

## Independent Study Deliverables

The lab demo is due on the day that I collect ECEN 5613 final project reports.

The documentation for this independent study is due no later than the following Wednesday.

### Deliverables - What to Submit

1. Each student/team must provide the instructor a hard copy of the report. Requirements for the report are given in the section "**Final Project Report Requirements**".
2. All reports submitted will become the property of the instructor, so if you would like a copy of your report materials, make a copy before submitting your report.
3. Each student must provide the instructor an electronic copy of all project files, including source code (both firmware and software), include files, makefiles, the final report and any other documents, such as unique data sheets and app notes. Students must provide the files on CD.
4. Please write your name(s) and the date on the CD and organize the files on the CD using folders. Include a readme.txt in the root directory on the CD. A suggested folder structure is:
  - Report (all final report pages, including appendices; include Word source file and PDF)
  - Data Sheets (data sheets, application notes, and other reference documentation)
  - Schematics (schematic source files, Orcad .DSN files, libraries, etc.)
  - Layouts (layout files, including libraries and Gerber files, if a PCB was constructed)
  - Code (source code with header files, makefiles, etc.)
  - Utilities (any special free software tools that you might have used on your project)
  - Pictures (photos and/or videos related to the project, top and bottom pictures of each PCB)
5. If providing any electronic files by e-mail, use WinZip to combine all your files before e-mailing. Try to limit e-mail size to a maximum of 2MB. Don't include other comments in the e-mail body that aren't related to the electronic files submission; use a separate e-mail for other comments. I want to be able to sort the project files into a separate e-mail folder.
6. Provide suggestions on additional links or information to include on the independent study web site.
7. Provide suggestions on what modifications to make to independent study in future semesters.
8. Update the documentation regarding process for putting dev. board back into a known working state.
9. Update the documentation regarding process for soldering surface mount components.

Other items to return with the report include:

- Cypress Development Kit (check inventory list to make sure all items are present, and reset the state of the development board back to what it should be at the beginning of the semester). Verify that the board is functional.
- Other USB development hardware/tools (USB dev. board, Keil software, serial cable, power supply, etc.)
- Unused parts (PCBs, surface mount components, extra sample parts, etc.)
- Documentation (reference books, USB, high speed digital design, etc.)
- Key (if you signed one out specifically for this course)
- Money for parts you purchased with an IOU
- Money for items you signed out and subsequently lost or broke
- Other items you borrowed during the semester

## **Final Project Report Requirements**

1. The final report must represent a professional effort on your part. The report must be typed on a word processor. The report must be well organized, easy to read, free from spelling and grammatical errors, and must include page numbers.
2. The report must describe the project, and detail its design and implementation. Assume that the reader is familiar with the 8051 architecture and instruction set.
3. **Plagiarism will not be tolerated.** Copying material from the web or from data sheets without giving credit is plagiarism. Figures may be borrowed from data sheets or application notes, provided that credit for each figure is clearly given in the report.
4. The report must be bound using a wire/plastic spiral or comb binding method which enables the report to remain open (flat) on a table without reader intervention. A clear protective front cover is highly recommended, so that the cover page may be viewed while the report is closed.
5. The report must include a cover page. The cover page must include a descriptive title of the project, the team members' names, the course number and title, and the due date.
6. One possible way to organize the report follows: cover page; table of contents; introduction and overview; technical description/details, results/error analysis; conclusions; future development ideas for the project; appendices. Hardware, firmware, and software design (if applicable) must be detailed.
7. The details section should include small figures, diagrams, pictures, or code fragments; however, large schematics and code listings should be placed in an appendix. All schematics and appendices must be titled and numbered, and referred to by number in the report. **All schematics, labels, and graphics must be large enough and clear enough to be read easily.**
8. Appendices should include copies of any special data sheets or references. The hard copy of the report does not need to include every page of an extremely long data sheet or application note (just include the most relevant pages in the hard copy of the report, and submit the entire data sheet or application note in electronic format). URLs for web sites containing data sheets, application notes, and/or other specifications must be listed in the report.
9. A full circuit schematic must be included in an appendix. The schematic should be done with a schematic capture program such as Orcad, which is available in the lab. Don't put too much information on any one sheet. Label all signal names and include pin numbers.
10. Key source code listings for project firmware and software must be included in an appendix (if there's too much, just include it electronically). Code must follow general good coding standards. Useful, descriptive comments must be included in the code. Use blank lines and white space wisely in your code to improve readability. It is suggested that code listings are printed "2-up", with two pages of code per side of paper. Double sided printing is encouraged, as long as the resulting appendix is easy to read without requiring that the report be twisted 180 degrees to read successive pages of the code. Duplex and 2-up printing will save paper and result in a lighter and more compact document.
11. A project parts/cost list (bill of materials or BOM) must be included. This BOM should indicate the source, part number, and cost of items specific to each project. Indicate where we could order this part again in the future.
12. Firmware, software, or hardware which is highly leveraged or copied from another source may be used if legal; however, **credit must clearly be given to the original author/designer in code comments and project documentation.** Student-created code and hardware will be counted more heavily in the project grade and should be clearly identified in the report. Company confidential information must not be included in the report, since these reports may be viewed by a wide population.