

A First Look at the ACM/IEEE-CS/AAAI Computer Science Curricula (CS202X)

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ABSTRACT

A Joint Task Force of the Association for Computing Machinery (ACM), the Institute of Electrical and Electronics Engineers - Computer Society (IEEE-CS), and Association for the Advancement of Artificial Intelligence (AAAI) was constituted in early 2021 to begin the decennial process of revising the Computer Science curricular guidelines, which were last released as Computer Science Curricula 2013 (CS2013). This special session will present the first draft of the revised curricular guidelines, currently referred to as CS202X, and solicit feedback. The CS202X draft will include revisions to CS2013 Knowledge Areas, a proposed competency model being incorporated into the curricular guidelines, and other updates. Targeted towards educators, administrators and others interested in Computer Science curricular issues, this session will be led by the co-chairs and members of the CS202X Steering Committee as part of their process to engage the community and solicit feedback.

CCS CONCEPTS

• **Social and professional topics** → **Computer science education; Model curricula.**

KEYWORDS

Computer Science Curricula, Curricular Guidelines, Computer Science Education

ACM Reference Format:

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1 OVERALL SESSION OBJECTIVE

Several successive curricular guidelines for Computer Science have been published over the years as the discipline has continued to evolve:

- Curriculum 68 [2]: The first curricular guidelines were published by the Association for Computing Machinery (ACM) over 50 years ago.

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- Curriculum 78 [3]: The curriculum was revised and presented in terms of core and elective courses.
- Computing Curricula 1991 [8]: The ACM teamed up with the Institute of Electrical and Electronics Engineers - Computer Society (IEEE-CS) for the first time to produce revised curricular guidelines.
- Computing Curricula 2001 [6]: For the first time, the guidelines focused only on Computer Science, with other disciplines such as computer engineering and software engineering being spun off into their own distinct curricular guidelines.
- Computer Science Curriculum 2008 [4]: This was presented as an interim revision of Computing Curricula 2001.
- Computer Science Curricula 2013 [1]: This was the most recent version of the curricula published by the ACM and IEEE-CS.

CS202X is the next proposed revision of Computer Science curricula. It is a joint effort between the ACM, IEEE-CS, and for the first time, the Association for the Advancement of Artificial Intelligence (AAAI).

The proposed special session will serve two purposes for CS202X:

- (1) Present and publicize the curricular draft and activities to date.
- (2) Solicit feedback from the Computer Science education community.

As Computer Science curricula may be of interest to Computer Science educators and this revision would benefit from educator community input, SIGCSE is arguably the most important venue for this special session, as it has been for past curricular revisions.

2 ADDITIONAL TASK FORCE PARTICIPANTS

Participating in the special session will also be the following members of the CS202X steering committee, listed along with the knowledge area they lead:

- Sherif G. Aly, American University in Cairo, Egypt (Networking and Communication)
- Brett A. Becker, University College Dublin, Ireland (Society, Ethics and Professionalism)
- Michael Goldweber, Xavier University, Cincinnati, OH (Data Management)
- Michael Oudshoorn, High Point University, High Point, NC (Programming Languages)
- Marcelo Pias, Federal University of Rio Grande (FURG), Brazil (Architecture and Organization)
- Susan Reiser, University of North Carolina Asheville, NC (Graphics and Interactive Techniques)

- Christian Servin, El Paso Community College, El Paso, TX (Specialized Platform Development)
- Titus Winters, Google Inc., New York, NY (Software Engineering)

3 SESSION OUTLINE

The session will be organized as a series of 10-minute presentations followed by 15-minute discussion sessions. The presentations will cover the following topics:

- (1) The knowledge model underlying the curriculum, including revisions to knowledge units, specification of skill levels of learning outcomes and allocation of core hours;
- (2) The competency model underlying the curriculum, including why it is being considered [7] and how it will be specified using ideas from CC2020 [5] and beyond; and
- (3) The proposed companion volume on implementing the curriculum, along with a call for participation from computing educators.

During the discussion session that follows each presentation, the audience will be able to ask questions about the draft and provide feedback about the proposed changes and how the changes might fit their institutional context.

4 SESSION PLAN

The session plan mentioned in Section 3 is designed to work in in-person, hybrid, or purely virtual format. The session leaders are experienced in engaging with students and other audiences in remote classroom settings, as well as organizing remote interactive sessions in conferences, workshops, and working group meetings.

5 EXPECTATIONS

The intended audience will comprise computing educators, program directors, department chairs, and others interested in the future of Computer Science curricula. The audience will learn about changes proposed to CS2013 curricular guidelines and the competency model proposed for the guidelines. The audience will be invited to provide feedback on changes to the knowledge areas and the competency model during the discussion sessions to which about 60% of the time will be dedicated.

6 POST-SESSION COMMUNITY ENGAGEMENT

The task force welcomes ongoing engagement of the community in the form of input, feedback and suggestions. The website of the task force is:

<https://csed.acm.org>

At this site, visitors can find the subcommittee working on revising each knowledge area; contact information for the subcommittee and a form to provide feedback on the knowledge area. The site will also contain the latest draft of the curricular revision.

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