



FTC Team Duct Tape #2845 Engineering Notebook Guidelines & Template

www.TeamDuctTape.com

We've created this short guide and the attached template to help teams create solid engineering notebooks for the FIRST Tech Challenge competition. An engineering notebook should provide a complete chronicle of your season build, from conception through design, build and programming, as well as document your outreach and training experiences. Ideally, if your notebook is done properly, someone should be able to recreate your robot from the information in your notebook.

Some good resources for learning about FTC engineering notebooks include:

- **TechnoGuards online engineering notebook log:** <http://ftcengineering.org/>
- **Team Unlimited Power Point and PDF guide to creating a good engineering notebook** along with lots of other great team resources at <http://www.ftc0001.org/Resources.htm>

Officially, here's the **FIRST Tech Challenge Game Manual, Part I, Section 3** (Rev 4 Sept - 2012 15 © FIRST Tech Challenge) says about the Engineering Notebook http://www.usfirst.org/sites/default/files/uploadedFiles/Robotics_Programs/FTC/Game_Info/2012/FTC-2012-2013_GameManual_Part1.pdf

3.3 The Notebook

Teams may choose to record their season with either handwritten or electronic or online documents. No distinction is made between handwritten and electronic Engineering Notebooks during judging.

Electronic/Online: Teams may choose to use electronic or online programs to create their Engineering Notebook. For the purposes of judging, teams must print out their Engineering Notebooks and place them in a binder, no larger than 1.5". All pages must be numbered and in order. Only one copy is required per team. Some events are piloting a video judging process for the 2012-2013 season. Your local Affiliate Partner will notify you if your event is piloting this and will let you know how to submit materials.

Written: Spiral-bound, Laboratory, or documentation notebooks are available through your school or local stationary supply store or you may use the notebook supplied by Rockwell Collins delivered to you in your Kit of Parts. Use the following criteria:

1. Do not use a loose-leaf notebook.
2. Numbered pages are recommended (but not necessary) so that pages cannot be substituted or deleted.
3. Only one Engineering Notebook is required per team.
4. Multiple teams may not share an Engineering Notebook.

3.4 Guidelines/Format

The FTC engineering notebook is a complete documentation of your team's robot design. This documentation should include sketches, discussions and team meetings, design evolution, processes, obstacles, and each team member's thoughts throughout the journey for the entire season. A new notebook should be created for each new season. The guidelines are:

1. Document EVERYTHING!!
2. **Engineering Notebooks should be organized enough to have an outsider understand your team and your journey.**
3. Written entries should be in permanent ink – not pencil.
4. Start your notebook by introducing each team member and mentor with a brief biography of their name, age (or school year), interests, and reasons for joining your FTC team. **Tip:** Pictures along with the bios would serve as a great visual for the judges to get to know each member of your team.
5. Start a fresh page at every meeting. The date, and start/stop times should be recorded when starting a new page. Each day should start with two columns:
 - a. Task Column – What is your team doing and discovering?
 - b. Reflections Column – Where your team records thoughts on what is happening and any questions that need to be answered.
6. Entries should be made by every team member, initialed, and dated.
7. All designs and changes to your robot should be recorded directly into your notebook. The inclusion of all details and sketches are preferable. Notes and calculations should be done in your

**From the FIRST Tech Challenge Game Manual, Part I, Section 3 – cont'd
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notebook, NOT on loose paper. **Tip:** A judging panel is always interested to see a unique design or playing strategy. On the other hand,

- a design without the substance to support its reasoning is not viewed as highly.
8. In the case of an error, draw a single line through the incorrect data. Do NOT erase or use correction fluid. All corrections should be initialed and dated.
 9. Use both sides of a page. Never leave any white space: “X” out or crosshatch all unused space, and initial and date.
 10. To insert pictures or outside information into your notebook, tape the picture into your notebook and outline with permanent ink, to note that it was there in case it falls out. Put the corresponding page number on that inserted page. **Tip:** Pictures or sketches of your robot designs are recommended as part of a thorough documentation.
 11. Insert a copy of your robot’s Bill of Materials (BOM) as part of your Engineering Notebook as required by rules in the annual Game Manual. **Tip:** Bring a second copy of the BOM for robot hardware inspection.
 12. The Engineering Notebook is also a good place to discuss and show team activities that are done throughout the team’s season. These activities can be placed in a separate section of the Engineering Notebook or chronologically within the design pages.
 13. Include your team number inside your engineering notebook and on the cover so it is clear who to return it to after the judges have seen it.

3.5 Judges’ Tips

1. Every notebook is a work in progress, forever changing and developing. Judges do not want to see a “final” copy notebook if yours is handwritten; they want the real thing complete with misspellings, stains, worn edges and wrinkled pages. Just remember to keep it real!
2. When turning notebooks into the judges at your event, place sticky tabs at the top of the page on your top 6-12 best moments as a team. Judges will use these pages as their preliminary review of your notebook.
3. Customize your Engineering Notebook to reflect your team’s personality. At the end of the season, this notebook will be a great piece of memorabilia for your team.

Team Duct Tape #2845 Engineering Notebook Template – adapt freely

***[Team Name & number] ENGINEERING NOTEBOOK
2012-13***

Table of Contents

Page (<i>#s will vary in your book</i>)	Meeting Date	Topic
1		About [your team name] – <i>student pics & bios</i>
2		Bill of Materials
3, etc	Date	Type of meeting (<i>programming, design, etc</i>)
		Community Involvement, Training
		Letters of Acknowledgement/Recognition,etc

Engineering Notebook Entry Template

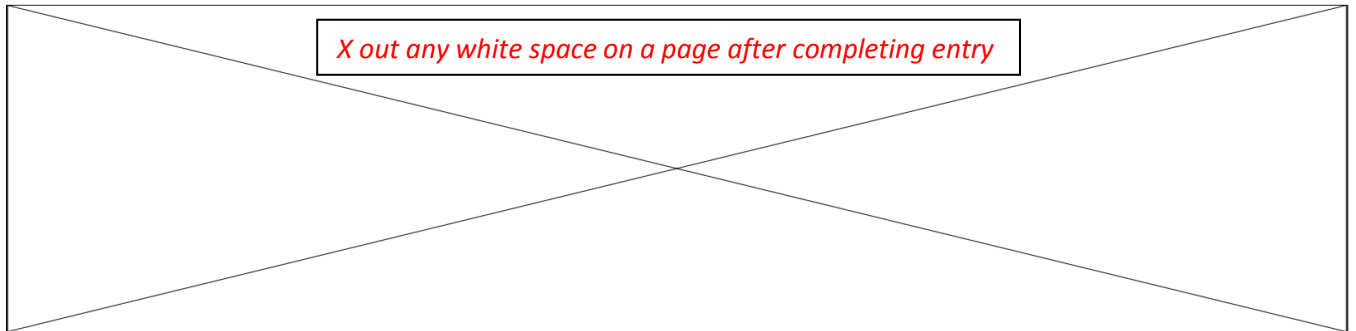
[Team Name & Number] Engineering Notebook

Date: Meeting times: Type of Meeting: [Brainstorming, design, programming, etc.]

Entry by: [student name]

Tasks (<i>what we had to do</i>)	Reflections (<i>how it went</i>)

Narrative (please be detailed in your descriptions of challenges, solution efforts and achievements, and include photos and drawings):



Team member initial _____

Date _____

Page #