

MANUFACTURING PROTOTYPE

OVERVIEW

Participants design and manufacture a prototype of a product and provide a description of how the product could be manufactured in a state-of-the-art American industry. The specific theme for the 2004 conference is a "a game with written instructions and appropriate marketing package."

PURPOSE

The Manufacturing Prototype event provides an opportunity for TSA members to demonstrate their ability to create quality products using different materials with innovative features that have relevant application for consumers.

ELIGIBILITY

Entries are limited to two (2) individuals per chapter.

TIME LIMITS

Entries must be completed during the current school year.

PROCEDURE

- A. Participants check in their entries at the time and place stated in the conference program.
- B. Entries are reviewed by evaluators.
- C. Ten (10) finalists are announced at the awards ceremony.

REGULATIONS

- A. Each entry consists of the prototype itself and accompanying documentation.
- B. Prototype
 1. Only original products designed by the participant may be entered. A product made from a kit is not considered a prototype. However, standard hardware, pre-manufactured parts, and specialty items such as LED clocks, pens, bearings, gears, batteries, etc. may be purchased and used in the manufacture of the prototype.
 2. A prototype is a full-size working model.
 3. The products limited to 24" x 24" x 24". For example, a product with an antenna or similar parts must be contained within the stated maximum space displacement.
 4. The product should display good workmanship and effective use of the selected material (craftsmanship).

5. The product should function in a manner that solves the problem identified at the beginning of the challenge (appropriate solution).
6. The product must not include combustible engines or flammable fuels.
7. The product must not require external A/C power. Batteries may be used.

Documentation

1. The documentation is contained in a portfolio (a standard 1" three-ring binder) and is computer generated on standard 8 1/2" x 11" paper (except for the working drawing).
2. The portfolio contains the following sheets or multiple page sections in the following order:
 - a. Cover sheet--centered on the page in conservative lines, the product name, followed by conference site, and the conference date (single page).
 - b. Description of product--a written description of the product, use, its need or intent, and related safety considerations (single page).
 - c. Design efforts--sketches, pictures, magazine clippings, and other graphic design elements that were used in the development of the final design (3 pages maximum).
 - d. Working drawings--an orthographic dimensioned drawing, assembly, or pictorial may be presented, with orthographic drawing(s) shown first in this section. Drawings may be on paper no larger than B size (11" x 17") and folded to fit the three-ring binder (2 pages maximum).
 - e. Materials list--a bill of materials including costs (also, size and market value) used to fabricate the product must be incorporated. Each item or sub-assembly should be identified as student produced standard stock item, or purchased sub-assembly (one page).
 - f. Tool and machine list--a list of hand, power, and stationary tools used to fabricate the product (one page).
 - g. Production plans--either a production outline, flow chart, or spreadsheet of the product (6 pages maximum).

EVALUATION

Entries are evaluated on the documentation provided in the portfolio and on the quality of the product.

MANUFACTURING PROTOTYPE

EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

- A. Event coordinator
- B. Event evaluators, three (3)

MATERIALS

- A. Coordinator's box, containing:
 - 1. Event guide lines, four (4)
 - 2. Official rating forms
 - 3. List of entries, with finalist report
 - 4. List of event evaluators/assistants
 - 5. Marking pens for evaluators, three (3)
 - 6. Results envelope
- B. Tape measure to evaluate size of prototype
- C. Display tables for entries
- D. Chairs for evaluators

PROCEDURE

- A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's box. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.
- B. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
- C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairman. Entries turned in late are NOT considered unless the lateness has been caused by the oversight or negligence of the conference coordinators. Place entry numbers in the lower right hand corner of the display and on one (1) of the two (2) displayed products. Secure the entries in the designated area.
- D. Position the displays for viewing by the evaluators.
- E. One (1) hour before the event is scheduled to begin, meet with your evaluators/assistants to review time limits, procedures, regulations and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.
- F. For participants who violate the rules, the decision to deduct twenty (20) points or disqualify the entry must be discussed and verified with the event evaluators, event coordinator, and a CRC manager.
- G. Event evaluators evaluate the entries independently.
- H. Event evaluators tally and turn in the rating forms.
- I. Complete the finalist's report, including evaluators' signatures. Evaluators discuss and break any ties that affect the top three (3) placements.
- J. Submit the finalists report, including a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

MANUFACTURING PROTOTYPE	
2004-2005 OFFICIAL RATING FORM	Junior or HIGH SCHOOL
ENTRANT'S ID #	
EVALUATIVE CRITERIA	
Documentation (50 pts.)	
Cover sheet..... 2 pts.	
Description of product 8 pts.	
Design effort..... 8 pts.	
Working drawing 10 pts.	
Bill of materials 4 pts.	
Tool and machine list 3 pts.	
Production plan 15 pts.	
Product (50 pts.)	
Craftsmanship 15 pts.	
Product solution and function..... 15 pts.	
Uniqueness, originality 10 pts.	
Tolerance of examples..... 10 pts.	
SUBTOTAL 100 pts.	
Rules violation (if any)minus 20 pts.	
TOTAL 100 pts.	
Evaluator's comments/notes:	
I certify these results to be true and accurate to the best of my knowledge.	
Evaluator's signature _____	