

2021 ASEE Annual Conference Call for Papers Multidisciplinary Engineering Division

The Multidisciplinary Engineering Division (MULTI) invites abstracts on subjects of interest to those involved with multidisciplinary engineering programs, engineering programs without disciplinary tags, and the promotion of multidisciplinary approaches in engineering education. Multidisciplinary is interpreted here in the broadest sense to include education-related scholarly work that integrates various engineering disciplines as well as the sciences and liberal arts. MULTI accepts abstracts from a wide breadth of researchers, educators, and practitioners. Authors should consider submitting technical papers for oral or poster presentations, as well as recommendations for interactive sessions and special panels. A link to a google form to solicit interest in panels can be found at the end of this call for papers.

Technical papers can be a Complete Paper or Work-in-Progress Paper (WIP):

- **Complete Paper:** The criterion for a Complete Paper is that it represents, at the time of draft paper submission, work for which available results can be analyzed to yield supported and significant conclusions. Complete Paper submissions may be reassigned to WIP if they are judged to fall under the WIP criteria.
- **Work-in-Progress Paper:** Work-in-Progress papers report on work that is in the process of study and/or implementation for which results will not be available by the time of draft paper submission, for studies that are as yet inconclusive, and for studies at an early to intermediate state for which authors are seeking feedback from the community. A submission of this paper type **MUST** have a title that begins with “Work-in-Progress:” with the colon separating the WIP phrase from the remainder of the title. WIP papers may be assigned to a poster presentation session to allow authors to maximize the opportunity for extended conversations regarding their ongoing research.

Subjects of particular interest include, but are not limited to, the following:

- Mechatronics and Robotics
 - Innovative courses and curricula
 - Capstone design
 - Hardware and software platforms and environments
 - Assessment, evaluation, and accreditation
 - Outreach, competitions, industry partnerships, and community-building
 - Ethics, societal impact, and the future of work
- Pandemic inspired changes to multidisciplinary education
 - Strategies for effective teams in on-line and hybrid learning environments
 - Pedagogy related to on-line and hybrid learning environments, especially for traditional face to face courses and laboratory experiences
 - Challenges and creative solutions related to increased dependence on technology
- Curricular designs that incorporate multidisciplinary aspects, particularly recent innovations that address the following:
 - Student learning related to ABET outcomes *and* to multidisciplinary teams
 - Evaluation of on-line and non-traditional programs and courses

- Current technological problems that necessarily require multidisciplinary approaches, including global sustainability, energy production and distribution, and other grand challenges.
- The structure and effectiveness of multidisciplinary engineering programs or engineering programs without disciplinary tags at the undergraduate and graduate levels
 - Best practices for accreditation and assessment
 - Perspectives of program constituents, particularly employers
- Multidisciplinary engineering course design, implementation, and assessment
 - Multidisciplinary capstone design experiences
 - Multidisciplinary service-learning courses and experiential learning approaches
 - Nano-technology courses and curriculum
 - Manufacturing emphases, particularly on additive manufacturing, that are multidisciplinary
- The impact of multidisciplinary experiences on student development, particularly on learning, self-efficacy, diversity, equity, inclusion, teaming, and the ability to innovate
 - Multidisciplinary courses that promote inclusiveness of under-served groups
 - Extracurricular student projects and contests in multidisciplinary engineering
 - Innovative uses of emerging technologies in multidisciplinary teaching
 - Role of multidisciplinary/interdisciplinary education in teaching Social Justice
- Integration of engineering and the liberal arts
 - Best practices in fusing liberal arts and engineering in curricular and co-curricular activities
 - Assessment of current liberal arts and engineering curricular and co-curricular activities with emphasis on retention of students and ABET outcomes
 - Innovative approaches that intentionally promote development of professional, non-technical skills
 - Efforts on and studies of integrating engineering with general education

Panel Interest Form:

If you are interested in volunteering to participate in a panel the division is organizing, or suggesting a panel topic, please fill out the Panel interest form: [MULT Panel Interest Form 2021](#)

The Multidisciplinary Engineering Division has a best paper award that is presented at the business meeting at the annual conference. The division also participates in the conference best diversity paper award by the nomination of a paper submitted to the division. Submission deadlines will be announced on the ASEE website. Questions regarding abstract and paper submission may be directed to the Multidisciplinary Engineering Division Program Chair:

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