Policies Regarding Project Notebooks

1.0 Project Notebooks:

Over the course of the semester, all students are expected to maintain an electronic notebook detailing their individual progress and contributions towards their senior design projects. Notebooks are captured daily over the course of the semester, and evaluated by the ECE477 course staff over the initial, intermediate, and final sections of the semester. Project notebooks are one of the primary resources available to any individuals attempting to reproduce a particular project or ECE477 student's work.

Project notebooks contribute to 12% of a student's overall grade, and constitute a course outcome that must be satisfied in order to pass the course. In the event that a team member's contribution to a project is contested, a well-written and thorough project notebook can assist the student in defending his or her effort on a senior design project. Therefore, doing well on a project notebook will have a significant positive impact on a student's experience in ECE477.

1.1 Individual Nature of Project Notebooks

Project notebooks are individual efforts designed to capture the development activities of a particular student, and as such are written and graded individually. Use of project notebook entries to detail the efforts of team member development efforts that the author had no part in is not allowed. Copying notebook entries or weekly summaries from other team members is similarly prohibited; violation of this rule could subject the student or students in question to grade penalties or academic dishonesty.

1.2 Use of Provided Project Notebook Templates

Students will be provided with a standard template to use for their personal project notebooks. For ease of grading and evaluating project notebooks, all students are expected to use the provided project notebook templates. Use of non-standard project notebook formatting is prohibited.

2.0 How are Project Notebooks Graded?

As referenced in the notebook evaluation rubrics in the homework section of the ECE477 course website, there are 5 categories used for grading project notebooks. These categories are:

1. Level of Technical Detail
2. Pictures, Drawings, and Diagrams
3. Update Record
4. Weekly Summaries
5. Technical Writing Style and Clarity

2.1 Level of Technical Detail:

This is the “meat” of a student's notebook, and as such is weighted the most heavily of the project notebook grading criterion. With a thorough, detailed notebook, a student's work can be

readily reproduced by others, and helps to result in a high-quality overall project. Sloppy, poorly-written notebooks are not worth the paper they are printed on, and are of little or no help to an end user who is attempting to reproduce a student's work from his or her notes.

A technically detailed project notebook entry answers the following questions (where applicable) clearly and concisely:

- What did the student work on?
- How did the student work on it? (Tools? Programs? Test rig? Etc.)
- What was the result, and how does this affect the project?
- What did the student learn?
- What are the next steps that must be taken?

2.2 Pictures, Drawings, and Diagrams:

Large, endless blocks of text can be very formidable to a reader, and sometimes the content of a student's lab notebook can be improved considerably through the inclusion of pictures (or other visual content). This is where the pictures, drawings, and diagrams portion of the notebook score comes in. Getting a good score on this is as simple as including a number (3 or more each week) of relevant, unique pictures and diagrams related to your project. Pictures could include but aren't limited to: screenshots/images of schematics or PCB designs generated in software, photographs of your project and/or prototyping setups you have created to test features of your project, MATLAB graphs, and screenshots from oscilloscopes or other laboratory measurement equipment. Even students whose responsibility is primarily with code can include relevant pictures of their work on a project in the form of screenshots of pseudocode, GUI screenshots, flowcharts, graphical representations of algorithms, or useful graphical output produced by one's code.

It is important that the pictures a student chooses to include in his or her project notebook be relevant to the work he or she, as opposed to the other team members, is performing. If, for example, a student's notebook entries detail their efforts on a project's firmware but the pictures for those entries are of hardware being assembled, this may reflect negatively on that student's pictures score. In addition, pictures utilized in student laboratory notebooks should be unique; several images of an object taken from different angles will only be counted as a single image. Pictures instantiated in project notebooks should be small, in terms of physical size as well as in terms of file size. This will ensure that the notebook loads quickly and is simultaneously easy to read. However, the course staff would like to see actual images in the content of student lab notebooks, so please do not simply use hyperlinks to project notebook photos.

The recommended best practice for lab notebook images is to create a small (600x450 px or less) image, insert that into the project notebook, and then modify that image to include a hyperlink to the larger source image. Use of JPEG and PNG formats for images is highly recommended, as historically the use of bitmap and tiff image formats have caused occasional problems in the notebook capture software. Gimp and ImageMagick are two excellent programs that students may find useful for resizing images and converting between file formats.

A student's project notebook should contain at least one image for each of the three notebook evaluation periods. Notebooks containing zero images in a given evaluation period will receive a score of zero for the Pictures, Drawings, and Diagrams section of their notebook grade.

2.3 Update Record:

The update record portion of a notebook evaluation score is to ensure students are writing about project developments in a timely fashion (rather than weeks or months after the fact) and that students are making steady, consistent progress towards the completion of their senior design projects.

Update records are evaluated in two ways. Nightly captures are made of project notebooks, to prevent students from writing several weeks' worth of progress in a single night. In addition, the dates used on project notebook entries are checked during grading, to ensure that steady, consistent progress is being made towards a project. To receive a high score on the update portion of one's project notebook, a student should take brief notes (handwritten, computer, or otherwise) of the work they are performing while they're doing it. Once a particular piece of work has been done, a more detailed project notebook entry should be written that describes the work performed (do this within 3 days of performing the work described to receive an optimal score). For an optimal project notebook score, write a new project entry at least once every 3 days (dated as well as actually written).

A common pitfall many students suffer from is a failure to update the ONLINE version of their project notebook on a regular basis. It is common for students to have offline versions of their project notebook, such as a Word file, and then not update the online version of their notebook until just prior to the notebook submission deadline. Doing so hurts the student's update score, as the course staff have no way of knowing when notebook entries were actually written. Another common pitfall many students suffer from is a failure to properly date their lab notebook entries. A common practice is to copy/paste a single template notebook entry for new notebook entries. This is fine, but if done carelessly all entries will have the same (incorrect) notebook date and project progress will be more difficult to determine and grade from the perspective of the course staff.

2.4 Weekly Summaries:

At the end of each week of work in a student's project notebook, it is expected that he or she write a weekly summary briefly describing the major project accomplishments of the previous week. In order to receive maximum points on this portion of the notebook evaluation score, it is important that weekly summaries be 2-3 complete, concise sentences. Additionally, these summaries should be project-oriented and focus on progress made on the project. It is common for students to describe presentations done or homework assignments written, but these topics should be avoided in weekly summaries.

2.5 Technical Writing Style and Clarity:

Along with technical detail, this section of your notebook forms the “core” of your project notebook, and is thus weighted heavily in the evaluation grade. To receive a high score in this section, a student must write professionally. Proper spelling and good grammar are essential for high quality technical writing, and are thus necessary for full points. A useful method for improving one's score in this section is to copy and paste the contents of one's project notebook into a text editor that features a spell checker. Spelling and grammar mistakes can then be identified and corrected prior to a lab notebook evaluation.

3.0 Maintaining Lab Notebooks in the Event of Student Absences

Over the course of the semester, circumstances may arise in which a student is unable to

maintain his or her ECE477 laboratory notebook for some period of time. Examples of such circumstances include job interviews, conferences, unexpected illness or accident, or family bereavement. In the event that such circumstances arise, please contact course staff so that they are aware of the absence and can handle it accordingly. No activity is required in the event of holidays and official university student breaks and holidays (such as fall break, spring break, etc.).