

Service Learning in Software Engineering and Maintenance

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Abstract: We discuss a service-learning program called EPICS (Engineering Projects In Community Service). More specifically, we describe an effort to incorporate EPICS within Computer Science and Software Engineering curricula at Purdue University and Butler University, respectively.

EPICS at Purdue University

The EPICS (Engineering Projects In Community Service) program was first created at Purdue University in 1995 as a multi-disciplinary, community service-learning program, where students are expected to undertake long-term projects for not-for-profit organizations in the community [1]. Traditionally, under a service-learning program such as EPICS, engineering students earn academic credit for long-term team projects that solve technology-based problems for local community organizations. In 1997, the *national* EPICS program was created in order to promote the idea of a community service-learning model across the USA. Today, it involves ten Universities including Purdue University, University of Illinois-Urbana, The University of Notre Dame, Butler University, Iowa State University, Penn State University, Case Western Reserve University, Georgia Institute of Technology, University of Wisconsin-Madison and University of Porto-Rico. In this panel discussion, we will focus on two instances of the EPICS program, which have been incorporated within Computer Science and Software Engineering curricula [2][3].

The EPICS program at Purdue University entails various computer science projects. For instance, the Volunteer Resource Infrastructure (VRI) team is partnering with the Greater Lafayette Volunteer Bureau (GLVB) in order to support the GLVB's mission of promoting and developing volunteerism, encouraging fun, challenging, and fulfilling opportunities for people to give back to their community. To help meet a key goal of the GLVB in lowering the barriers to entry in volunteering, VRI is developing web-based software to facilitate the process of connecting volunteers with appropriate opportunities. The VRI software maintains a database of information from potential volunteers and potential opportunities, and provides mechanisms to help the involved parties, as well as GLVB personnel, identify and follow up on good matches. In seeking to develop robust, maintainable software that will scale to satisfy the future needs of the partnership, the team is applying an iterative design and implementation approach, following a modified version of the Unified Software Process using the Unified Modeling Language. The project partner has been involved

throughout the process, providing valuable feedback on documentation and at reviews.

EPICS at Butler University

During the fall of 2001, the department of Computer Science and Software Engineering (CSSE) at Butler University instantiated the EPICS model within a Computer Science and Software Engineering curriculum. In that context, we created three CSSE courses named CSSE 283, CSSE 383 and CSSE 483 for students of the second, third and fourth years, respectively. These courses provide an environment, where computer science and software engineering students can develop a good balance between their technical and “soft” skills (i.e. team-dynamics, conflict management, thinking “outside the box”, professional attitude and habits etc.). Upon completion of its second year, the EPICS program at Butler University has involved more than twenty-three students, two faculty members and five local not-for-profit organizations. Among these five EPICS community partners are two middle schools in the Indianapolis Metropolitan area, the Indianapolis Legal Aid Society (ILAS), which provides free legal services to low income population and the Undergraduate Research Office at Butler University, which conducts and manages an annual research conference with more than 400 participants. Also, the POLIS community service center is the fifth partner that provides free demographic information to low-income population in central Indiana. So far, we have formed three software projects for these organizations. Among these EPICS projects, one is a forward engineering project called “Spanish In Action”, which entails the development of educational software tools for teaching the Spanish language to elementary school students. The other two projects, namely the URC (Undergraduate Research Conference) management system at Butler University and the SAVI (Social Assets and Vulnerabilities Indicators) project at the POLIS center are software maintenance, modernization and evolution projects. For more information on these projects, please visit the Butler web site listed above.

References

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