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Unit: 4001 Engineering Design

Assignment: A1

Title: Engineering Design Proposal

Task 1 Summary: I selected an automated bottle-sorting fixture for SME packaging lines.

The proposed system includes feeder, optical sensor, reject gate, and PLC control.

I justify feasibility with component availability, maintenance simplicity, and cost control.

Task 2 Evidence: I produced a weighted concept matrix against reliability, safety, cost, manufacturability, and maintainability. The preferred concept scored highest overall.

Task 3 Planning: I built a phased delivery plan with review gates and risk mitigations.

Task 4 Technical Detail: I provided CAD layout assumptions, tolerance notes, and BOM draft.

Risk controls include guarding, interlocks, and emergency stop validation.

Verification plan includes dry-run, calibration checks, and acceptance criteria.

Reflection: The design meets assignment outcomes for structured planning, technical justification, and communication. Additional work is needed for full lifecycle costing.