Workshop - Service-Learning in Engineering, Technology and Computing

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Abstract - Service learning is a rapidly growing pedagogy in higher education and has come under increased visibility within engineering and computer science. Service-learning has been cited as a potential tool for increasing student engagement as well as diversity among our engineering, technology and computing student bodies. It has opportunities to excite the next generation of engineers, addressing issues including retention and diversity as well as learning in our classrooms. This workshop will introduce interested faculty, students and professionals to service-learning models and will provide resources for them to implement such programs at their respective institutions.

Index Terms – Service-learning

Goal

Goal of the workshop is to guide participants through the process of how to integrate service-learning into their own courses. The workshop is designed to present and discuss multiple successful approaches to service-learning allowing participants to create a customized plan that can be successfully implemented at their own institution.

Overview

Service learning is a rapidly growing pedagogy in higher education and within engineering, technology and computing. Service-learning provides a learning environment that is very well-matched with ABET well as the National Academy’s Engineer of 2020. Students can learn strong technical skills while developing teamwork, communication and leaderships skills. The community and human context of service-learning provides rich learning experiences for contemporary social, global and ethical issues. Service-learning can provides the kind of curricular efficiency necessary to develop the diverse attributes needed for tomorrow’s engineers without compromising disciplinary fundamentals. Evidence suggests that service-learning also has the potential to increase participation among underrepresented populations within engineering, technology and computing. This interactive workshop will provide an introduction to service-learning and allow participants to explore how it could be integrated into their own courses and curricula. Resources, partnerships and potential barriers will be discussed to provide strategies for successful implementation at the participants’ own institutions.

AGENDA TOPICS AND FORMAT

The workshop will use cycles of presentation, individual reflections, small group discussions and large group discussions. The mixture of small group and large group will depend on the number in attendance.

- Introduction to the workshop, agenda and format – 10 minutes
- Overview of Service-Learning – 20 minutes
  - What are the key characteristics of Service-Learning, Opportunities and Successful models
- Institutional needs assessment – 10 minutes
  - Participants will reflect and discuss needs at their own institutions and how service-learning can address these needs
- Getting started, what are the first steps – 15 minutes
  - Guided exploration of how to begin planning
- Course and curriculum issues – 15 minutes
  - Participants will explore and discussion issues including:
    - How is it managed,
    - What are the course structures,
    - How does it fit within the curriculum
- Break – 10 minutes
- Maximizing Learning with Analysis and Reflection – 15 minutes
  - Participants will practice reflection activities
- Assessing student learning – 20 minutes
  - Exploration of assessment methods and discussions about what will fit into participants’ plans
- Developing partnerships - community and corporate – 15 minutes
  - Discussion of possible partnerships and resources available at respective institutions
- Building institutional support – 10 minutes
  - Discussions about how to build institutional support within the respective institutions
• Tools and resources – 10 Minutes
  o Presentation of available resources and tools for faculty
• Sharing of Models – 20 Minutes
  o Participants will share their plans developed during the workshop for feedback
• Questions and discussions – 15 minutes
  o Time set aside for questions not addressed with other topics
• Workshop evaluation – 5 minutes

AUDIENCE

Current and future engineering, technology and computing educators interested in multidisciplinary teams, diversity innovation, design education and service learning will find this workshop valuable.

AUTHOR INFORMATION

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REFERENCES


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