

**Call for IEEE Education Workshops:
Real World Engineering Projects (RWE):
Best Pedagogical Practices for Electrical Engineering,
Computer Engineering, Computer Science and Electrical Engineering Technology**

Program Description

The goal of this program is for IEEE to disseminate high quality, online, self-study workshops for use by faculty members worldwide in electrical engineering (EE), computer engineering (CE), computer science (CS), and electrical engineering technology (EET). These workshops will describe the best pedagogical techniques for the EE, CE, CS, and EET classroom. These workshops will be based on the latest results from the research on learning and on techniques that have increased student learning in engineering, science, technology, and mathematics. The workshops will offer practical information that can be easily transferred to the classroom by the faculty who use them.

The RWE program will produce a library of online self-study workshops. Some example workshop topics might include (but are not limited to) how to:

- design course material around core concepts;
- employ real-world, contemporary applications (i.e. examining the course material from multiple contexts);
- address student diversity—learning styles, background/preparation level, entering skills, knowledge, attitudes and expectations;
- develop problem-solving skills through the use of hands-on projects and case studies;
- use collaborative learning techniques to help students work effectively on teams (one example: pair-programming);
- design effective assessment techniques (contrasted with ineffective methods); and,
- foster community and create a supportive learning environment focused on success.

IEEE is issuing this call for workshops in order to solicit high-quality workshop submissions. Workshop submission is a three-stage process. First, the proposer submits a five to nine slide summary abstract. If accepted after review, the proposer is invited to submit a more detailed workshop proposal. If accepted after review, the proposer is invited to submit a full workshop for inclusion in the RWE workshop library, which will be made available to the public through IEEE's *University Education Portal*.

Once the full workshop is submitted to IEEE, an award is made to the proposer. The award includes:

- a monetary award of \$5000 US.
- an invitation to submit a manuscript describing the workshop to a special section of the *IEEE Transactions on Education* dedicated to RWE projects and workshops.
- an invitation to submit the workshop for presentation at an IEEE-sponsored workshop.
- an invitation to serve on the advisory board for future RWE calls.
- a plaque and congratulatory letter.

Stage One: Abstract Submission

A five to nine slide summary abstract that describes the workshop must be submitted by April 30, 2008. A proposer may be the lead author on at most one abstract. The slides must contain the following.

- [1] Workshop title and a figure that illustrates the topic.
- [2] Introduction to the best pedagogical practice topic.
- [3] Germane results from recent, peer-reviewed, published literature (provide one citation).
- [4] List of three to five learning objectives for the EE, CE, CS, or EET faculty member who will use this workshop in a self-study fashion.
- [5] Example of how the workshop material can be used to benefit instruction in an EE, CE, CS, or EET undergraduate class.

Since the intended audience is EE, CE, CS and EET faculty worldwide, the workshops should be designed for an international audience. An abstract is either rejected or invited for a workshop proposal submission; applicants will be notified via email of the review decision by May 31, 2008.

Abstracts should:

- Use PowerPoint slides of standard size, using plain white backgrounds and Arial font 18 point or larger.
- Use the “notes” area of each slide for a few bullet points to support the material being presented on the slide.
- Not give the proposer’s name, or in any other way indicate his/her identity or the name of his/her institution. (Note: It is acceptable to cite your own work for the one requested citation.)
- Be submitted electronically as a PDF file at www.realworldengineering.org before April 30, 2008.

Abstract submissions that do not adhere to the requirements will not be reviewed.

Abstracts will be peer-reviewed using a double-blind process. Abstracts will be reviewed based on three criteria: relevance, quality and transferability.

- **Relevance:** Does the proposed workshop address a best pedagogical practice topic from the recent research on learning? How compelling are the published results on the effectiveness of the proposed pedagogical practice? Do the recent research/results demonstrate that this is an effective approach for the engineering classroom?
- **Quality:** Is the proposed workshop described in a straightforward, organized, and complete manner? Are the proposed workshop description and methods accurate, clear, and concise?
- **Transferability:** Does the proposed workshop provide CE, CE, CS and EET faculty with enough background information and examples to allow them to adopt the best practice in their own classrooms?

Stage Two: Workshop Proposal Submission

Proposers of successful abstracts will be invited to submit a workshop proposal. A workshop proposal is an extended version of the abstract. Workshop proposals must be submitted by July 31, 2008. The workshop proposal must be a single PDF file containing:

- [1] The outline of an *on-line self-study lecture* (about twenty PowerPoint slides) that motivates and introduces the best pedagogical practice topic. A background review that includes results from the recent, germane, peer-reviewed, published literature must be presented (do not include citations in the slides; if awarded, a list of pertinent references will be required). A description of how to employ the topic in an EE, CE, CS, or EET undergraduate class must be demonstrated.
- [2] A *text script* that contains the corresponding narrative for the slides in [1]. The narrative should be sectioned and ordered by slide number; its length should accommodate 30 seconds to 2 minutes of audio per slide.

The workshop title should appear at the beginning of both parts of the document. Since the intended audience is EE, CE, CS and EET faculty worldwide, the workshops should be designed for an international audience. A workshop proposal is either rejected or invited for full development and inclusion in the workshop library; applicants will be notified via email of the review decision by September 5, 2008.

Workshop proposals should:

- Use PowerPoint slides of standard size, using plain white backgrounds and Arial font 18 point or larger.
- Leave the “notes” area of each slide empty (instead, put this information in the accompanying text script).
- Use one inch margins on all sides, and Arial 11 point font with single spacing for the text script.
- Not give the proposer’s name, or in any other way indicate his/her identity or the name of his/her institution.
- Be submitted electronically as a single PDF file containing both PowerPoint and text script by July 31, 2008.

Workshop proposal submissions that do not adhere to the requirements will not be reviewed. Workshop proposals should carefully address any feedback from the review of the submitted abstract. Details on the electronic submission process will be given to invited proposers.

Workshop proposals will be peer-reviewed using a double-blind process. They will be reviewed based on the same three criteria used for abstract review: relevance, quality and transferability.

Stage Three: Full Workshop Submission

Proposers invited to submit full workshops must do so by December 1, 2008. The workshop submission must contain the following individual documents:

- [3] An **online, self-study lecture** (40-70 PowerPoint slides) that motivates and introduces the best pedagogical practice topic. A background review that includes results from the recent, germane, peer-reviewed, published literature must be presented (do not include citations in the slides; if awarded, a list of pertinent references will be required). A description of how to employ the topic in an ECE/CS undergraduate class must be demonstrated with at least two examples. Comparisons of curriculum “before” and “after” the best pedagogical practice is used are important for helping the audience understand *how* to use the workshop in their own classes. Illustrative figures and embedded videos are highly encouraged.
- [4] A **full text script** (a PDF document) that contains the corresponding narrative for the slides in [1]. The narrative should be sectioned and ordered by slide number; its length should accommodate 30 seconds to 2 minutes of audio per slide.

The workshop title should appear at the beginning of both documents.

Full workshops should:

- Use PowerPoint slides of standard size, using plain white backgrounds and Arial font 18 point or larger.
- Have one-inch margins on all sides of text pages, and use Arial 11-point font.

Full workshops should carefully address any feedback from the review of the submitted abstract and workshop proposal. Details on the electronic submission process will be given to invited proposers.

Upon acceptance, the proposer (now awardee) will be awarded:

- a monetary award of \$5000 US.
- an invitation to submit a manuscript describing the workshop to a special section of the *IEEE Transactions on Education* dedicated to RWEP projects and workshops.
- an invitation to submit the workshop for presentation at an IEEE-sponsored workshop.
- an invitation to serve on the advisory board for future RWEP calls.
- a plaque and congratulatory letter; an awardee may choose for the letter to be copied to her/his Department Head and/or Dean.

The award is contingent upon the awardee:

- signing a copyright agreement giving IEEE full rights to the submitted workshop materials;
- submitting any additional material needed for complete and proper execution of the workshop (e.g., a list of further, recommended reading; a list of related research literature; additional files; video);
- submitting a 3-5 slide overview of the workshop for outreach/advertising purposes; and,
- working with IEEE staff to develop a final version of the workshop for online publication (slides and corresponding audio narrative).

Eligibility Criteria

To be eligible to apply for this program, a person must be a faculty member who teaches Electrical Engineering, Computer Engineering, Computer Science and/or Electrical Engineering Technology at a university that grants degrees in accredited EE, CE, CS and/or EET programs.

Additional Information

For further information regarding this program, contact realworldengineering@ieee.org .