Engineering Notebook Rubric

Team #:_____

Program level: ☐ Middle   ☐ High

Judges: _____
_____
_____

Rubrics are strictly confidential; they are not shared beyond the Judges/Judge Advisor and shall be destroyed at the end of the event.

Directions: Write the points in each row for the criterion that best describes the performance of the Engineering Notebook on each topic. Total the points.

Topic		Criteria			Points
		Expert *(4-5 points)*	**Proficient** *(2-3 points)*	**Emerging** *(0-1 points)*	
Engineering Design Process	Identify game and drone design challenges and goals	Identifies the game challenge or drone design challenge in detail at the start of each design process cycle with words and pictures. States the goals for accomplishing the challenge.	Identifies the challenge at the start of each design cycle. Lacking details in words, pictures, or goals.	Does not identify the challenge at the start of each design cycle.	
	Brainstorm and diagram or prototype solutions	Lists three or more possible solutions to the challenge with labeled diagrams. Citations provided for ideas that came from outside sources such as online videos or other teams.	Lists one or two possible solutions to the challenge. No citations provided for ideas that came from outside sources.	Does not list any solutions to the challenge.	
	Select the best solution and plan	Explains why the solution was selected through testing and/or a decision matrix. Fully describes the plan to implement the solution.	Explains why the solution was selected. Mentions the plan.	Does not explain why the solution was selected or does not mention the plan.	
	Build and program the solution	Records the steps to build and program the solution. Includes enough detail that the reader could recreate the solution following the steps in the Notebook.	Records the key steps to build and program the solution. Lacks sufficient detail to recreate the solution.	Does not record the key steps to build and program the solution.	
	Test solution	Records all the steps to test the solution, including test results.	Records the key steps to test the solution.	Does not record the steps to test the solution.	
	Repeat design process	Shows that the design process is repeated multiple times to improve performance on an individual design goal or overall drone or game performance.	Shows that the design process is not often repeated for individual design goals or overall drone or game performance.	Does not show that the design process is repeated.	
	Usefulness and repeatability	Records the entire design and development process in such great clarity and detail that the reader could recreate the project's history and build the current drone from the notebook.	Records the design and development process completely but lacks sufficient detail to fully recreate the entire project or drone.	Does not record the design and development process or lacks sufficient detail to understand the design process.	
	Record of team and project management	Provides a complete record of team and project assignments; a bound notebook should be in ink; notes from team meetings including goals, decisions, and accomplishments; name or initials of author; each page numbered and dated. Design cycles are easily identified. Includes Table of Contents and/or Index so anyone can easily locate needed information.	Records most of the information listed at the left. Not written in ink. Organized so that team members can locate most of the needed information.	Does not record most of the information listed at the left. Not organized; needed information difficult to locate.	
	Notebook construction	Five (5) points if notebook is bound. If a Digital Engineering Notebook or a printed copy one, five (5) points if the entries contain a time stamp that can be confirmed.	Zero points for any other notebook.	Zero points for any other notebook.	
Describe a few of the best features of the Engineering Notebook:				Total points for Engineering Notebook	

Team Interview Rubric

Team #: _____

Program level: ☐ Middle ☐ High

Judges: _____
_____
_____

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Directions: Write the points in each row for the criterion that best describes the quality of the interview. Total the points.

Topic	Criteria			Points
	Expert *(4-5 points)*	**Proficient** *(2-3 points)*	**Emerging** *(0-1 points)*	
Engineering Notebook	Students have clearly documented their approach to game strategies and students can fully explain their current plan.	Students have documented their game strategy; students can explain how and why the current game strategy was chosen.	Students have not documented or explained how and why the current game strategy was chosen.	
Project and Team Management	Students can explain how multiple team members have worked together to create a safe and efficient operation. Students are cross trained.	Students have a limited understanding of how tasks were assigned. There is a plan in place, but it is not detailed. Some members are cross trained.	Students cannot explain how tasks were assigned and were not cross trained.	
Team Communication during a match	Students have a detailed plan on how they communicate with one another both on and off the field.	Students have a limited plan on how to communicate either on or off the field.	Students do not have a communication plan in place.	
Respect and courtesy	Students answer respectfully and courteously. Students make sure each team member contributes. Students wait to speak until others have finished.	Students answer respectfully and courteously. Some students attempt to contribute but are interrupted by other students.	Students do not answer respectfully and courteously. Students interrupt each other or the Judges.	
Design/3D Printing or Modeling	Engineering goals and constraints are clearly defined and addressed. Iterations or alternative design pathways are well documented. 3D modelling demonstrates consideration for the assembly / fabrication of a physical model. (3D printing is a process, never completed)	Engineering goals and constraints are referenced. Iterations and alternative designs are addressed. 3D modelling may consider the assembly / fabrication of a physical model.	Engineering goals and constraints, design iterations or alternatives, and the assembly / fabrication of a physical model are minimally addressed or absent.	

Describe a few of the best features of the team interview:		
	Total points for Team Interview:	
	Total points for Engineering Notebook:	
	Total points for both rubrics:	