

In Pursuit of Teaching Excellence in the Classroom -- Instructor Summer Workshop at West Point

Joseph P. Hanus and Mark D. Evans

United States Military Academy, West Point

Introduction

The Army calls it “Train the Trainer”. It is the program of instruction given to soldiers who will be training other soldiers in critical military tasks. Emphasis is placed on ensuring that instructing soldiers know the tasks and standards well, and can deliver an effective class. The stakes are high for most of these tasks, simply because lives depend on their proper execution. Clearly, we do not face the same level of urgency in the engineering classroom, but that does not diminish the professional requirement to train new instructors in techniques for delivering high-quality instruction. Engineering students will rise to the high educational standards set for them in the classroom. Sending untrained instructors into the classroom can result in a lower standard of instruction, can diminish the expectations and interest of the students, and may ultimately reduce the quality of engineers in the profession.

The Department of Civil and Mechanical Engineering at the United States Military Academy places great emphasis on training instructors prior to their entering the classroom to teach engineering courses. Our goal is that students, on the first day of class, will not be able distinguish between rookie instructors and veteran teachers. This standard is achieved by devoting significant resources (mostly time), to the new instructors’ education and preparation during the summer when they first arrive. The program of teacher-instruction is called the Instructor Summer Workshop (ISW), which the first author has directed for the department during the last two summers.

Workshop Origins

The Instructor Summer Workshop has evolved over the decades, since it was first conducted in the 1940’s, shortly after WWII. The ISW program is reported to have its origins in the Mechanics Department, whose faculty had the reputation of being among the best teachers at USMA. The ISW program continues to evolve to ensure that new instructors achieve the highest quality instruction, information, and preparation for teaching. The earliest ISW programs began with new instructors observing veteran instructors teach class to demonstrate good teaching techniques. The new instructors would then be required to teach a block of lessons (3 to 4 contiguous lessons with a common theme) of a common engineering course and mimic the veteran instructor’s techniques. This early process was effective, but over the years, several

Session 2215

senior instructors realized that this process of training new instructors lacked some of the more scholarly components that we might consider important today. In response, they set out to establish an ISW program based on a foundation of teaching standards, which new instructors would be expected to meet. The new program did not eliminate the veterans' techniques and wisdom, but organized the program into a logical sequence of training events and professionally recognized standards to be met. The more recent evolution of the ISW program into one based both on teaching techniques and on teaching pedagogy and standards was an important improvement in the department's pursuit of teaching excellence in the classroom.

The Current ISW Program

The current ISW program begins approximately six weeks prior to the start of the fall academic semester. A sample schedule from the ISW 2000 program is shown in Table 1. The ISW program is organized into four primary training events:

- Teaching Techniques Workshop,
- New instructor practice classes,
- Veteran instructor-taught demonstration classes, and the
- ASCE ExCEED Teaching Workshop.

These events are described in the following sections.

Teaching Techniques Workshop

The first primary training event, the Teaching Techniques Workshop, occurs during the first two days of the ISW program. The workshop establishes the expectations and teaching standards for the new instructors. The workshop draws on the work of many authors and respected texts on teaching, to include: Lowman ¹, Gregory ², Felder ³, Bloom ⁴, Stice ⁵, Angelo and Cross ⁶, McKeachie ⁷, and Wankat and Oreovicz ⁸. Additionally, veteran instructors weave into the workshop their sage wisdom and effective techniques they have used in classroom. However, the program is still centered on pedagogy and standards in addition to teaching techniques.

The standards for quality instruction are presented in three general areas:

- Preparation,
- Execution, and
- Assessment.

Preparation includes everything up to the start of the lesson. As part of their class-preparation efforts, new instructors are expected to ensure that they are fully confident in all aspects of the class material and ready to deliver an effective lesson. Various techniques are presented during the Teaching Techniques Workshop to ensure instructors are prepared to meet this standard. The techniques include lesson development, preparing lesson notes, rehearsal techniques, and classroom setup.

Session 2215

Execution includes everything that occurs during the lesson. The standards that instructors are expected to meet in executing their lesson plan is to ensure they have prepared the most effective learning environment possible. Various techniques for instructor success are again presented during the Teaching Techniques Workshop and are demonstrated by veteran instructors. The techniques include “lesson one introductions”; asking and answering questions, chalkboard writing, and movement throughout the classroom are presented in interactive sessions.

Assessment includes those observations done by peers and by the instructors themselves. Although frequently brushed over or forgotten due to time constraints, this standard of quality instruction is critical to teaching development by all instructors. The standard for assessment is for instructors to recognize their strengths, identify areas for improvement and development of a plan to advance their teaching skills for the next lesson. New instructors are assessed after every lesson they teach during ISW with a standard assessment worksheet shown in Table 2 (please note that the “strengths” and “areas for improvement” sections have been collapsed to allow this table to fit on one page within this paper). The Teaching Assessment Worksheet is the department standard that is used by all faculty when observing and assessing fellow instructors.

The majority of the Teaching Techniques Workshop is presented in the first two days of the ISW program. However, two additional topics are better received after new instructors teach a few practice lessons first: “Developing Student-Teacher Rapport” and “Avoiding Chill in the Classroom”. Unfortunately, we learn the most from our mistakes and these topics are presented in a light-hearted manner that recall those awkward moments during the new instructor practice classes. Overall, these sessions are extremely effective for learning about those land mines in the classroom that can significantly detract from a positive learning experience.

New Instructor Practice Classes

Immediately following the Teaching Techniques Workshop, the new instructors have an opportunity to demonstrate their teaching skills in practice classes. Each new instructor teaches six and one half practice classes during the ISW program. These practice classes are drawn from the course they will teach and are carefully selected by veteran instructors to provide a building challenge of material and required classroom presentations. For each practice class the new instructors are provided “board notes” from a veteran instructor. These notes provide a baseline of material to be covered, but new instructors are not expected to following them verbatim. They are required to use these veteran notes in conjunction with the course text and other references to build an effective class. The new instructors are given the lesson objectives for each practice class to help them identify the lesson focus and guide them throughout their lesson preparations. The stakes are high for their first practice class, as they will be presenting the lesson to other new instructors, veteran instructors who are experts in the material, and other instructors who will act as typical students.

Session 2215

Realism is the key to the new instructors maximizing their learning experience with each new practice class. New instructors all teach their practice classes in the same classrooms they will be using for the academic year. They are required to demonstrate proficiency in the proper use of teaching aids and teaching standards as their fellow instructors role-play as “students” in the classroom. A significant portion of the “students” will take notes to provide feedback on the pace and clarity of presentation. Because of the high expectations and the steep learning curve for the new instructors, the first class is halted after 30 minutes of a standard 55-minute class. Although the new instructors gain valuable experience in their practice classes, it is the teaching assessment that immediately follows that provides the critical feedback on their performance.

The practice class teaching assessment is not an evaluation, but is meant to provide performance feedback essential to improvement. The assessors use the standard format during the verbal assessment in the classroom immediately following the class, Table 2. Everyone who participates in the class remains to provide additional insights into the assessment. However, it is critical that the assessment process is tactfully orchestrated by a veteran instructor to ensure it is a positive learning experience and does not digress into a replay of negative highlights. For the first several practice classes, only veteran instructors provide teaching assessments from their position of experience and expertise. Later in the ISW program, fellow new instructors are included in the teaching assessment process. The most effective teaching assessments focus initially on the expected standards for teaching excellence. New instructors are provided guidance on those areas they need improvement and areas where they should continue to meet the standard. Throughout the teaching assessment, veteran instructors include recommended techniques to help meet the standard of teaching excellence. The most effective assessments by veteran instructors conclude with recommended areas of improvement for the next practice class. The assessment process has a specific time limit and all written assessments are given to the new instructor for their reference in preparation for future classes. Finally, a videotape of the practice class is provided to the new instructor for their review and to reinforce areas of strengths and areas for improvement.

New instructors continue to prepare and teach practice classes throughout the 6-week ISW program. The scheduling of the practice classes requires preparation time and administrative time each week. New instructors teach their practice classes on a rotating schedule, which requires them to teach either Monday or Tuesday and Thursday or Friday. The practice classes are only scheduled during the morning hours, which provides sufficient preparation time during the afternoon for the next days’ classes. New instructors are initially overwhelmed in the process and their stress level escalates because of their desire to meet the standards of teaching excellence. This stress level helps provide realism in the program, similar to that which the new instructors will experience once they are “knee deep” in the academic year.

Wednesdays are set aside for administration and additional instructional workshops, campus orientation, etc. These scheduled events are typically conducted in the mornings to continue to provide the afternoon preparation time for instructors and to allow new instructors to get settled in their new housing. Additionally, each week the senior faculty uses this day to impart various

Session 2215

other department expectations and programs on the new instructors. For example, the mechanical and civil engineering divisions each present short design seminars that help new instructors see the “big picture” of department-level teaching goals. Additionally, tours of facilities and other departments help bring the new instructors on board with a baseline of knowledge.

Veteran Instructor-Taught Demonstration Classes

As previously stated, several veteran classes are presented as part of the Teaching Techniques Workshop. These initial veteran classes focus mainly on the basic standards of teaching excellence in the classroom. As the ISW program progresses, another veteran instructor presents a lesson to the new instructors every week of ISW. The focus of these additional veteran demonstration classes is varied. To emphasize the senior faculty commitment to teaching excellence, the Head of the Department presents a veteran class early in the ISW program. Additionally, with both military and civilian faculty members here at the academy, veteran classes are done by both to demonstrate an across-the-board expectation of all faculty and to illustrate a wide range of classroom personalities. Others lessons with specific objectives are presented to demonstrate their intricacies, to include “the first lesson” and classes with difficult teaching aids that require proficiency in their effective use. Finally, it is essential to the validity of the ISW program that the new instructors observe common teaching assessment techniques for all instructors (veteran and new) across the department – all classes, whether taught by veteran or new instructors, are similarly assessed by peers.

Integration with ExCEED

The culminating event in the ISW program in recent years is the ASCE ExCEED Teaching Workshop⁹. This nationally acclaimed event contains many of the elements of ISW in a one-week package. Junior engineering faculty from around the country come to USMA to experience a week of ISW-like instruction and practice. The program consists of the Teaching Techniques Workshop and a series of practice classes for every participant. The department’s new instructors act as junior faculty assistants in helping to pass on their recent ISW experience. The new instructors recognize this as an opportunity to see the ISW process from the perspective of a newly trained professional instructor. For several new instructors, this has been the most valuable part of the experience, essentially they are “training the trainers” now.

The Department of Civil and Mechanical Engineering at USMA is fortunate to have the resources and time to place such a significant emphasis on the ISW program. Most other institutions will never take the opportunity to develop a similar program for a variety of reasons. However, ASCE can help you! The ExCEED program can provide that opportunity for your institution to train a trainer. One faculty member can have a significant impact on a department and its renewed interest in Teaching Excellence in the classroom.

Final Comments

Throughout the ISW program, the new instructors will bond with each other through their initial struggles and eventual mastering of the required teaching skills. As with any bonding-type common experience, several team-building exercises are planned during the ISW program to ensure that everyone maintains a proper attitude and has some fun. Overall, the new instructors develop into a strong team that they rely on for the upcoming year. It is the positive experience during ISW that ensures that each new faculty member feels well integrated into the department and can look forward to several enjoyable years teaching.

Bibliography

1. Lowman, Joseph (1995), *Mastering the Techniques of Teaching*. San Francisco: Jossey-Bass.
2. Gregory, John Milton (1998) "The Laws of Teaching", Baker Books, Grand Rapids, Michigan, Fifth Printing.
3. Felder, Richard M. (1993) "Reaching the Second Tier—Learning and Teaching Styles in College Science Education." *Journal of College Science Teaching* 23 (5): 286-290.
4. Bloom, Benjamin S., ed. *Taxonomy of Educational Objectives*. New York: Longman, 1956.
5. Stice, James E. "A First Step Toward Improved Teaching." *Engineering Education* 66 (February 1976): 394-398.
6. Angelo, Thomas A. and K. Patricia Cross. *Classroom Assessment Techniques: A Handbook for College Teachers*. San Francisco: Jossey-Bass, 1993.
7. McKeachie, W. J. *Teaching Tips: A Guidebook for the Beginning College Teacher* (9th ed.). Lexington, MA: D. C. Heath, 1994.
8. Wankat, Phillip C. and Frank S. Oreovicz. *Teaching Engineering*. New York: McGraw-Hill, 1993.
9. ASCE Web Page at www.asce.org -- Faculty Development and ExCEED, www.asce.org/peta/ed/fdexed.html, 2000.

Joseph P. Hanus

Joseph P. Hanus is an Assistant Professor and Major, US Army, Department of Civil and Mechanical Engineering, United States Military Academy, West Point, NY 10996, ij1977@trotter.usma.edu.

Mark D. Evans

Mark D. Evans is an Associate Professor and Civil Engineering Group Director, Department of Civil and Mechanical Engineering, United States Military Academy, West Point, NY 10996, im8670@trotter.usma.edu.

Table 1, ISW Sample Schedule

| ISW 2000 | | | | |
|--|----------|---|---|------------------------------------|
| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
| JUNE 26 | 27 | 28 | 29 | 30 |
| 0800 - 1600 Teaching Techniques Workshop Vet Class #1 Vet Class #2 | | 0800 - 1200 New Faculty Class #1, 30 min/each | | |
| | | 1330 - 1530 Vet Class #3 | | |
| JULY 3 | 4 | 5 | 6 | 7 |
| NOISWTNG | NOISWTNG | 0800 Div Dir Time 1000 Vet Class #4 1100 Library Tour 1200 Lunch and Cadet Area Tour 1330 Gym Tour | 0800 - 1230 New Faculty Class #2, 55 min/each | |
| 10 | 11 | 12 | 13 | 14 |
| 0800 - 1230 New Faculty Class #3, 55 min/each | | 0800 Campus Briefing 0900 Math Dept Brief 1030 Campus Briefing 1130 Vet Class #5 Dept Head | 0800 - 1230 New Faculty Class #4, 55 min/each | |
| 17 | 18 | 19 | 20 | 21 |
| 0800 - 1230 New Faculty Class #5, 55 min/each | | 0800 ME Design Sem 0900 CE Design Sem 1000 Eng Dept. Brief 1100 Vet Class #6 1300 Teacher/Student Chill in the Classroom | 0800 - 1230 New Faculty Class #6, 55 min/each | |
| | | | | 1600 - 1800 Team Building Event |
| 24 | 25 | 26 | 27 | 28 |
| 0800 - 1230 New Faculty Class #7, 55 min/each | | 0800 - 1600 Briefings 1100 - 1300 Lunch | 0800 Grading Class 0900 Computer Class 1100 Grade Systems 1200 Lunch/ISW AAR 1400 ExCEED Briefing | ExCEED Preparations |
| 30 | AUGUST 1 | 2 | 3 | 4 |
| ExCEED Workshop | | | | |

Table 2, ISW Teaching Assessment Worksheet

| |
|-------------------------------|
| TEACHING ASSESSMENT WORKSHEET |
|-------------------------------|

Instructor: _____ Assessed

By: _____

Lesson Topic: _____

Date: _____

STRENGTHS:

- 1
- 2
- 3
- 4

AREAS FOR IMPROVEMENT:

- 1
- 2
- 3
- 4

| | Needs Work | Good | Excellent | |
|---|------------|------|-----------|--|
| TECHNICAL EXPERTISE | | | | |
| Command of the Subject Matter | | | | |
| LESSON ORGANIZATION | | | | |
| Lesson Objectives | | | | |
| Organization of Boards & Classroom Activities | | | | |
| CONDUCT OF THE CLASS | | | | |
| Enthusiasm, Energy, and Confidence | | | | |
| Orientation to the Subject Matter | | | | |
| Clarity of Presentation (<i>boards, viewgraphs, etc.</i>) | | | | |
| Clarity & Precision of Explanations | | | | |
| Voice (<i>volume, speed, variation</i>) | | | | |
| Questioning & Answering Questions | | | | |
| Contact with Students | | | | |
| Visual Aids and Demonstrations | | | | |
| Time Management | | | | |
| Appropriate Use of Textbook | | | | |
| THE CLASSROOM ENVIRONMENT | | | | |
| Classroom Appearance | | | | |
| OVERALL ASSESSMENT: | | | | |
| Are the students who attended this class adequately prepared to accomplish the Lesson Objectives? | | | | |
| <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure | | | | |