

University of New Hampshire

University of New Hampshire Scholars' Repository

Applied Engineering and Sciences Scholarship

Applied Engineering and Sciences

7-2-2018

Implementing a Competency-Based Information Technology Curriculum: Challenges and Opportunities (Poster Abstract)

Mihaela C. Sabin

University of New Hampshire, Manchester, mihaela.sabin@unh.edu

Follow this and additional works at: https://scholars.unh.edu/unhmcis_facpub

Recommended Citation

Sabin, Mihaela. 2018. "Implementing a Competency-Based Information Technology Curriculum: Challenges and Opportunities (Poster Abstract)." In ITiCSE '18: Innovation and Technology in Computer Science Education Proceedings. Larnaca, Cyprus: ACM. <https://doi.org/10.1145/3197091.3205808>.

This Conference Proceeding is brought to you for free and open access by the Applied Engineering and Sciences at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in Applied Engineering and Sciences Scholarship by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact Scholarly.Communication@unh.edu.

Implementing a Competency-Based Information Technology Curriculum: Challenges and Opportunities

Mihaela Sabin

University of New Hampshire
Manchester, New Hampshire, United States
mihaela.sabin@unh.edu

ABSTRACT

ACM and IEEE Computer Society released new curriculum guidelines for baccalaureate degree programs in Information Technology, also known as the IT2017 report. Built on the foundation of the first ACM/IEEE IT2008 report, the new report, published in December 2017, stands out by its focus on employer-informed competencies that IT graduates should have in order to meet technological challenges of the workplace in the next decade. This poster highlights elements of the IT2017 curricular framework that help academic departments apply a competency-based approach to IT program development. Although competencies are prevalent in many areas of professional practice, placing competencies at the center of IT curriculum development requires rethinking of how we design learning environments in which students achieve IT competencies. In this poster I present some challenges with implementing the IT2017 curricular framework and discuss opportunities for turning the IT2017 report into a living document that learns from IT programs' implementation experiences.

CCS CONCEPTS

• **Social and professional topics** → **Model curricula; Computing education programs; Information technology education; Student assessment; Computing profession;**

KEYWORDS

Information technology curricula, IT2017 report, IT curricular framework, IT competencies

ACM Reference Format:

Mihaela Sabin. 2018. Implementing a Competency-Based Information Technology Curriculum: Challenges and Opportunities. In *Proceedings of 23rd Annual ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '18)*. ACM, New York, NY, USA, 1 page. <https://doi.org/10.1145/3197091.3205808>

1 OVERVIEW

The development of IT2017 curricular guidelines for high quality and rigorous baccalaureate IT programs has adopted a comprehensive approach that engaged international perspectives [4] and examined the needs and expectations of employers of IT graduates

[3]. The vision of the IT2017 report [1] is that IT programs should prepare students with knowledge and skills and, at the same time, encourage formation of dispositions in competency-driven learning environments [2].

A competency-centered IT curricular framework is a relatively novel departure from the traditional body of knowledge sliced and diced into areas, units, and topics. A content-based approach is more likely to generate guidelines centered on what needs to be taught or "covered". A competency-based approach, by contrast, focuses on a performance perspective of learning that transcends the boundaries of topics and some basic skills, and focuses instead on authentic performance tasks and transfer of learning in new situations. The poster summarizes the novelties of the IT2017 report, including the report's operational definition of IT competencies, integrative nature of competency domains, and implementation flexibility through essential and supplemental IT domains. A particular attention is given to the IT2017 guidelines' applicability to a variety of baccalaureate programs regardless of their prescribed duration.

The IT2017 report introduced the *IT domain cluster* tool to help IT faculty members rethink the development of IT curriculum through the lens of performance goals and how students demonstrate what they can do with what they learn. In this poster I examine how to translate into practice a competency-based curriculum by designing learning activities in which students develop skills and form dispositions in the context of authentic aspects of IT work. The poster makes recommendations for turning the IT2017 report into a living document that listens to and learns from curriculum development experienced directly by academic programs.

ACKNOWLEDGMENTS

The author would like to thank the ACM for its sponsorship of the IT2017 project activities.

REFERENCES

- [1] IT2017 Task Group. 2017. *Curriculum Guidelines for Baccalaureate Degree Programs in Information Technology*. <http://it2017.acm.org>
- [2] D. Perkins, E. Jay, and S. Tishman. 1993. Beyond abilities: A dispositional theory of thinking. *Merrill-Palmer Quarterly* 39, 1 (1993), 1–21.
- [3] Mihaela Sabin, Paul Snow, and Barbara Viola. 2016. Industry and Faculty Surveys Call for Increased Collaboration to Prepare Information Technology Graduates. *J. Comput. Sci. Coll.* 31, 6 (June 2016), 70–78. <http://dl.acm.org/citation.cfm?id=2904446.2904465>
- [4] Mihaela Sabin, Barbara Viola, John Impagliazzo, Renzo Angles, Mariela Curiel, Paul Leger, Jorge Murillo, Hernán Nina, José Antonio Pow-Sang, and Ignacio Trejos. 2016. Latin American Perspectives to Internationalize Undergraduate Information Technology Education. In *Proceedings of the 2016 ITiCSE Working Group Reports (ITiCSE '16)*. ACM, New York, NY, USA, 1–22. <https://doi.org/10.1145/3024906.3029847>