2016 Kansas BEST Breakout Sessions

Notebook
September 10, 2016
AGENDA

- Questions for you!
- Documentation Matters!
- Important Dates
- Why the Notebook Matters?
- Cover Information
- Notebook Tips
- What We Are Looking For In Your Notebook
- Lessons Learned
- Contact Information
- Questions & Answers
How many of you read the Notebook Rubric last year???

How many of you followed the Notebook Rubric last year???

How many of you read the judge score and feedback sheets last year???
DOCUMENTATION MATTERS!

- The Notebook is your team’s opportunity to tell the journey of your team and robot

- Purpose of the Notebook
  - To document the process your team used to design, build, and test your robot!

- The Notebook is the **MOST** important part of the Engineering process
  - Record of the process and plans for future
  - Way to share information with your team, instructors, mentors, school administrators, and most importantly...the JUDGES!!!
IMPORTANT DATES

- Notebooks must be submitted at check in on Practice Day...October 15th!!! NO EXCEPTIONS!!!

- Notebooks will be returned at registration on Game Day...October 22nd!!!
Why the Notebook Matters?

- ALL teams are required to submit a Notebook

- Based on your Notebook score, four teams will have a chance to fill the “Wildcard” spot in the playoff round of the competition!

- Notebooks are the tie breaker for teams this year!

- Notebook Score – 30 points
  - Overall Quality & Completeness – 9 points
  - Design Process – 17 points
  - Research Paper – 4 points
Put this on the COVER of your binder:

Bet the Farm

<Insert School Name>
Team #: <Insert Team #>
October 22, 2016

Teacher: <Insert Teacher Name>
Phone #: <Insert Phone Number>
E-mail: <Insert email>
**NOTEBOOK TIPS!**

- **START ON THE NOTEBOOK NOW!!!**
- Select a few students to lead & compile the notebook
- *Read the Rules, Read the Rules, Read the Rules*
- Make a checklist of what you need/want in the notebook
  - Start with an outline
- Take notes EVERY day
  - Have each group write a summary at the end of every day
- Include ALL design decisions and your reason for making the decision
  - Also include rejected designs and why they were rejected
**NOTEBOOK TIPS...PART TWO!**

- Use graphics, drawings, and/or photos to show the progress of your team and robot.
- Include a summary.
- Imagine you are explaining your robot to someone who doesn’t know anything about your robot!!
- Have people NOT familiar with the competition **PROOFREAD** your Notebook!!
  - Parents, teachers, other students, etc.
- A well-organized report will make it easy for the judges to read and evaluate!
  - Remember...they determine your score!!!
WHAT WE ARE LOOKING FOR IN YOUR NOTEBOOK!!!
RESEARCH PAPER

- Belongs in Main Section of Notebook – NOT in Appendix!
- Correlation:
  - A clear connection on how the technology relates to the state or region
- Related Information:
  - At least a paragraph
- Creativity:
  - Try using something other than the first link in your Google search
  - Try to use a non-biased source
- Proper use of Grammar:
  - In text citations
  - Use a MINIMUM of three sources
  - APA or MLA citations ONLY...be CONSISTENT!!
- [https://owl.english.purdue.edu/owl/section/2/](https://owl.english.purdue.edu/owl/section/2/)
DESIGN PROCESS – IMPLEMENTATION OF ENGINEERING DESIGN PROCESS

- Specify which Engineering Design Process you use
- Describe the Engineering Design Process in YOUR OWN WORDS!!
- Describe HOW your used each step of the Engineering Design Process in your robot design
DESIGN PROCESS – BRAINSTORMING APPROACHES

- Show organization in your brainstorming
- Describe HOW you did your brainstorming
- Explain ideas and pros and cons for EACH idea
- Putting your ideas in a table is a good way to communicate what your ideas were:

<table>
<thead>
<tr>
<th>Part of Robot</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part of Robot 1</td>
<td>Easy to build</td>
<td>Limited mobility</td>
</tr>
<tr>
<td></td>
<td>Easy to mount</td>
<td></td>
</tr>
<tr>
<td>Part of Robot 2</td>
<td>Cool</td>
<td>Hard to build</td>
</tr>
<tr>
<td></td>
<td>Team idea</td>
<td>Hard to fix</td>
</tr>
<tr>
<td>Part of Robot 3</td>
<td>Robust</td>
<td>Complicated</td>
</tr>
<tr>
<td>Part of Robot 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part of Robot 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DESIGN PROCESS – ANALYTICAL EVALUATION OF DESIGN ALTERNATIVE

- LOTS of room for improvement from ALL teams! 😊
- Give reasons WHY a design was selected or not selected
- List your design ideas
- Describe your decision making process
- Describe why you chose the design you did

TIME FOR A GROUP ACTIVITY!!! 😊
GROUP ACTIVITY EXAMPLE

- Rachel and Allison are HUNGRY and need to pick a restaurant to go out to eat

- Develop criteria
  - Driving time
  - Cost
  - Anticipated Wait Time
  - Speed of Service

- Weight each criteria based on importance to you
  - Driving time – 15%
  - Cost – 50%
  - Anticipated wait time – 10%
  - Speed of service – 25%
GROUP ACTIVITY EXAMPLE, CONT.

- Create a matrix of your brainstormed ideas and your weighted criteria
- Define what values mean
  - Driving Time: 5 is closest, 3 is avg, 1 is farthest
  - Cost: 5 is cheapest, 3 is avg, 1 is most expensive
  - Anticipated wait time: 5 is shortest, 3 is avg, 1 is long
  - Speed of service: 5 is fastest, 3 is avg, 1 is slowest
- Average each idea

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Driving time</th>
<th>Cost</th>
<th>Anticipated wait time</th>
<th>Speed of Service</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>15%</td>
<td>50%</td>
<td>10%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Jason's Deli</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4.45</td>
</tr>
<tr>
<td>On The Border</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>Chipotle</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>Cheddars</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2.25</td>
</tr>
<tr>
<td>Newport Grill</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.3</td>
</tr>
</tbody>
</table>
DESIGN PROCESS – OFFENSIVE AND DEFENSIVE EVALUATION

- Describe your scoring strategy
- Describe how your strategy influenced your robot design
- Defensive strategy does not have to be against another robot...try defending against:
  - Game field
  - Potential robot failures
  - Driver error...it happens!
  - Have a back up scoring strategy
SOFTWARE DESIGN AND SIMULATION

- We would like to understand your analytical approach taken for the software design
  - Evidence that you customized your software design
  - Demonstration of software design processes
  - Evidence that you used simulation (Simulink) to verify your robot is operating correctly
  - Consideration of good software design processes
    - Naming conventions
    - Comments
    - Design simplicity
    - Modularity
DESIGN PROCESS – SAFETY

- Don’t include picture of your team members engaging in unsafe activity. YOU WILL BE GIVEN ZERO (0) FOR YOUR SCORE!!!
  - Don’t know what unsafe is??? Use common sense AND ASK YOUR TEACHER!!!
- Describe your team’s good safety practices
- Show evidence of safety training
  - Training outline, class description, etc.
- Show evidence that safety training was completed
  - Quiz results, attendance roster, etc.
DESIGN PROCESS – SUPPORT DOCUMENTATION/APPENDIX

- No Appendix = No Support Documentation
- Support Documentation/Appendix IS:
  - Charts, figures, drawing, pictures, organizational charts, meeting minutes, test results, etc. that are LABELED and REFERENCED IN YOUR MAIN DOCUMENT!!!

**NOTHING GOES IN THE APPENDIX THAT IS NOT REFERENCED IN YOUR MAIN DOCUMENT!!!**

- Support Documentation/Appendix is NOT:
  - Random papers thrown in at the end of notebook
  - Papers with tattered edges
  - Illegible hand written notes
OVERALL QUALITY AND COMPLETENESS

Demographics Sheet:
- Simple: No competition if not turned in!

Organization and Appearance:
- Table of contents WITH PAGE NUMBERS!
- Executive Summary at the BEGINNING OF YOUR NOTEBOOK
- See Support Documentation/Appendix Slide

Adherence to Specifications:
- SUPER DUPER EASY POINTS!!!
- See Notebook score sheet!!!

Quality of Content:
- Make it obvious that YOU spent MORE time on your notebook than the judges did!
- All pictures need to be labeled
- Ensure accuracy of information and completeness of notebook
OVERALL QUALITY AND COMPLETENESS CONT.

- Label your pictures!!!
- Don’t use torn out notebook pages
- TABLE OF CONTENTS NEEDS TO HAVE PAGE NUMBERS!!!
  - Use Microsoft Word…it will do this **automatically**!!! 😊

<table>
<thead>
<tr>
<th>Table of Contents</th>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>Section 1</td>
</tr>
<tr>
<td>Section 2</td>
<td>Section 2</td>
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<tr>
<td>Section 3</td>
<td>Section 3</td>
</tr>
<tr>
<td>Section 4</td>
<td>Section 4</td>
</tr>
</tbody>
</table>

**NOT OK!!!
LESSONS LEARNED FROM THE PAST

- Use standard font size
  - Give many examples for your design concepts, brainstorming ideas, etc.
  - No Wikipedia references for research paper!!!
  - Show understanding of the engineering process throughout the notebook
  - Follow guidelines on page limits and binder type
  - Ideas for appendix include design sketches, safety test, calculation sheets, analysis of design concepts

See how annoying this is?!?!?!
SCORE SHEETS FROM LAST YEAR

- Hand out score sheets from last year!

- USE THESE TO MAKE IMPROVEMENTS TO YOUR NOTEBOOK!!!
2016 Kansas BEST Contacts

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- Websites
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  - http://www.bestinc.org/
  - https://owl.english.purdue.edu/owl/section/2/
QUESTIONS?