

# STUDENT MANUFACTURING DESIGN COMPETITION

Held at the 2014 ASME International Manufacturing Science & Engineering Conference  
June 9-13, 2014, Detroit, Michigan, USA

## INTRODUCTION

Original student designs that focus on manufacturing engineering and science are sought. Any design of a system, component, or process that can be used to promote the art, science and practice of manufacturing engineering is acceptable.

- Computer integrated manufacturing and robotics
- Machine tools, sensors and controllers
- Manufacturing systems development
- Materials processing
- Emerging materials and processes for manufacturing
- Software and hardware solutions contributing to improvements in manufacturing productivity and throughput

## OBJECTIVE

The purpose of the competition is to foster interest in manufacturing, provide the manufacturing engineering community with fresh new perspectives on design, and create a forum for students to share their new and innovative ideas.

## ENTRY

A project may be entered in the competition by submitting a project description to the Student Manufacturing Design Competition Organizer. Entries must be received by March 21, 2014. Entries may be electronic if all materials are letter size (8.5 x 11.0 inches, or A4). One copy of oversize or nonstandard materials must be mailed and received by the deadline.

Finalists selected from the entrants (individual or group) will be expected to give an oral presentation of their project at the 2014 ASME International Manufacturing Science and Engineering Conference (MSEC). The use of visual aids and demonstration of actual working models are highly encouraged. Each student team may apply for supplemental travel support of up to US\$500 per team. Additional information regarding travel support will be sent with the notification of a team's selection as a finalist for the competition.

**Submissions should be sent to the Student Manufacturing Design Competition Organizer:**

**Shawn Moylan**  
National Institute of Standards and Technology  
100 Bureau Drive, M.S. 8220  
Gaithersburg, MD 20899-8220  
Tel: 301-975-4352  
Email: shawn.moylan@nist.gov

## DESCRIPTION

The project description should consist of a 1,500 to 3,000 word report with supporting figures and/or photographs. Items that must be included in the project description are:

- Project Title
- Names and permanent addresses of the participating students with one of the students indicated as the designated contact person
- The name and signature of a faculty sponsor complete with postal address, email address, phone number and fax number

A successful entry might also include:

- Description of the problem being solved including key requirements
- Functional description of the concept/idea/model/system for solving the problem including a description of the salient design features and manufacturing engineering content
- Design analyses of the concept based on key requirements
- A description of any tools, equipment and/or experimental setups to be used in evaluating the solution
- Discussion of how the concept improves upon existing designs and approaches to the problem
- A statement listing the percent contribution of the group members and any outside assistance (faculty, shop personnel, etc.)

Due to the deadline for the application (March 21, 2014) and the fact that such student design projects are often part of a senior design capstone project, it is understood that a working prototype will not necessarily have been completed by the time of the submission. Such projects will be judged based on the design and analysis of the concept.

### **ELIGIBILITY**

Any graduate or undergraduate student who is registered in school full time through Spring of 2014 or beyond and is a member of ASME is eligible to participate. Both individual and group projects are welcome. Individuals may participate in several entries provided each entry is on a different subject.

### **JUDGING**

Finalists will be selected on the basis of the project descriptions. Judges for the competition will be from industry, academia, and government. The first round of judging will be a panel review of the submitted project descriptions. The first round of judging will focus on the quality of the project description, creativity of the design, and integrity of the analysis and test approach for evaluating the solution based on stated requirements. Finalists will be notified by April 11, 2014.

For the final round of judging, finalists will be asked to make a fifteen minute presentation with three to five minutes for questions at the 2014 ASME International Manufacturing Science and Engineering Conference (MSEC). Travel expenses to and from the conference will be the responsibility of the student and/or faculty sponsor. A travel fund of up to US\$500 per team is available upon request. Judging for the final round will be based on the quality of the presentation as well as on creativity of the design and integrity of the analysis and test approach for evaluating the solution based on stated requirements.

### **AWARDS**

Cash prizes and awards will be presented at the Manufacturing Engineering Division's Banquet, which takes place at MSEC on the same day as the finalist's presentations. A complimentary banquet ticket will be provided to the finalists (one per team).

<b>First Prize</b>	<b>\$1,000</b>
<b>Second Prize</b>	<b>\$750</b>
<b>Third Prize</b>	<b>\$500</b>