used to collect data, troubleshoot your circuits, debug your codes for simulation, and what kind of equipment you have used to perform these tasks.

Start typing here regarding the instructions to run / operate the project. The instructions may be written in the form of a paragraph or chronological steps (Step-1, Step-2, …).

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**CONCLUSION AND RECOMMENDATIONS**

 Start typing here. Write two concluding paragraphs in which you reflect on what you implemented and what you learned. State the results of the project and explain the goals achieved by the implementation of this project. List the advantages and disadvantages of your work.

The conclusion and recommendations summarize the whole report by highlighting all the chapters and their significance and the importance of the project and about the achievements.

The Recommendations are interlinked with conclusion. The conclusion drawn from the project report can be further implemented in the recommendation section to overcome the constraints of the project. State future work and directions, and then list any open problems.

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**REFERENCES**

The project report must be considered as a very standard report, and therefore, it should follow all rules, guidelines and protocols of gathering and presenting information, and implementing that and drawing conclusions out of it.

All these activities require appropriate and authentic sources of information and that particular information must be referenced or cited according to the copyrights and other guidelines. Therefore, to make the report original, it should be free from plagiarism and must follow standard citations and guidelines of citations to represent the reference names.

**Citation FORMAT**

Book

Author(s). Book title. Location: Publishing company, year, pp.

Example:

W.K. Chen. Linear Networks and Systems. Belmont, CA: Wadsworth, 1993, pp. 123-35.

Article in a Journal

Author(s). “Article title”. Journal title, vol., pp, date.

Example:

G. Pevere. “Infrared Nation.” The International Journal of Infrared Design, vol. 33, pp. 56-99, Jan. 1979.

Articles from Conference Proceedings (published)

Author(s). “Article title.” Conference proceedings, year, pp.

Example:

D.B. Payne and H.G. Gunhold. “Digital sundials and broadband technology,” in Proc. IOOC-ECOC, 1986, pp. 557-998.

Electronic References

Books

Author. (year, Month day). Book title. (edition). [Type of medium]. Vol. (issue). Available: site/path/file [date accessed].

Example:

S. Calmer. (1999, June 1). Engineering and Art. (2nd edition). [On-line]. 27(3). Available: www.enggart.com/examples/students.html [May 21, 2003].

Journal

Author. (year, month). “Article title.” Journal title. [Type of medium]. Vol. (issue), pages. Available: site/path/file [date accessed].

Example:

A. Paul. (1987, Oct.). “Electrical properties of flying machines.” Flying Machines. [On-line]. 38(1), pp. 778-998. Available: www.flyingmachjourn/properties/fly.edu [Dec. 1, 2003].

World Wide Web

Author(s)\*. “Title.” Internet: complete URL, date updated\* [date accessed].

M. Duncan. “Engineering Concepts on Ice.”, Internet: www.iceengg.edu/staff.html, Oct. 25, 2000 [Nov. 29, 2003]

1.
2.
3.
4.

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**APPENDICES**

 Insert appendices related to component specifications, data sheets, mathematical analysis, source codes, or circuit diagrams or important material downloaded from internet. The appendices of a project report should be written in Times New Roman format of font size 10, and it should contain the information which is appropriate and added to the main text like [Embedded C](http://localhost/elpro/basics-and-structure-of-embedded-c-program-with-examples-for-beginners/) program code, raw data, MATLAB / Software Application Tools program, and so on.

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