Senior Project Notebooks

Senior Projects Notebook Purpose and Grading

Text from the syllabus
"All students must maintain a notebook that reflects the quality and quantity of their individual design activities. The intent is for students to do all their thinking in the notebook. It should contain ideas, sketches, diagrams, equations, calculations, test data, questions, plans, and findings. Its purpose is to help understand and organize the design process. Ideas should be transferred from the notebook to class deliverables, not the other way around. Typically, at least one notebook is filled each semester. Advisors will review notebooks periodically and provide feedback to ensure that the end of the term notebook grading produces no surprises."

The notebook should be utilized as an engineering design tool to promote

- Development and capture of nascent ideas, concepts, plans
- Expression of engineering concepts in sketches and diagrams -- the *lingua franca* of engineering
- Articulation of technical, logistic, procedural questions
- Recording of experimental data and design findings
- Organization of team activities
- Tracking of personal commitments, tasks and actions items
- Keeping of notes from class, meetings, working sessions

Notebook assessment goals, metrics and expectations

- The notebooks represent a student's contribution to the project and count for up to 10 percent on the student's final grade. Because it can often be difficult to separate student performance based on peer review, the notebook should be used as a clear method for assessing a student's contribution on the project. There is a strong correlation between poor student performance on a team and a poor notebook. Although strong performers sometimes have a poor notebook, this is still indicative of disorganization or sloppiness that is not compatible with professional engineering standards, and the notebook grading rubric encourages the development of these important organization and neatness skills. Given the importance of the notebook in the overall evaluation it will be given a significant weight and graded on a point scale where an average or acceptable notebook receives 6 points. In this view a student is earning points toward their final grade (0 to 10) for their notebook.
- A good notebook will have sufficient quality of work as well as quantity. Students are expected to have 4-5 pages in their notebook for each week of the semester. With a 16 week semester the expectation is 64 to 80 pages. Since the notebook expectations were not distributed at the beginning of the Fall term, the page count expectations for the Fall will be prorated based on the remaining 12 weeks. The Quality Metric (QM) is judged as indicated below. Final notebook grade (0-10 scale) is then given by QM*page count/30. Thus a full semester notebook of 75 pages with a QM of 4 would have a notebook score of 10. A notebook of 30 pages containing mostly to-do lists (QM = 2 would have a notebook grade of 2. An average notebook (6 points) could then be found with 60 pages and a QM of 3. Neatness of the notebook is important inasmuch as it

must be intelligible to make the QM judgments. If it is too sloppy to tell, credit for engineering content can't be given. Size of handwriting should also be taken into account. Grid sized characters and double spaced writing is considered typical in the page count. Smaller or larger writing should alter the page count proportionally. Likewise, simple diagrams that fill a whole page should not count as much as a page of many more compact diagrams or sketches. Finally, although engineering design content is of primary importance, this is a team effort and a good overall design can only result from an organized team with engaged members. Accordingly, the notebook must reflect a sincere effort to organize and contribute to the team effort with coordinated work plans, questions for other members/subsystems, and resulting to-do lists.

- In this class, the notebook is primarily a tool to facilitate engineering design, rather than a record of intellectual property. Accordingly, some of the common practices for engineering notebooks are not required, such as beginning each day's work on a right hand page, having each page witnessed and signed, or doing all work in ink. However, some of the common practices are useful in the design process and are required: each page will be dated, external work (e.g. from computer modeling or simulation) will be pasted into the notebook, and no work should be erased even if it is later found to be incorrect or inappropriate for the design. Instead it should be crossed out with an annotation explaining why.

Quality Metric (QM): 0-4 points total

0 - No Notebook	1 - Unacceptable	2 - Poor	3 - Good	4 - Excellent
	Mostly notes from class, or notes from team meetings, i.e. mostly input from others, little output from the student	Contains some output from the student, such as organization plans, questions, and to-do lists, but little engineering design content is present (< 25%)	Contains recognizable organization efforts and engineering design content, including some diagrams, drawings, sketches, equations, calculations, data, findings, but non-engineering content predominates.	Strong organization efforts, but engineering design content predominates the notebook, with pages mostly (e.g. > 75%) containing diagrams, drawings, sketches, equations, calculations, data, findings.