

Robot Automation Workcell Challenge

In the Automation Workcell Challenge, students design, build, and operate an autonomous work cell that performs one or more manufacturing simulations while being judged.

Rules

1. Team size will be determined by the instructor.
2. Each team is to design an automated workcell.
3. Each work cell part may include one or more robots plus any additional units.
4. Teams may use Vex or other controllers.
5. Teams may supplement the Vex parts with store bought or student fabricated parts. The cost of additional parts may not exceed \$100. A completed bill of materials with cost should accompany the student presentation.
6. Each team's automated workcell must be student designed. Teams must bring a copy of their engineering design workbook with them for the judges to review.
7. The work cell (including all support equipment) must function within a 4' x 8' floor space.
8. The workcell operation sequence shall not exceed 10 minutes, with an extra 5 minutes for questions from the judges.
9. California University of Pennsylvania will provide one(1) table, one(1) 110 standard outlet, 20 amp power strip.
10. Scoring is based upon:
 - Quality of the design
 - Safety design considerations
 - Performance/Operation
 - Workmanship
 - Proof of planning(Engineering design portfolio)
 - Bill of Materials with cost
 - Team presentation
11. Decision of the judges is final and binding.

Assessment Rubric

JUDGING AREAS	Possible Points	Team Evaluation
Quality of the design	50pts	
Safety design consideration	50pts	
Performance / Operation	50pts	
Workmanship	50pts	
Proof of planning (Engineering Design Notebook)	100pts	
Team Presentation	50pts	
Bill of Materials	50pts	
Total	400pts	

Teams competing in this event are required to perform a self evaluation before they present to the competition judges. Use the following as a reference when self assessing:

- 0 - **Not attempted**
- 10 - **Incomplete:** The task was not completed
- 20 - **Needs Improvement:** Task was completed, but not done very well
- 30 - **Adequate:** Task works, but is of average quality
- 40 - **Good:** Complete, high quality, works consistently
- 50 - **Industry Standard:** Complete, excellent craftsmanship, visually appealing, marketable