

Workcell Automation Open-Ended Challenge Rubric

Criterion	Beginning	Developing	Proficient	Exemplary
Planning and Brainstorming	Team generates 1-2 ideas. Little to no evidence of group discussion in the planning document. Most ideas come from a single team member.	Team generates 3-4 ideas. Planning document shows some back-and-forth discussion. At least half of team members contribute ideas.	Multiple ideas generated, active team discussion.	Team generates a wide range of innovative ideas, engages in thorough discussions, and critically evaluates each suggestion. All members contribute unique perspectives, building on each other's ideas to create comprehensive, creative solutions.
Pseudocoding	Pseudocode is very basic or unclear. Covers only 1-2 main components of the Workcell needed to fulfill the Shipping Manifest. Steps are vague and lack logical order.	Pseudocode outlines the use of 3-4 main components of the Workcell needed to fulfill the Shipping Manifest (e.g. conveyors, diverters, Disk Feeder). Steps are in a general logical order but lack specific details. No comments explaining the process or student thinking.	Pseudocode clearly outlines the use of all main components of the workcell needed to fulfill the Shipping Manifest. Steps are specific, in logical order, and include some implementation details. Includes brief comments explaining the purpose of major steps.	Pseudocode clearly outlines the use of all main components of the workcell needed to fulfill the Shipping Manifest, including some advanced features. Steps are specific and in logical order. Includes detailed comments explaining major steps. Some potential challenges are considered.

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Coding and Execution	Code is incomplete (less than 50% of required functionality implemented) or contains critical errors preventing execution. No comments.	Code implements 50-75% of required functionality. Contains minor errors that impact performance but allow partial execution. Minimal commenting.	Code implements over 75% of required functionality without critical errors. Executes all main tasks successfully. Contains comments for major sections.	Code implements 100% of required functionality plus additional optimizations. Executes all tasks flawlessly. Comprehensive, clear comments explain sections and decision-making. Evidence of thorough testing.
Teamwork and Collaboration	Limited communication, uneven participation.	Some communication, most team members participate.	Good communication, all team members contribute.	Team demonstrates exceptional synergy, with members actively supporting and enhancing each other's work. Communication is clear, frequent, and constructive. Roles are well-defined yet flexible, with members adapting to challenges collaboratively.
Accurate and Timely Completion of the Shipping Manifest	More than 2 errors are made when Delivering products. AND The Shipping Manifest is fulfilled in over the maximum time.	2 or fewer errors are made when Delivering products. AND The Shipping Manifest is fulfilled under the maximum time.	1 or fewer errors are made when Delivering products. AND The Shipping Manifest is fulfilled at or very near the optimal time.	No errors are made when Delivering products. AND The Shipping Manifest is fulfilled under the optimal time.