

Special Session: Writing for the IEEE Teaching Excellence Hub

Steve E. Watkins
Electrical and Computer Engineering
Missouri University of Science & Technology
Rolla, MO, U.S.A.
steve.e.watkins@ieee.org

Abstract—Technical educators can benefit by sharing practices, techniques, experiences, and approaches that have been successful in their classrooms. The IEEE Teaching Excellence Hub (TEH) provides curated educational materials and resources for those teaching engineering, computing, and technology at the university level. This virtual venue for professional development is intended to complement resources found through educational journals and conferences. The online site contains practice-oriented articles, event links, and other collections that are contributed by the engineering education community. This special session will provide an overview of the TEH platform and will prepare attendees for contributing as reviewers and authors. The target audience is active classroom educators at all levels.

Keywords—*faculty development and teaching skills*

I. INTRODUCTION

The IEEE Education Society (EdSoc) and the IEEE Educational Activities Board (EAB) launched the IEEE Teaching Excellence Hub (TEH) in Spring 2021. IEEE EdSoc is “dedicated to ensuring high-quality education in science and engineering” [1] and IEEE EAB has university-level education as one of its primary responsibilities [2]. As a collaborative activity, the online TEH site was created to be a clearinghouse of professional development resources for university educators in engineering, computing, and technology. It features short articles on topics that can help the global academic community continuously improve their teaching skills, gain practical knowledge, and grow professionally. These articles are presented on a less formal platform and are shorter than traditional journal and conference options. In addition, TEH provides links to selected events and collections that benefit this community. While the IEEE hosts have management and editorial roles, the TEH is available freely to all.

This special session will describe the TEH platform and will promote opportunities for reviewers and authors. Article expectations, review criteria, and idea development will be highlighted. University educators at all levels are welcome.

II. GOALS

The IEEE Teaching Excellence Hub is an online site of curated educational materials and resources for those teaching engineering, computing, and technology at the university level [3]. As a collaboration between the IEEE EdSoc and the IEEE EAB, the TEH has professional development resources for

engineering educators and offers authorship opportunities. This workshop will describe the online platform and relevant topics, will describe the review rubric for submitted content, and will guide the attendees in developing potential submissions. The intents are to expand familiarity with the site among educators and prepare attendees to be reviewers and authors. The information presented and the interaction among attendees will encourage dissemination of best practices, practical techniques, innovative experiences, and other approaches that are related to effective classroom teaching and student engagement.

III. DESCRIPTION

The TEH link is <https://teaching.ieee.org> [3]. Content is contributed from the global academic community and has open availability. The Editorial Board is made up volunteers from the IEEE hosts and manages the site and peer-review process. The review rubric and a flyer are given in the Appendices.

Utility and accessibility of content are primary considerations. Articles must relate to a defined topic of educational interest. They must be original or must survey existing material in a significant way. They must be succinct (500-1000 words, not including references and author biographies) with a practice-oriented message. A key question in the review is “Can the core idea be applied by the readers?” Accepted articles are indexed by topical tag and posting date. Typical review completion time is six-to-eight weeks. Readers may sign-up for email notification of new content.

TEH articles are published under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License [4]. This license defines content use and author attribution as illustrated in Figure 1.



Fig. 1. Articles are published under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License [4]

The curated articles and resources have indexing tag(s) to facilitate users of the site as noted. The current topical tags are shown in Table I which show the TEH scope. A working definition of each topic is given on the site.

TABLE I. CURRENT TOPICAL TAGS

Academic Integrity	Flipped Classroom Learning
Accreditation	Laboratories
Active Learning	Learning Engineering
Assessment Techniques	Learning Management System
Blended Learning	Learning Science
Capstone Project	Learning Technologies
Career Development	Project-Based Learning
Cooperative Learning	Remote Instruction
Curriculum Design	Standards
Distance Education	Student Accessibility
Educational Research	Time Management
Equality, Diversity, & Inclusion	-

Examples of article citation are given below. The former article has a tag of *career development* and the latter article has a tag of *project-based learning*.

- S. E. Watkins and Nancy M. Ostin, “The HKN Honor Society as an Institutional Resource,” *IEEE Teaching Excellence Hub*, Posted Aug. 24, 2023. Available: <https://teaching.ieee.org/>.
- S. Gillespie, “Make EPICS in IEEE your partner for academic service learning projects,” *IEEE Teaching Excellence Hub*, Posted March 21, 2023. Available: <https://teaching.ieee.org/>.

TEH readers enjoy a clearinghouse of articles and other professional development resources. Potential authors have a publication outlet for material that has a teaching-practice orientation. Such publication options are especially appropriate for faculty with primary responsibilities in teaching. The dissemination of best practices, teaching successes, etc. has important value for the academic community.

IV. RATIONALE AND NOVELTY

This session provides an introduction to the TEH and will show how the online publication differs from and complementary to journal and conference options. The practice orientation of the content is emphasized. The platform targets engineering educators in engineering, computing, and technology who are active in the classroom and who wish to share with and learn from other educators.

The TEH welcomes submission of short articles, resource links, and events to benefit the global engineering education community. The Editorial Board curates and reviews all submissions for posting on or linking from the site. This group is made up of subject-matter experts from all IEEE regions to reflect the global nature of engineering education. There are no publication charges for accepted content.

V. AGENDA AND DESCRIPTION OF WHAT TO EXPECT DURING THE SESSION

The session will begin with an overview of the structure and curated content of the TEH. Particular focus will be given to article content, submission, and review. Then, an interactive discussion will explore potential ideas for articles.

The session details are given below.

- Introduction and survey of reasons for attending the session (5 minutes).
- Overview of the Teaching Excellence Hub (10 minutes).
 - Organization of the TEH.
 - Types of submitted content.
 - Content appropriate for TEH articles.
 - Curation process (submission, review, etc.).
- How to best prepare an article submission (25 minutes).
 - Type, topical content, and format expectations of articles.
 - Article review rubric.
 - Selected articles as examples.
- Interactive portion – how to frame a core message and appropriate scope for article submission (40 minutes).
 - Guided discussion – discuss potential submission ideas.
 - Guided discussion - refine core message and scope of potential submissions.

Attendees are encouraged to bring ideas from their own experience that can be developed for article submission. These ideas will be shared and discussed during the interactive time. A packet of the session slides, definition of topical tags, article review rubric, and submission guidelines will be provided.

VI. EXPECTED OUTCOMES

The TEH is hosted and managed by the IEEE EdSoc and the IEEE EAB as a service to the larger community of technical university educators. Under the logo shown in Figure 2, the online resource complements scholarly journals, technical conferences, etc. with an emphasis on best practices, practical techniques, innovative experiences, and other approaches related to effective technical education.

The desired outcomes for the workshop are as follows.

- Attendees will be familiar with the TEH platform and the types of short articles which can be published.
- Attendees will know the expectations for these short articles and understand how the TEH review rubric is applied for acceptance.
- Attendees will develop an idea related to the TEH topics with an appropriate message and scope for a potential submission.

VII. ABOUT THE FACILITATOR

Steve E. Watkins is a Professor of Electrical and Computer Engineering at Missouri University of Science and Technology (formerly the University of Missouri-Rolla). His Ph.D. is from the University of Texas at Austin (1989). He is active in IEEE (senior member), IEEE-Eta Kappa Nu, Tau Beta Pi, SPIE (Fellow), and ASEE. He is a founding and current co-chair of the Editorial Board of the IEEE Teaching Excellence Hub. He has served as the 2018 IEEE-Eta Kappa Nu President, an 2019-2022 IEEE Education Society Vice-President, the 2019-2020 ASEE ECE Division Chair, the 2015-2017 ASEE Zone III Chair, and the 2009 ASEE Midwest Section Chair. Contact: steve.e.watkins@ieee.org.



Fig. 2. IEEE Teaching Excellence Hub (TEH) Logo

ACKNOWLEDGMENT

Timothy Kurzweg (Penn State Erie, The Behrend College), Hamadou Saliah-Hassane (TELUQ University of Montreal), and Russ Meier (Milwaukee School of Engineering) are other members of the TEH Editorial Board Steering Committee. Sadiq Mitchell, sadiq.mitchell@ieee.org, (IEEE Educational Activities Board) is the staff support. Their contributions to this session and the TEH are greatly appreciated.

REFERENCES

- [1] "About the IEEE Education Society," IEEE. <https://iee-edusociety.org/about/ieee-education-society> (accessed July 26, 2024).
- [2] "IEEE Educational Activities," IEEE. <https://ea.ieee.org/ea-programs> (accessed July 26, 2024).
- [3] "IEEE Teaching Excellence Hub," IEEE. <https://teaching.ieee.org> (accessed July 26, 2024).
- [4] "Attribution-Noncommercial-NoDerivatives 4.0 International," Creative Commons. <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode> (accessed July 26, 2024).

APPENDICES

Appendix 1. Article Review Rubric

Category	Category Explanation	Comments
<i>Guidelines and Topical Tag(s)</i>	<p><i>Guidelines and Topical Tag(s)</i></p> <p>Is the submission original or is it an original overview (survey article) linking existing materials?</p> <p>Is the submission appropriate for a Creative Commons License?</p> <p>Does the word count match the guidelines?</p> <p>Is/are the suggested tag(s) appropriate?</p>	
<i>Writing Style and Mechanics</i>	<p><i>Writing Style and Mechanics</i></p> <p>Is the message clear and the writing understandable?</p> <p>Are the terms, grammar, spelling, and formatting appropriate?</p>	
<i>Appropriateness for the Teaching Excellence Hub</i>	<p><i>Appropriateness for the Teaching Excellence Hub</i></p> <p>Is the work of interest to the audience of engineering and technology educators? Is the content useful for professional development of such educators? Is the message within the scope of the site?</p>	
<i>Significance and Accuracy</i>	<p><i>Significance and Accuracy</i></p> <p>Are the significance of the work and the ideas clearly presented? Are the technical details and terminology accurate?</p>	
<i>Supporting Figures, Links, and References (Optional)</i>	<p><i>Supporting Figures, Links, and References (Optional)</i></p> <p>Do the figures, links, and references support the message?</p> <p>Are the figures, links, and references necessary and complete?</p>	
<p>Overall Reviewer Assessment</p> <p>Accept as is _____</p> <p>Do not accept _____</p> <p>Accept with minor revisions (suggested) _____</p> <p>Accept with revision (required) _____</p>		(Note areas for mandatory revision)



The IEEE Teaching Excellence Hub contains valuable curated and peer-reviewed educational materials and resources for those teaching engineering, computing, and technology. Whether you are an established faculty member or at the start of your career, you will find useful content you can put into practice to enhance your effectiveness as an educator.

Topics currently available include:

- Academic Integrity
 - Assessment Techniques
 - Capstone Projects
 - Cooperative Learning
 - Equity, Diversity & Inclusion
 - Educational Research
 - Learning Science
 - Learning Technologies
 - Remote Instruction
- With more topics to be added...

A collaboration between the IEEE Educational Activities Board and the IEEE Education Society, the Hub's resources reflect the global nature of IEEE.

Visit the Hub at:

teaching.ieee.org

