Operator’s Manual Format for BME 4910

The purpose of the Operator’s Manual is to fully document your project for the intended user. It should be clearly written, and detailed enough for a non-expert to operate, maintain and repair the device. A style guide is provided at the end this document. Use the sections headers as described in this document— not following this format will result in a lower grade.

Plan for your report to be at least 40 pages in length. For equations, use Word’s equation editor. Use single line spacing throughout the report and make sure that pages are numbered. Points for each section given in [## Points].

Page One:
Operator’s Manual
Title of Project
By
Student Names
Team No.

Client #
Client Contact: Name(s), Organization, Address, Phone Number.

Page Two:
Important Safety Instructions
Provide safety instructions so that the user will not be injured using the device.

Page Three:
Parts and Accessories
Each component of the device should be identified (photo and name).

Page Four:
Features
Highlight unusual features of the device.

Page Five:
Table of Contents: List of sections and section titles

Credit for pages 1-5. (10 pts)
Page Six and Beyond:

1 Introduction
   1.1 Include a general overview of device, starting from a top-down description. Photographs and illustrations are essential. How to make the device operational should be described here (how to connect the various parts together).
   1.2 Step by step instructions on how to use the device. Photos and illustrations are essential

The introduction should be 5 or more pages in length. (20 pts)

2 Maintenance
This is a detailed description of the maintenance that needs to be performed to keep the device running. Break this section down into logical units (electrical, mechanical, environmental, etc.)

5 page Minimum. (20 pts)

3 Technical Description
A complete technical description should be given, with illustrations, circuit diagrams, etc. Circuit diagrams should give operational/steady state voltages/currents for trouble shooting.

15 page minimum. (25 pts)

4 Troubleshooting
Describe how to fix the device given all types of difficulties.

10 page minimum. (25 pts)
Style Notes

Writing Style

- Use simple and correct English, i.e., “use” not “utilize” or “usage,” “effected” not “impacted” (except for teeth). Remember, “data” is a plural word.

- Parameters are what you fix, variables are what you measure, e.g., “temperatures were set at 20, 30, and 40 deg. C. (parameters) and measurements were made of blood pressure and flow (variables).

- In describing portions of the paper, use the term “above” to refer to previous statements and “below” to indicate what is to follow.

- Use metric (SI) units and abbreviations. Leave a space between the last digit of a number and its units. Use scientific notation for numbers, with a leading 0 for numbers less than 1, e.g., 0.23 ml.

- If a commercial product is mentioned, include model number along with manufacturer, city and state (country).

- In general, do not use footnotes. For a sentence or two, just put the comment in parentheses. For a paragraph or two, use a side bar. Alternatively, include with references as endnotes.

- To use an abbreviation or acronym, first spell it out, and then follow with the abbreviation or acronym in parentheses. (This is not required for common units of measurement.) For plurals, do not use an apostrophe, i.e., use EEGs and 1990s, not EEG's and 1990's.

- “, et al.,” takes commas front and back, and one period; “, i.e.,” and “, e.g.,” take two commas and two periods.

- At the start of a sentence use “Figure 3”; within a sentence, use “Fig. 6” or “Figs. 8-10”.

- Use “2-D” and “3-D” for two and three dimensions.
**Mathematical Notation**

To avoid errors in editing and typesetting, authors should clearly identify subscripts, superscripts, Greek letters, and other symbols. Add margin notes or other explanations wherever necessary. It is especially important to distinguish clearly between the following terms.

- Capital and lowercase letters when used as symbols.
- Zero and the letter “O”.
- The lowercase letter “l,” and numeral one, and the prime sign (’).
- The letters “k” and κ (kappa), “u” and μ (mu), “v” and ν (nu), “n” and η (eta).
- Bold type should be indicated for vectors and matrices.
- Italic type should be indicated for all text variables.

If an equation is likely to be longer than the magazine’s column width, it is helpful to indicate the best places for the equation to be broken into multiple lines.

- Avoid ambiguities in equations and fractions in text through careful use of parentheses, brackets, slants, etc. Note that in text, fractions are usually “broken down” to fit on one line and confusion can result if terms are not properly labeled. The conventional order of brackets is {[( )]}.
- Use of the multi dot rather than the multiplication sign when multiplying by powers of ten in equations or text is at the author’s discretion.
- In your manuscript, put each equation on a separate line. If you number them, put the number in parentheses in line on the far right of the page.
- Lead into an equation by ending the previous line with a colon. Do not use a period or comma to end an equation.

**Units and Abbreviations**

The International System of Units (SI) is advocated for use in IEEE publications.

Unit symbols should be used with measured quantities, i.e., 1 mm, but not when unit names are used in text without quantities, i.e., “a few millimeters.”

If quantities must be expressed in English units, the SI equivalents should be given also in parentheses, i.e., a distance of 4.7 in (12 cm).

Most acronyms and abbreviations should be defined the first time they are used in text.

**Reference Style**

A numbered list of references may be provided at the end of the article as a separate page or pages of the manuscript. The list should be arranged in the order of citation in text, not in alphabetical order. List only one reference per
reference number. Except for review articles, please try to limit the number of citations to 20 of the most recent references.

Each reference number should be enclosed by square brackets. In text, citations of references may be given simply as “in [1],” rather than as “in reference [1].” Similarly, it is not necessary to mention the authors of a reference unless the mention is relevant to the text. It is almost never useful to give dates of references in text. These will usually be deleted by staff editors if included. Please do not use a word processor’s automatic numbering feature. Footnotes or other words and phrases that are not part of the reference format do not belong on the reference list. Phrases such as “For example,” should not introduce references in the list, but should instead be given in parentheses in text, followed by the reference number, i.e., “For example, see [5].” Sample correct formats for various types of references are as follows.

Books:

Periodicals:

Articles from published conference proceedings:

Papers presented at conferences (unpublished):

Technical reports:
References—Electronic Sources
The guidelines for citing electronic information as offered below subscribes to the International Standards Organization (ISO) documentation system.

Journal Articles:
Author, Title, Journal [Type of medium], volume (issue), pagination if given, (year, month). Available: Directory: File:

Example:

Material Obtained Through Loose-Leaf, Computer, or Information Services
References to material obtained through computer services or information services are treated like first references to original printed material except that the usual information is followed by the name of the service, the name of the service provider, and the accession or identifying numbers within the service.

Example:

Computer Programs and Electronic Documents
The ISO recommends that capitalization follow the accepted practice for the language or script in which the information is given.

Example:


“Work in progress” is not an acceptable reference. “Work in press” should be cited as completely as known. “Personal communication” should indicate
complete name and mailing address of the informant. Journals or magazines with a single-word name are spelled out completely, e.g., Anesthesiology, Science. Abbreviations of journals and magazines are given in the International Standards Organization's “International Standard ISO-4-1972 (E). Documentation – International Code for Abbreviation of Titles of Periodicals.” The Reference in G-3 above is also an excellent source for journal abbreviations. Some common abbreviations used are:

- Am = American
- J = Journal
- Trans = Transactions
- Sci = Science
- Int = International
- Arch = Archives
- Proc = Proceedings
- Med = Medical
- Engng = Engineering

NOTE: No periods are used in journal abbreviations. When in doubt, spell it out, and the copy editor will make the necessary abbreviations.