GUIDELINES FOR ECSE-426 REPORTS

1. INTRODUCTION

These guidelines specify the requirements for the laboratory reports for ECSE-426. Section 2 discusses content. Section 3 discusses presentation. Section 4 contains guidelines for References.

2. CONTENT

Reports should be as brief as possible whilst containing all relevant technical detail. You will need to make decisions about what is important. In considering what to include, write as though you are addressing someone who has completed a microprocessor course at another university. You can thus assume that the reader is familiar with principles of microprocessors, but you cannot assume familiarity with the specific microprocessor, board, or peripheral hardware you are using. It is perfectly legitimate to make frequent reference to the documentation rather than explain basic operation, but you will need to describe how you made use of the hardware in your specific application. When discussing software, carefully describe the design and operation of critical components. You do not need to discuss or describe peripheral functions (for example, a function that converts hexadecimal numbers to decimal does not need to be described).

Your report should consist of **3 sections** plus a list of references and an appendix for code.

Section 1: Functional Specifications

This section describes the functional specifications of your **global** deliverables. Your deliverable may be a library of functions (Lab 1), or a system with user input and output (Labs 3 and 4), or a mixture of the two (Lab 2). You should specify (i) the purpose of each component of the deliverable; (ii) the inputs; (iii) the outputs; (iv) error conditions and special cases; (v) any additional user information. The last section (v) may not be necessary in all cases. I strongly suggest you have a heading for each of the five subsections, and then a list of bullet points. An example appears below.

Function: void posadd(int *a, int *b, int *c)
Purpose: Adds two positive integers and writes the sum to a specified memory location.
Inputs: a,b – pointers to memory locations storing two positive 16-bit integers in 2's-complement binary.
Output: *c = *a + *b. Write result of sum to memory location pointed to by c. Result is 16-bit 2's complement binary.
Special Cases/Error Conditions:
• Negative input (*a<0 OR *b < 0) : set *c = -1.
• Overflow (*a + *b > 2^15-1) : set *c = -2.

Section 2: Implementation

Include a concise explanation of your solution. What is the flow of the program? What hardware is used? How is it used? What flags are set? How is configuration performed? How are interrupts handled? Answer any other questions you consider pertinent. If you have made decisions, include a brief justification/explanation. For example, why did you use a 10 ohm resistor instead of a 10 Kohm? If your deliverable involves a user interface, you should include a subsection discussing

the user interface and clearly explain the reasoning behind each decision. Why did you include a menu rather than a command line?

Properly prepared flow diagrams are highly encouraged; carefully prepared diagrams are expected when new hardware is connected (Lab 4).

Section 3: Performance Analysis

Include a concise description of the tests you performed to verify correct behaviour and discuss the performance. Tables are often the best way to display your results (input, condition tested, output of program). For the labs, there will be other performance analysis that is appropriate (for example, in Lab 1 you should explore the number of cycles that your routines consume). In later labs, where your deliverable involves a user interface, you should include a user survey. Poll at least 8 people, at least 4 from the lab and at least 2 from outside. Your poll should consist of at least 5 questions. This survey must be included as an appendix to your report if you conduct a user survey. Ask reasonable questions and provide a user response of 1-10. Include in your report a table specifying min/max and mean scores. Also include the most pertinent comments, e.g., "the menu system was very easy to learn, but became tiresome because it was slow when I had some expertise".

Example (incomplete, but you should get the idea):

Table 1: Performance verification of function library (correctness)

Function: Condition	**Input**	**Output**	**Cycles**
posadd: normal	*a =21, *b =22	*c = 43	1000
posadd: negative	*a = -2, *b = 3	*c = -1	500
posadd: negative	*a = 3, *b = -2	*c = -1	500
posadd: overflow	*a = 2^15-1 *b = 2^15-1	*c = -2	1500

Table 2: Speed testing of function library (10 random cases per row of table).

Function: Condition	**Min. cycles**	**Max. cycles**	**Mean cycles**	**Variance**
posadd: normal	500	2200	1000	1e5
posadd: negative	300	1100	500	2e5
posadd: overflow	700	1800	1300	1e5

References

Reference all material you have used; where you make use of document [1] include such notation in the text. References should be in the format specified in Section 4. If you do not know information, seek it out; if you cannot find it after a reasonable search, then ask me or the teaching assistants. The fact that a user guide has no date or author on the front cover is no excuse for you not to track it down.

Appendix - Code

Code : very well documented, small-font (10 or 11 point), 2 pages per sheet (landscape). If you have reused unchanged code from previous labs, do NOT include it in your report (just retain the header files). Keep the code well-organized, so that I can quickly locate your new work.

3. PRESENTATION

These guidelines include complete descriptions of the fonts, spacing, and related information for producing your report. The report should be no more than **6 pages** including figures, appendices and references (excluding the appendix for code). For each page exceeding the specified limit, there is a 10 percent penalty.

Word and Latex templates are available – keep your life simple by using one of the templates. **All the details below are then handled for you.**

Text, illustrations, and charts, must be kept within a print area of 6.9 inches (175 mm) wide by 8.9 inches (226 mm) high. Do not write or print anything outside the print area. The top margin must be 1 inch (25 mm), except for the title page, and the left margin must be 0.75 inch (19 mm). Text must be fully justified. Word and Latex templates are available – keep your life simple by using one of the templates.

The paper title (on the first page) should begin 1-3/8 inches (35 mm) from the top edge of the page, centered, completely capitalized, and in Times 14-point, boldface type. The authors' name(s), affiliation and ID numbers should appear below the title in capital and lower case letters.

Use Times-Roman 11-point font. Do not indent the first paragraph in a section, but indent subsequent paragraphs.

Major Section headings, for example, "1. Introduction", should appear in all capital letters, bold face, centred in the column, with one blank line before, and one blank line after. Use a period (".") after the heading number, not a colon.

Subheadings should appear in lower case (initial word capitalized) in boldface. They should start at the left margin on a separate line.

Please paginate your paper, in the bottom right hand corner.

Print your properly formatted text on high-quality, 8.5 x 11-inch white printer paper. Hand in at the assignment box before the deadline.

Illustrations must appear within the designated margins. Caption and number every illustration – this is important!! Provide detail in your captions.

List and number all bibliographical references at the end of the paper. The references can be numbered in alphabetic order or in order of appearance in the document. References can be in 10 point font or 11 point font. When referring to them in the text, type the corresponding reference number in square brackets as shown at the end of this sentence [1]. See Section 4 for instructions on references.

4. REFERENCES

References in the text must match the reference list both in number and style. All sources must be mentioned in the text.

References in the Text

- References must be numbered in the order in which they appear in the text.
- Once you label the source, use the same number in all subsequent references.
- Each reference number should be enclosed by square brackets on the text line, with a space before the bracket, and before the punctuation: ". . . end of the line for my research [12]."
- It is not necessary to mention the author(s) of the reference unless it is relevant to your text. Do not mention the date of the reference in the text.
- It is not necessary to say "in reference [27]. . . ." "In [27] . . ." is sufficient.
- The names of all authors should be given in the references unless the number of authors is greater than six. If there are more then six authors, you may use *et al.* (no comma before *et*) after the name of the first author.

The Reference List

- References must be listed in the order they were cited (numerical order). The references must not be in alphabetical order.
- The bracketed number should be on the line, and the lines of each entry indented.
- List only one reference per bracketed number.
- Footnotes and other words and phrases not part of the reference format should not be included in the reference list. Phrases such as "for example" should only be given in the text.

Capitalization

- Every (important) word in the title of a *book* must be capitalized.
- Every (important) word in the title of a *journal* or *conference* must be capitalized.
- Capitalize only the first word of an *article* title (except for proper nouns, acronyms, etc.)
- Capitalize only the first word of a *paper, thesis,* or book *chapter.*
- Capitalize the "v" in *volume* for a book title, but not for a periodical.

Punctuation

Punctuation goes *inside* the quotation marks. An example with a question mark is provided under periodicals.

Abbreviations

- You must *either* spell out the entire name of each periodical you reference or use accepted abbreviations. You must consistently do one or the other.
- You may spell words such as *volume, December,* etc., but you must either spell out all such occurrences or abbreviate all.
- You do not need to abbreviate March, May, June, July.
- To indicate a page range: pp. 111-222. But to reference one page only, use only one *p:* p. 111.

Spacing

Please note the correct spacing and punctuation for author names:

D. L. Tao, C. Siva Ram Murthy, and S. Al Kuran
but
T.-C. Hsu and L. A. Stein-Rosenberg

BOOKS

[1] S. M. Hemmingsen, *Soft Science.* Saskatoon: University of Saskatchewan Press, 1997.

[2] A. Rezi and M. Allam, "Techniques in array processing by means of transformations," in *Control and Dynamic Systems,* Vol. 69, *Multidimensional Systems,* C. T. Leondes, Ed. San Diego: Academic Press, 1995, pp. 133-180.

[3] D. Sarunyagate, Ed., *Lasers.* New York: McGraw-Hill, 1996.

PERIODICALS

[3] G. Liu, K. Y. Lee, and H. F. Jordan, "TDM and TWDM de Bruijn networks and shufflenets for optical communications," *IEEE Transactions on Computers,* vol. 46, pp. 695-701, June 1997.

[4] J. R. Beveridge and E. M. Riseman, "How easy is matching 2D line models using local search?" *IEEE Transactions on Pattern Analysis and Machine Intelligence,* vol. 19, pp. 564-579, June 1997.

ARTICLES FROM PUBLISHED CONFERENCE PROCEEDINGS

The word *in* before the conference title is not italicized.

[5] N. Osifchin and G. Vau, "Power considerations for the modernization of telecommunications in Central and Eastern European and former Soviet Union (CEE/FSU) countries," in *Second International Telecommunications Energy Special Conference,* 1997, pp. 9-16.

[6] S. Al Kuran, "The prospects for GaAs MESFET technology in dc-ac voltage conversion," in *Proceedings of the Fourth Annual Portable Design Conference,* 1997, pp. 137-142.

PAPERS PRESENTED AT CONFERENCES, BUT UNPUBLISHED

[7] H. A. Nimr, "Defuzzification of the outputs of fuzzy controllers," presented at 5th International Conference on Fuzzy Systems, Cairo, Egypt, 1996.

REPORTS (technical reports, internal reports, memoranda)

Provide number and month if available.

[8] K. E. Elliott and C. M. Greene, "A local adaptive protocol," Argonne National Laboratory, Argonne, France, Tech. Rep. 916-1010-BB, 1997.

THESIS or DISSERTATION

"Ph.D. dissertation," but "M.S. thesis."

[9] H. Zhang, "Delay-insensitive networks," M.S. thesis, University of Waterloo, Waterloo, ON, Canada, 1997.

MANUAL

[10] Bell Telephone Laboratories Technical Staff, *Transmission System for Communications*, Bell Telephone Laboratories, 1995.

CLASS NOTES

[10] "Signal integrity and interconnects for high-speed applications," class notes for ECE 497-JS, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Winter 1997.

PRIVATE COMMUNICATION

[11] T. I. Wein (private communication), 1997.

FROM THE INTERNET

[12] Computational, Optical, and Discharge Physics Group, University of Illinois at Urbana-Champaign, "Hybrid plasma equipment model: Inductively coupled plasma reactive ion etching reactors," December 1995, http://uigelz.ece.uiuc.edu/Projects/HPEM-ICP/index.html.

[13] D. Poelman (dirk_poelman@rug.ac.be), "Re: Question on transformerless power supply," Usenet post to sci.electronics.design, July 4, 1997.

CATALOG

[14] Catalog No. MWM-1, Microwave Components, M. W. Microwave Corp., Brooklyn, NY.

APPLICATION NOTES

[15] Hewlett-Packard, Appl. Note 935, pp. 25-29.

PATENTS

[16] K. Kimura and A. Lipeles, "Fuzzy Controller Component," U. S. Patent 14,860,040, December 14, 1996.