

2024 ASME/SME Student Manufacturing Design Competition



Entry Deadline: April 1, 2024

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Competition held on June 18, 2024, at the MSEC/NAMRC/LEM&P Conferences at University of Tennessee, Knoxville

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. It is held during the ASME 2024 International Manufacturing Science and Engineering Conference (MSEC), June 17 – 21, 2024, hosted by the University of Tennessee, Knoxville, Knoxville, TN. The 2024 Student Manufacturing Design Competition (SMDC) is sponsored by the ASME Manufacturing Engineering Division (MED), and co-organized by ASME MED and the SME North American Manufacturing Research Institution (NAMRI).

Competition websites: <https://event.asme.org/MSEC> and <https://namrc.sme.org/>

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.

Requirements

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

- Project Title
- Names and addresses of the participating students, with one designated as corresponding
- The name and signature of a faculty sponsor with complete contact information

A successful entry might also include a description of the problem(s) being addressed and key requirements, a functional description of the concept/idea/model/system, comprehensive design analyses, and experiments or tools used, discussion of how the concept improves upon existing designs, and a statement listing the percent contribution of the group members and any outside assistance (e.g., faculty, shop personnel).

Due to the deadline for the application 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.

Process

Entries from either teams or individual contestants must be submitted in electronic form to karandikarjm@ornl.gov and mbanu@umich.edu received by April 1, 2024. Please make sure to receive a notice of receipt. Up to eight finalist teams will be selected from the entrants and will be expected to give an oral, in-person presentation at the 2024 MSEC conference. The demonstration

Including but not limited to:

- Digitally integrated manufacturing
- Robotics and automation
- Additive and subtractive operations
- Manufacturing systems innovations
- Materials - process interaction
- Energy-efficient manufacturing
- Any creative new way to make things!



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of working models is highly encouraged.

Judging

Up to eight finalists will be selected on the basis of the project descriptions by a panel of judges representing industry, academia, and/or government organizations related to manufacturing. The first round of judging will be a panel review of the submitted project descriptions and 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 in light of requirements. The **finalists will be notified by April 24, 2024** and are expected to hold a fifteen-minute presentation followed by five-minute question session on **June 18, 2024** at the 2024 MSEC conference. 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 finding the best solution based on stated requirements. Judging criteria include but are not limited to:

- Communication of the problem to be solved
- Effectively meeting requirements
- Integrity of the analysis
- Creativity of design
- Goal-driven testing approach
- Impact of design on manufacturing cost, quality, sustainability, or other manufacturing and performance measures
- Quality of the presentation (on time, clear, professional)

Awards

Cash prizes and awards of recognition will be presented at the ASME Award Ceremony during the conference. First Prize is \$1,000, Second Prize is \$750, and Third Prize is \$500.

Eligibility

Any graduate or undergraduate student, who is registered in school full time through Spring of 2024 or beyond can participate. Both individual and group projects are welcome, and individuals may participate in several entries provided each entry is on a clearly different subject.

Conference Registration and Travel Support

The 2024 MSEC/NAMRC conference will be held at the University of Tennessee, Knoxville, TN. At least one presenter from each of the finalist teams will need to register for the conference. Travel expenses to the conference will be the responsibility of the students and/or faculty sponsor. However, the teams in the finalists may request travel support of up to US\$500 per team from MED. Further, a complimentary conference registration will be provided to the finalists (one per team).

Information

Still have questions?

Contact the organizers, Dr. Jaydeep Karandikar, Oak Ridge National Laboratory at karandikarjm@ornl.gov and Prof. Miki Banu, University of Michigan, Ann Arbor at mbanu@umich.edu with the subject line "2024 SMDC".

First Prize: \$1000

Second Prize: \$750

Third Prize: \$500



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