

NSF/ASME Student Design Essay Competition

2021

CHALLENGES IN THE DESIGN OF COMPLEX SYSTEMS

To encourage students to think about the future of engineering design and the intellectual foundations which are essential for the development of the field, NSF and ASME sponsor a student design essay competition. Winners are invited to attend the 2021 ASME Design Technical Conference (IDETC) which will be held virtually and will receive reimbursement for registration expenses.

The Competition – Story

You are a consultant working for a high tech, global manufacturing enterprise. That company wants to position itself to be a leading major high-tech global design and manufacturing enterprise in the year 2035. As a consultant, you want the company to succeed so you will need to:

- Define the characteristics of a successful high-tech global design and manufacturing company in the year 2035.
- Identify the research challenges it will face. Identify the mode of operation of the company. Determine what partnerships it will need to form.
- Identify what technology will be necessary to support its employees in being globally competitive.

We are particularly interested in research issues that those in academia will need to address over the intervening years to enhance the competitiveness of this company. We are interested especially in the scientific foundations for understanding the product realization process which are suitable for a global manufacturing enterprise.

Judging Criteria

Students are judged on scholarship, the depth and sophistication of their arguments, logical presentation of material, correct English usage, and relevance to problems facing the US industrial/academic community. There are separate categories for graduate and undergraduate students.

Awards and Responsibilities

An award to cover registration expenses will be made to the winners of this competition. The reimbursement will take place after the conference upon the receipt of an invoice that includes receipts to substantiate expenditures. A winner must present his/her findings at a poster session in order to receive the award. Every person given a travel grant will receive a certificate to record his/her accomplishment.

Submission Format and Dates

Any undergraduate or graduate student enrolled in a university anywhere in the world is eligible although the focus is on students enrolled in universities in the United States. Undergraduate and graduate students will be evaluated in separate categories.

Essays should be a maximum of 10 pages long.

Multiple authors are limited to two people. The travel grant is shared between the co- authors. A student may receive no more than 2 awards over the years.

There are separate categories for submissions by undergraduates and graduate students. The research paper may be the outcome of a course for which the student receives academic credit.

Deadlines

Papers due.....June 1, 2021
Target for notification of winners July 1, 2021
IDETC 2021 August 17-20, 2021

Please include a cover page with:

Email address, phone number and address for all authors, university affiliation including advisor's name and whether this submission is for the graduate or undergraduate category. NOTE – we will remove this page when sending the submission out for review, so this should be the only page on which your identifying information should appear.

Submit Entries to Professor Janet K. Allen, janet.allen@ou.edu, 404-403-3296

For more information see [IDETCtravel.com](https://idetctravel.com/) (<https://idetctravel.com/>)

About IDETC 2021

The 2021 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference will be held virtually from August 17-20, 2021. Check <https://event.asme.org/IDETC-CIE> for information about this conference.

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Facilitators of the NSF Design Essay Competition