

Engineering Notebook Rubric

Team # _____ Grade Level ES | MS | HS | University Judge Name _____

Directions: Determine the point value that best characterizes the content of the Engineering Notebook for that criterion. Write that value in the column to the right. This rubric is to be used for all Engineering Notebooks regardless of format (physical or digital).

CRITERIA		PROFICIENCY LEVEL			POINTS
ENGINEERING DESIGN PROCESS	EXPERT (4-5 POINTS)	PROFICIENT (2-3 POINTS)	EMERGING (0-1 POINTS)		
IDENTIFY THE PROBLEM	<u>Identifies</u> the game and robot design challenges <u>in detail at the start of each design process cycle</u> with words and pictures. States the goals for accomplishing the challenge.	Identifies the challenge at the start of each design cycle. <u>Lacking details in words, pictures, or goals.</u>	<u>Does not identify the challenge</u> at the start of each design cycle.	_____	
BRAINSTORM, DIAGRAM, OR PROTOTYPE SOLUTIONS	<u>Lists three or more possible solutions</u> to the challenge with labeled diagrams. Citations provided for ideas that came from outside sources such as online videos or other teams.	<u>Lists one or two possible solutions</u> to the challenge. Citations provided for ideas that came from outside sources.	<u>Does not list any solutions</u> to the challenge.	_____	
SELECT BEST SOLUTION AND PLAN	Explains why the solution was selected through testing and/or a decision matrix. <u>Fully describes the plan</u> to implement the solution.	Explains why the solution was selected. <u>Mentions the plan.</u>	<u>Does not explain any plan</u> or why the solution or plan was selected.	_____	
BUILD AND PROGRAM THE SOLUTION	Records the steps to build and program the solution. Includes <u>enough detail that the reader can follow the logic</u> used by the team to develop their robot design, as well as recreate the robot design from the documentation.	Records the key steps to build and program the solution. <u>Lacks sufficient detail for the reader to follow the design process.</u>	<u>Does not record the key steps</u> to build and program the solution.	_____	
TEST SOLUTION	<u>Records all the steps</u> to test the solution, including test results.	<u>Records the key steps</u> to test the solution.	<u>Does not record steps</u> to test the solution.	_____	
REPEAT DESIGN PROCESS	Shows that the <u>design process is repeated multiple times</u> to improve performance on a design goal, or robot/game performance.	<u>Design process is not often repeated</u> for design goals or robot/game performance.	<u>Does not show that the design process is repeated.</u>	_____	
INDEPENDENT INQUIRY	Team shows evidence of independent inquiry <u>from the beginning stages</u> of their design process. Notebook documents whether the implemented ideas have their origin with students on the team, or if students found inspiration elsewhere.	Team shows evidence of independent inquiry for <u>some elements</u> of their design process. Ideas and information from outside the team are documented.	Team <u>shows little to no evidence</u> of independent inquiry in their design process. Ideas from outside the team are not properly credited	_____	
USEABILITY AND COMPLETENESS	<u>Records the entire design and development process</u> in such clarity and detail that the reader could recreate the project's history.	Records the design and development process completely but <u>lacks sufficient detail.</u>	<u>Lacks sufficient detail</u> to understand the design process.	_____	
RECORD OF TEAM AND PROJECT MANAGEMENT	Provides a <u>complete record of team and project assignments</u> ; team meeting notes including goals, decisions, and building/programming accomplishments; design cycles are easily identified. Resource constraints including time and materials are noted throughout.	Records <u>most of the information listed</u> at the left. Level of detail is inconsistent, or some aspects are missing.	<u>Does not record most of the information</u> listed at the left. Not organized.	_____	
NOTEBOOK FORMAT	Five (5) points if the notebook has evidence that documentation was done in sequence with the design process. This can take the form of dated entries with the names of contributing students included and an overall system of organization. For example, numbered pages and a table of contents with entries organized for future reference. Partial points may be awarded if this is inconsistent or incomplete.			ZERO POINTS (DOES NOT MEET CRITERIA) If awarding zero points, please include details in the "NOTES" area below	
NOTES: 				TOTAL POINTS _____	