Collaborative Partnerships: Writing in the Engineering Classroom (using Undergraduate Course Assistants from the English Department to Improve Writing Skills in Science and Engineering Students)

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Abstract – This interactive session will demonstrate the use of undergraduate course assistants (UCAs) from liberal arts majors, typically the English department, to promote the effective written communication skills of freshman engineering students. The session demonstrates a collaborative learning experience that will allow participants to create a similar learning experience in their classroom and/or institution. One presenter has successfully used UCAs from the English Department in the freshman engineering program for ten years. For the past three years, UCAs, under the guidance of the authors, have worked in the Materials Science course for sophomores, and the Senior Design Capstone Project. The objective of this session is to provide participants with a model and help them develop a model of their own that will improve the written communication skills of science and engineering students by incorporating the use of UCAs into the engineering classroom.

Index Terms – Writing, communication, undergraduate course assistants, freshman programs.

SESSION GOALS

The goals of this interactive session are:

1. to provide participants with an opportunity to discuss and explore the importance of the interrelationships of writing, thinking, and problem solving and the importance and benefits of incorporating more writing into the engineering classroom;
2. to provide participants with an opportunity to discuss and develop a model to use UCAs in their engineering classrooms and/or institutions; and
3. to provide participants with an opportunity to discuss and develop a training model for UCAs to insure consistent and reliable responses to engineering students’ writing.

SESSION FORMAT

The session will be divided into seven parts, which will alternate between interactive discussions, small group work and demonstrations of research and practices by the presenters.

Part 1
The audience will fill out a brief questionnaire about their use of writing and critical thinking skills in their engineering classes.

Part 2
The relationship between writing, critical thinking and problem solving skills in the engineering curriculum will be discussed. Theories will be demonstrated that support the link between writing, thinking, and problem solving.

Part 3
Audience members will form small groups, brainstorm and have an active discussion about their use of writing in the classroom and/or why they do not use writing in the classroom. Responses will be recorded and collected. Summaries of audience responses will be compiled and discussed.

Part 4
One successful method for developing writing and critical thinking skills in the engineering curriculum has been the incorporation of Undergraduate Course Assistants (UCAs) into the classroom. A model that shows the different roles of UCAs in the classroom will be demonstrated.

Part 5
Following a discussion, the small groups formed in part 3 will be asked to create a scenario that addresses the issues of writing and critical thinking and how they would incorporate UCAs into their engineering classrooms. Small groups will report out to the whole group.

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Part 6
A training model that insures consistency in UCA responses to student writing and other student learning issues will be discussed.

Part 7
An organizational system for employing UCAs in the Freshman Engineering Program will be presented. This organizational system has also been used in a sophomore Materials Science course and Senior Design courses at SUNY Binghamton.

Information gathered during this session will be collated and shared with interested participants.