



The 19th International CDIO Conference

Engineering education for a smart, safe and sustainable future

June 26 – June 29, 2023

Norwegian University of Science and Technology (NTNU)

Trondheim, NORWAY

<https://www.ntnu.edu/cdio>

CALL FOR PAPERS

September 2022

The CDIO approach (www.cdio.org) is an innovative educational framework for producing the next generation of engineers. It is a framework for providing students with an education stressing engineering fundamentals set in the context of Conceiving — Designing — Implementing — Operating (CDIO) real-world systems, products, processes, and services.

CDIO collaborators recognize that engineering education is acquired through programs of varying lengths and stages in a variety of institutions and that educators in all parts of this spectrum can learn from practice elsewhere. Several times each year, CDIO collaborating institutions, engineering educators and researchers gather to exchange ideas and experiences, review developments, assess and further refine the CDIO approach.

The CDIO Initiative welcomes your ideas and invites proposals for papers, working groups, workshops and roundtables at the 19th International CDIO Conference. The conference takes place in Trondheim, Norway from June 26, 2023 to June 29, 2023. On the first day there will be workshops, working group meetings, and sessions introducing CDIO, as well as social events. Additional information on the conference is available at <https://www.ntnu.edu/cdio>.

CDIO Academy and Combined Reception and Conference Dinner

Two news this year is that the CDIO Academy will make a comeback, and that a combined Reception and Conference Dinner takes place on the first evening of the conference, on Monday June 26, 2023. Details about the CDIO Academy will be presented in the beginning of October 2022.

Engineering Education for a Smart, Safe and Sustainable Future

The main theme of the conference is **“Engineering education for a smart, safe and sustainable future”**. Proposals for contributions are welcome on topics relevant to the CDIO approach and the conference theme. For Paper contributions, the presentation formats are Podium Presentations and Poster Presentations. Workshops, Working Groups and Roundtable Discussions are contribution categories that do not require a full paper. Please see the sections below for more details about the contribution categories and presentation formats.

Conference Themes

In line with the main theme of the conference, we would particularly like to see contributions that address some aspect of the following overarching themes:

- Sustainability in Engineering Education
- Lifelong Learning for Engineers
- Change Leadership in Education

Specific topics of interest for this year’s conference are:

- Digital Transformation in Engineering Education
- Curriculum Change and Curriculum Agility
- Emotion and Reason in Engineering Ethics
- Operationalization of the CDIO Syllabus and Standards



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Further suggestions for contributions:

Proposals for contributions are also welcome on any topic relevant to the CDIO approach and the conference theme, such as: New developments in Engineering Education; Curriculum and Course Development; Engineering Projects and Introduction to Engineering; Learning Environments – Online and On-site, Preparing for the Future; Faculty Development; Student Engagement; Internationalization. Remember that all contributions need to have a connection to the CDIO Standards. Any contribution that explicitly addresses at least one of the CDIO Standards will be considered.

Submission Categories

SCOPUS Indexing: Please note that the CDIO Proceedings are SCOPUS Indexed.

Papers: Contributions in this category require a paper that meets the standards set in peer review. Papers are at most 10 pages. Longer manuscripts can also be considered when appropriate; however, the authors are encouraged to write concisely, and the length of the paper must be justified by the substance of the contribution. The review process will follow three phases (see the respective deadlines on page 5):

1. submission of an abstract not exceeding 500 words;
2. submission of a full paper following the template and the criteria; and
3. submission of the final version of the paper revised taking reviewer suggestions into account.

All papers submitted by the final deadline are distributed electronically to the attendees of the conference. In addition, the papers accepted to the tracks Engineering Education Research, Advances in CDIO, and CDIO Implementation (see descriptions of all tracks on p. 3), as well as the State-of-the-art Papers from the working groups, are archived on the CDIO website (www.cdio.org) and are included in the electronic conference proceedings publication.

Workshops, Roundtables and Working Groups: Contributions in these categories require an Activity Description no longer than two pages, which will be distributed to the conference participants but neither archived nor included in the proceedings. The review process of activity submissions has deadlines that coincide with the Papers category:

- submission of an outline not exceeding 500 words; and
- submission of a two-page activity description offering greater detail about the plan for participants.

Final submissions must follow a template provided for one of the following three formats:

Workshops: A workshop may be on a fundamental level that presumes little prior knowledge, or it may be more advanced for experienced participants to gain further knowledge or skills, or a new perspective. Submission of a workshop theme requires an Activity Description that describes a topic and outline of either a 60- or a 120-minute session, with a considerable active component. Workshops lasting for 120 minutes will take place on the Monday, June 26, 2023.

Roundtable Discussions: These are informal discussions of a topic proposed by a roundtable facilitator. The goal of a roundtable discussion can be, for example, to generate ideas for a particular problem facing engineering educators or to collaborate on a new advancement within CDIO. The Activity Description should outline the topic and contain discussion questions.



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Working Groups: Much of the development work in the CDIO Community is carried out in the working groups that meet at the regular meetings and conferences. Their work continues between meetings and suggestions and developments are presented and discussed at the regional and international conferences during the year. The working groups are central to developing the CDIO Community.

We invite suggestions for new working group themes at the 19th International Conference in Trondheim.

The working groups are formed by about 5-10 participants with a common interest. The group will start working together remotely at least two months prior to the conference. They can also continue their work throughout the conference. Shortly after the conference they submit a State-of-the-art Paper for inclusion in the proceedings (after review by the Program Committee). The Activity Description must outline the topic that the working group will focus on and the activities that they will do before the conference. If accepted, the person(s) submitting the proposal will be the leader(s) of the working group. The leader(s) selects the participants among conference delegates who express interest. Each working group member must register for and attend the conference in order to be considered a contributor to the State-of-the-art Paper.

Paper submissions are being accepted in four tracks

Engineering Education Research (EER): This track is for papers that can support the improvement of engineering education while also contributing to the body of knowledge in the field of engineering education. Contributions require a full paper, meeting criteria for scholarlyness and usefulness for improving engineering education, and supporting the goals of the CDIO Initiative. Papers must meet expectations for original scholarly publication, including adequate contextualization in the relevant literature. They are jointly reviewed by engineering education researchers and practitioners (senior CDIO implementers). If the draft paper is “accepted with changes”, the submitted final paper will be reviewed again.

Advances in CDIO: This track is for papers that contribute an advance to the state of the art in the CDIO framework or community, or in CDIO-based education. This may involve an extension or revision of the CDIO framework, comparisons of the CDIO framework with other frameworks, introduction of new CDIO central materials (e.g., revised syllabus, standards, self-evaluation rubrics, etc.). The contributions must meet the expectations for original scholarly publication.

CDIO Implementation: These contributions describe a particular implementation of CDIO principles in a practical setting. They may be case studies of the program-level implementation at a particular institution. They may offer a deep reflection on experiences with courses, projects, instruction and assessment methods, or workspaces. These contributions must be of general interest to the conference participants, be examples of good practices proven through evaluation or critical examinations, and demonstrate awareness of the relevant previous CDIO conference literature. The contributions must meet the expectations for original scholarly publication.

CDIO Projects in Progress: These contributions describe initial development, current activities and preliminary results on projects that may not yet have reached completion. This provides an opportunity for authors to share results with other conference attendees and benefit from timely input. Depending on feedback in the peer-review process, some papers submitted to the other tracks (EER, Advances in CDIO, CDIO Implementation) may be selected by the program committee for presentation in this track. Papers in this track will be distributed electronically to the conference attendees but will not be archived on the CDIO website or included in the proceedings.



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Note! The author must propose the presentation format during the abstract submission. Papers in all four tracks described above can be presented either as Podium Presentation or Poster Presentation. The presentation format may be changed by the Program Committee as part of the review process.

Please consult the criteria for each track at [the conference website](#).

Session Formats

Authors indicate their preferred presentation format during the abstract submission. The Program Committee makes the final decisions on the presentation format to suit the nature of each contribution. Since the goal of the conference is collaboration and sharing of ideas, formats that foster interaction are desired.

Podium Presentations: The presentations will follow a traditional conference format of multiple, parallel tracks with short presentations followed by Q&A.

Poster Presentations: Posters provided by the authors will be on display in a central area where authors can discuss the work with interested attendees. At the poster session, the author prepares one slide and makes a 1-minute pitch.

Workshop: Workshops are interactive sessions on a specific topic with activities that are intended to engage the participants. They are either 60- or 120 minutes. Facilities will be allocated for each workshop on site. The 120-minute workshops will take place on Monday afternoon, June 26, 2023.

Roundtable Discussion: Informal discussion of a topic proposed by a roundtable facilitator. A short contribution will provide the background and discussion questions. The participants may of course decide to form a working group and carry their collaboration beyond the context of the conference. Facilities will be allocated for each roundtable on site.

Working Group: The working group presents its preliminary results to conference attendees at a plenary, and submits a final State-of-the-art Paper shortly after the conference (according to the deadline agreed with the conference organizers). The final paper is reviewed by the program committee and, upon acceptance, published in the proceedings.

Abstract Preparation and Submission

Abstract submissions for Papers and Activity Descriptions for all other categories must be completed on or before November 15, 2022. All submissions are made online:

<https://www.softconf.com/m/cdio2023/>

The corresponding author will enter the title (max 10 words), authors and affiliations, an abstract limited to 500 words, the suggested conference track and the preferred type of presentation. Please be aware of the additional information available on the conference website: <https://www.ntnu.edu/cdio>.

The submission must follow the formatting requirements detailed in the template on the conference website (<https://www.ntnu.edu/cdio>) and must include a Creative Commons License to allow it to be included in the proceedings and/or archived on the CDIO website.

Furthermore, at least one of the authors must register by the final submission deadline, participate in the conference and present the contribution. If no author is registered by the deadline (April 30th, 2023), the contribution is considered withdrawn from the program.

Important Dates and Deadlines



* Papers in the EER (Engineering Education Research) track are reviewed again after the submission of the final paper if the draft paper submission was accepted with “minor changes” or “major changes”. The focus of the review is to ensure appropriate development of the manuscript and response to reviewer feedback.

Submission Guide

Contribution Category	Track	Abstract Requirement	Page Limit	Paper Review	Publication	Presentation Format
Paper	Engineering Education Research (EER)	Maximum 500 word abstract	10 pages	Single-Blind Peer Review	Proceedings & CDIO Archive	Podium or Poster
	Advances in CDIO					
	CDIO Implementation				See note below*	
	CDIO Projects in Progress					
Activity Description	Workshop	Reviewed by Program Committee	2 pages	Program Committee	See note below *	Workshop
	Roundtable Discussion					Roundtable
	Working Group				Proceedings & CDIO Archive	Meeting

* Papers accepted to the CDIO Projects in Progress track and the activity descriptions will NOT be archived or included in the Proceedings publication. Instead, they will only be distributed to the conference participants.

General Criteria for Selection

- Relevance to the conference theme and tracks
- Novelty of innovative ideas with proven results
- Potential to stimulate thought and discussion
- Applicability of ideas, programs, and practices to the CDIO community
- Compliance with the criteria for the particular submission tracks

Specific Criteria for the different tracks and Templates for papers and activities

Please consult [the conference website](#).



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Publication Ethics and Malpractice Statement

Contributions that will be published in the CDIO Proceedings are expected to meet the standards set by the referees. The contributions should meet the expectations for original scholarly publication, including adequate review of relevant literature, a hypothesis, results of simulations or measurements, analysis, and conclusions. They may address any area of CDIO, including scholarly examinations of CDIO implementation. The submission must follow the formatting requirements detailed in the template available on the conference website and must include a Creative Commons License to allow it to be included in the proceedings and/or archived on the CDIO website.

The complete Publication Ethics and Publication Malpractice Statement of the CDIO Proceedings and citation rules are available on www.cdio.org.

For further information, please contact cdio2023committee@videre.ntnu.no.