

2021 ASEE ANNUAL CONFERENCE

Pre-college Engineering Education Division Call for Papers

The Pre-College Engineering Education (PCEE) Division invites submissions for the ASEE Annual Conference to be held June 2021 in Long Beach, CA. The Division provides a rich and vibrant forum for the exchange of ideas, research, and experiences in pre-college engineering education. By “pre-college engineering education,” we mean engineering education that directly impacts preschool through high school instruction in either formal or informal learning environments.

This call contains information on proposal submissions for Papers, Special Sessions, and Wednesday Workshops. You may review past ASEE proceedings and other literature sources to identify previous work in your area and to find information and instruments that may be helpful in conducting and assessing your work.

ASEE 2021 Important Dates for Authors:

- Abstracts due October 12, 2020
- Draft Papers are due February 8, 2021
- Revisions (if required) are due March 22, 2021
- Final paper uploads and presenting author verification are due April 26, 2021
- ASEE Annual Conference June 27-30, 2021 Long Beach, CA

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Need help? Please contact the 2020-2021 PCEE Division Program Chair, Katey Shirey (katey@edukatey.com), if you have any questions or require more information.

Author Checklist

- ❑ Mandatory: Indicate the paper type in the title of the submission with an explicit parenthetical addition at the end of your paper's title. This is to ensure the correct rubric will be used to review your paper. It is not adequate to only use an indication of paper type in the normal text of the title. If you do not explicitly state the paper type, your paper will be returned to you before it can be reviewed.
 - ✓ Good example: "A Study of a High School STEM Program (Evaluation)"
 - ✗ Bad example: "High School STEM Program Evaluation Results"
- ❑ Optional: You may self-identify the paper as a diversity, equity, and inclusion-focused (DEI) paper. If you believe you have met the DEI requirements, place a "diversity" designation in the title. For example, "Title of paper (RTP, Diversity)." See more in this doc's [Diversity Papers](#) section.
- ❑ Abstract submissions should be 250-500 words in length and deidentified (no author or institution information). Abstracts should provide sufficient description of the research question, program details, observations, and (preliminary) results. Abstracts may address relevant literature in a cursory manner due to character limits.
- ❑ Format: Please refer to the [ASEE Author's Kit](#) for guidance on formatting your abstract. Do not use formats from other conferences, such as AERA and FIE.
- ❑ Draft and final papers should address relevant literature. Abstracts may address relevant literature in a cursory manner due to character limits.
- ❑ Before, during, and after you write, please review the rubric for your paper type. Abstract rubrics and paper rubrics are linked to each paper type in this doc.
- ❑ Please note: If you submit an abstract, you will also be expected to review at least one abstract and one paper for the PCEE division.

I. Paper Types, Descriptions, Examples, Title Requirements, and Presentation Styles

There are six different paper types for PCEE:

- [1. Research to Practice](#)
- [2. Fundamental Research](#)
- [3. Evaluation of Program/Curriculum](#)
- [4. Pre-college Resource/Curriculum Exchange](#)
- [5. Work-in-Progress](#)
- [6. Other](#)

1. Research-to-Practice (RTP) Papers

Description: RTP means taking research and putting it into practice. These studies borrow heavily from the literature to present new findings, situated in the context of prior findings and models. These papers must include relevant prior work and literature citations, research question(s), methodology, research results, and implications of the work and/or future directions for research. These papers should present robust data/analysis and evaluation. Be sure to provide a literature review that situates the results within the existing body of work versus those with pure evaluation. [RTP abstract rubric](#), [paper rubric](#).

Papers that have an evaluative focus without a research question and without being situated in the research literature should be submitted as an [“Evaluation of Program/Curriculum” paper](#).

Examples of studies appropriate for the Research to Practice category:

- A paper that explores teacher-student or student-student interactions by pulling practices from research and evaluating them with an experimental methodology in an afterschool program.
- A paper that uses a conceptual framework from a different study to examine programmatic impacts in either formal or informal learning settings.

Required addition to title: Please add “(RTP)” to the end of your paper’s title. Example: “The Influence of Engineering Role Models in a Mentored Engineering-infused Camp Experience (RTP)”

Presentation style: Accepted papers in this category will be assigned to present either an oral presentation during a themed session OR as a poster during a 90-minute poster session.

2. Fundamental Research in Pre-College Engineering Education

Description: Fundamental research studies add to foundational knowledge in pre-college engineering education about students, teachers, materials, settings and more. Studies in this category do not focus on a (particular) intervention and its outcome but instead, add to our understanding of underlying phenomena and ideas. [Fundamental abstract rubric](#), [paper rubric](#).

Examples of studies appropriate for the Fundamental Research category:

- Examining the relationship between children’s planning and final artifacts without a particular intervention
- Elementary teachers’ perspectives on engineering and aspects of the engineering design process
- Students’ uses of mathematical modeling in a design task
- “Characterizing Engineering Outreach Ambassadors' Teaching Moves during Engineering Design Activities (Fundamental)” This study examined student-mentor discourse in general and did not evaluate or analyze the program.

Required addition to title: Please add “(Fundamental)” to the end of your paper’s title. Example: “Brainstorming Strategies Among Upper Elementary Students (Fundamental)”

Presentation style: Accepted papers in this category will either be assigned as an oral presentation during a themed session OR as a poster during a 90-minute poster session.

3. Evaluation of Program/Curricula Papers

Description: Papers in this category share details of implementation and evaluation results of a particular program or curriculum. Papers in this category do not address a research question but rather share rich, detailed implementation information and robust evidence and data related results for the program/curriculum. [Evaluation abstract rubric](#), [paper rubric](#).

Example:

- Evaluation of a district-level implementation of 5th-grade engineering activities identifying successes and lessons learned.
- Evaluation of a city-wide informal robotics competition highlighting the challenges of making robots virtually.

Required addition to title: Please add “(Evaluation)” to the end of your paper’s title. Example: “Evaluation of a Program to Enhance Teacher Understanding of Engineering Habits of Mind (Evaluation)”

Presentation style: Accepted papers in this category will either be assigned to an oral presentation session, a themed session OR as a poster during a 90-minute poster session.

4. Pre-college Resource/Curriculum Exchange

Description: Resources presented in the Pre-college Resource/Curriculum Exchange can be a lesson, instructional approach, tools or activity examples that describe how to incorporate engineering into the pre-college learning environment.

Abstracts should include a brief description of your program (approximately 100 words or less) and a description of the activity, instructional approach or curriculum (grade level, learning goals, materials, time, and procedure) you are proposing to share during a special session. [Resource Exchange abstract rubric](#)

If your abstract is accepted, then develop a 1-to-2-page handout in lieu of a standard research paper. This handout should summarize the curriculum, include the target grade level(s), and include your contact information. You will distribute your handout at the research exchange session which is more like a table-top event with authors speaking informally to attendees, not delivering Powerpoints as in a moderated conference session. There is no full-length formal paper written for the Resource Exchange. The conference proceedings will publish your two-page handout, see examples linked below. Please de-identify your contact information in the draft that you submit for review and then re-insert your contact information after acceptance as your final paper in the Paper Management System. [Resource Exchange paper rubric](#)

Examples:

- [Computer Coding Scavenger Hunt Using Quick Response Codes \(Resource Exchange\)](#)
- [Reservoir Rescue: A Community-connected Elementary Water Filtration Engineering Unit \(Resource Exchange\)](#)

Please note: The title page in these examples is generated by the Paper Management System and does not count toward the two-page maximum.

Required addition to title: Please add “(Resource Exchange)” to the end of your paper’s title. For example: “Squishy Circuits in Engineering Design (Resource Exchange)”

Presentation style: Accepted abstracts in this category will be presented in a round table format at a special session.

5. Work in Progress Papers

Description: Work in Progress papers should describe a study or program for which only preliminary data and results are available. Abstracts follow normal abstract procedures, however, **full papers must be no more than 5 pages**. Papers over 5 pages will be rejected. [Work in progress abstract rubric](#), [paper rubric](#).

Examples:

- a pilot study of a campus summer workshop conducted as a prototype/basis for a large project proposed to a funder
- the first-year summary of a large project already funded without full evaluation results collected and analyzed.

Required addition to title: Please add “(Work in Progress)” to the end of your paper’s title. For example: “Development of a Service Learning Engineering Design Program (Work in Progress)”

Presentation style: Accepted abstracts in this category may ONLY be presented as a poster during a 90-minute poster session.

6. Other

Description: Authors are invited and encouraged to submit other ideas that may be of interest to the PCEE Division, but it is strongly recommended that you propose ideas to the Program Chair (katey@edukatey.com) prior to submitting an abstract so that the chair can identify appropriate reviewers. Your “Other” category abstract and paper will be reviewed for relevance, readability, literature connections, evidence, interest to PCEE members, applicability, and/or contribution, as determined by the Program Chair. [Other abstract rubric](#), [paper rubric](#)

Examples:

- A literature review on, or theoretical argument about, a particular pre-college engineering education topic.

Required addition to title: Please add “(Other)” to the end of your paper’s title. For example: “Theoretical Insights on Engineering Education Policy (Other)”

Presentation style: Accepted papers in this category will either be assigned as an oral presentation, a themed session OR as a poster during a 90-minute poster session.

II. Deidentified Review Requirements

- Reviewers must be able to conduct a review of your abstract and paper without seeing **any identifying information**. Please use a pseudonym or placeholder for institutional, department, and other identifying names. (e.g., “University of _____.”)
- Do not use identifying information, such as last names, in the file name (e.g., please use something such as “ASEE21_abstract.pdf”)
- If your deidentified abstract is accepted, you will be invited to submit a deidentified paper.
- If your deidentified paper is accepted, then you will be invited to submit a final paper that contains identifying information. Do NOT add any identifying information until your paper is accepted and you are uploading your final paper.

III. Special Session Submissions

If you wish to organize a Special Session through the PCEE Division, please request a Special Session Proposal form and submit it to the Division’s Program Chair, Katey Shirey (katey@edukatey.com).

Special Session Proposal requests are NOT submitted through the ASEE Paper Management system and are reviewed by a special group of reviewers. Authors submitting individual abstracts that will be part of a Special Session should follow the guidelines outlined in the Author Checklist section above.

IV. Workshop Submissions

If you wish to organize a Workshop and have it sponsored by the Pre-College Engineering Education Division, please request a Workshop Proposal form and submit it to the Division’s Program Chair (katey@edukatey.com).

Workshop Proposal requests are NOT submitted through the ASEE Paper Management system and are reviewed by a special group of designated

reviewers. Workshop presenters are responsible for convention costs associated with their workshop.

V. Diversity, Equity, and Inclusion Papers

In addition to the required paper type designation, a paper may be designated by the author as a diversity, equity, and inclusion paper. PCEE diversity, equity, and inclusion papers promote the pursuit of engineering education and engineering careers with those individuals who have been historically under-represented within engineering. Please review the ASEE Commission on Diversity, Equity, and Inclusion (CDEI)'s rubric for DEI papers for more guidance.

Authors should designate their diversity, equity, and inclusion focus by including "(Diversity)" at the end of the title.

Example:

- "Development of a Service Learning Engineering Design Program (Work in Progress, Diversity)"

Reviewers may also nominate papers for the Best PCEE Diversity, Equity, and Inclusion Paper Award. Deidentified nominated papers will be reviewed by the PCEE Diversity Committee who will decide on the winning papers. The winner of the PCEE's Best Diversity, Equity, and Inclusion Paper Award is nominated for The ASEE Best Diversity, Equity, and Inclusion Paper Award automatically. The rubric for the ASEE Best DEI Paper Award can be found at:

<https://diversity.asee.org/deicommittee/best-paper-rubric/>

VI. Final Notes

Look for the PCEE Division Chair's regular newsletters, updates from the Program Committee, and check out the Division's website at precollege.asee.org. We look forward to your submissions!

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