Future Engineers 2026 - Documentation Rubric

	Criterion	What is evaluated	What Evaluators are looking for	6	4	2	0
1	Mobility & Mechanical Design	Chassis Design choices, Steering and drive mechanism justification, Torque/speed reasoning, mechanical stability	Drive/steering system choices, mechanical structure, mounting, torque/speed reasoning, design justification	Includes torque/speed reasoning; design trade-offs; why components were chosen; testing or iterations affecting performance	Clear explanation of chassis, drive, steering; diagrams included; reproducible	Describes what the robot looks like; no reasoning; no diagrams	No information provided or irrelevant content
2	Power & Sensor Architecture	Power system architecture, Current draw reasoning, Sensor selection justification, Sensor placement & calibration, Wiring diagrams	Power system layout, wiring, current strategy, sensor choices/placement, calibration, diagrams	Includes power budget; sensor trade-offs; placement justified using field geometry; calibration method; failure-point considerations; iteration evidence	Wiring diagram provided; sensor placement and selection explained; reproducible	Lists battery/sensors; no diagrams; minimal explanation	No power or sensor information provided
3	Software Architecture & Obstacle Strategy	Code modularity, State machines / flow logic, Lane following & obstacle obedience strategy, Explanation of algorithms, Code documentation	Code structure, modules, state machines, lane following, obstacle logic, algorithm explanation	State machine with rationale; algorithm justification (PID, CV, IMU, etc.); handling edge cases; testing/tuning process; metrics used to validate performance	Flowchart; clear module/function explanations; obstacle logic described; reproducible	Basic description of software; limited strategy details	Code pasted without explanation

4	Systems Thinking & Engineering Decisions	How subsystems work together, Engineering reasoning for decisions, Constraints & trade-offs, Iteration and testing cycles, Risk identification & mitigation	Subsystem interactions, constraints, trade-offs, iteration cycles, risk analysis, engineering reasoning	Explicit constraints; trade-offs; iteration cycles; risk/failure analysis; "why we chose X instead of Y" reasoning based on data or testing	Clear subsystem mapping; explanation of interactions and constraints	Some reasoning or descriptions; incomplete	No decision process visible
5	Reproducibility & GitHub Quality	GitHub structure and clarity, Commit history (at least 3 commits), README structure (≥5000 chars), File organization, CAD / wiring / code files included, Can another team reproduce this robot?	Repo completeness, folder structure, commit history, README quality, CAD/files, reproducibility	Fully reproducible system; clear project structure; commit messages meaningful; testing workflow documented; versioning or release notes included	README ≥5000 chars; correct commits; CAD/code/wiring included; reproducible	Repo exists but poorly structured; partial files; unclear	GitHub missing, broken, or incomplete