Bring Best of Two Worlds in a Software Engineering Class: Outcomes of ABET and ACRL Standards

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Abstract

This collaborative project between librarians and a faculty member of Nelson College of Engineering, West Virginia University Institute of Technology (WVU Tech) identifies the importance of information literacy (IL) in accreditation documents and then leverages accreditation guidelines from Accreditation Board of Engineering and Technology (ABET) student outcomes to integrate IL skills from standards of the Science and Technology Section (STS) of the Association of College and Research Libraries (ACRL) into an existing software engineering course. This project was sponsored by West Virginia University Information Literacy Course Enhancement Grant. This collaboration enabled us to deliver IL content throughout the semester rather than in one discrete lecture and to facilitate the development of a realistic assessment plan. We concentrate on four professional skills: teamwork, communication, ethics and lifelong learning. We also identified the different points of view of ABET and ACRL regarding the relationship of the engineers with the data they work with. As conducting researches, designing projects, and writing reports are most effective vehicles for students' learning of strategic and rigorous information retrieval and management, the class includes a group software-development project and an individual paper-writing project. We included different data collection and evaluation methods distributed throughout the semester, including Standardized Assessment of Information Literacy Skills (SAILS), a web-based tool to document IL skill levels and to pinpoint areas for improvement.

Mapping of ABET Outcomes, ACRL Standards and our Implementation techniques

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<tr>
<th>ABET Outcomes</th>
<th>ACRL Standards</th>
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| Outcome (b) An ability to analyze a problem and identify and define the computing requirements appropriate to its solution | Standard One The information literate student determines the nature and extent of the information needed. | Role of Engineering Faculty
Assign a project to each team. Conduct Active Learning Sessions so the students can
• analyze the assigned problem
• identify and define the computing requirements
determine the nature and extent of the information needed.
City, Relevance, Authority, Accuracy, Purpose (CRAAP) test
Financial Literacy Test
• General Survey/Test on Information Literacy |
| Outcome (a) An ability to apply knowledge of computing and mathematics appropriate to the discipline | Standard Two The information literate student acquires needed information effectively and efficiently. | Role of Librarians
Conduct General Library Session at the beginning of the semester on
• Available resources – Databases, Card catalog, Types of sources
• Non Available resources - Interlibrary loans
• Searching tools and techniques Special one-to-one sessions with each team |
| Outcome (c) An ability to design, implement, and evaluate a computer based system, process, component, or program to meet desired needs | Standard Three The information literate student critically evaluates the procured information and its sources, and as a result, decides whether or not to modify the initial query and/or seek additional sources and whether to develop a new research process. | |
| Outcome (i) An ability to use current techniques, skills, and tools necessary for computing practice | Standard 4.3: Acknowledges the use of information sources in communicating the product or performance | Specific Library Sessions during the semester
Conduct workshop on mentorship. Provide detailed instructions with grading policy |
| Outcome (f) An ability to communicate effectively with a range of audiences | Standard 4.6: Communicates the product or performance effectively to others. | Work as a team member to find related information
Solicit input |
| Outcome (d) An ability to function effectively on teams to accomplish a common goal | Standard 3.5: Validates understanding and interpretation of the information through discourse with other individuals, small groups or teams. | |
| Outcome (e) An understanding of professional, ethical, legal, security and social issues and responsibilities | Standard 4: The information literate student understands the economic, ethical, legal, and social issues surrounding the use of information and its technologies and either as an individual or as a member of a group, uses information effectively, ethically, and legally to accomplish a specific purpose. | |
| Outcome (g) An ability to analyze the local and global impact of computing on individuals, organizations, and society | Role of Librarians
Conduct Special sessions
• Play video on explosion of the Challenger, the Three Mile Island Nuclear Power Plant accident, Bhopal, Chernobyl and the Ford Pinto incidents
• Engineering Ethics Standards
• Conduct discussion on Engineering Ethics |

There are three major approaches to identifying courses more which it can be incorporated into suitable candidate for introducing education: full curriculum reform, il, we performed a literature dedicated courses, and inclusion in survey to see what other school existing courses. As our department is doing, after careful currently preparing for ABET considerations, we selected CS accreditation, finding faculty time to 222 Introduction to Software plan and implement full curriculum engineering to toms. We change would be too ambitious for us. While this second approach seems very appealing, the pressure exerted by state candidate for introducing it. The legislatures and university administrators to reduce the number of students. The class is required for hours in engineering programs, makes Analysis and Design Methodology changes to existing courses, a practical which is prerequisite for CS 461 Solution Senior Project capstone class.

References

http://www.abet.org