

Prospective Professors in Training Program - Engineering Teaching and Learning

Course Outline

Module 1 – Orientation, , Syllabus overview, & Assignments

- Overview of the entire course
- Grading structure (Critical Reviews, Book Review, Discussions, Projects)
- Web site layout and operation
- Project team formation and operation – Review past projects
- Critical Thinking and Performance Rubric
- Course Value in Career Planning – Levels of Learning

Module 2 – Learning and Motivation I

- ”The ABC’s of Engineering Education” by Richard Felder, 2004, ASEE Conf. Proceedings
- Chapter 1 “Understanding your students and how they learn” in Teaching at its Best

Module 3 – Learning and Motivation II

- Chapter 5 “motivating your students” in Teaching at its Best
- Physicists Seek to Lose the Lecture as a Teaching Tool

Module 4: - Learning Styles

- Accommodating different learning styles
- Descriptions of the Learning Styles
- Learning and Teaching Styles in Engineering Education
- Learning styles models

Module 5: - Situational Factors

- Creating Significant Learning Experiences
- Charting your Course

Module 6 – Content Organization

- The Complete Syllabus
- Why Teaching Objectives are Useful
- Tips for Writing Objectives
- Bloom’s taxonomy

Module 7 – Learning Objectives

- Outcomes-Centred Course Design
- Matching Teaching Methods with Learning Outcomes

Module 8 – Instructional Design

- Making the Lecture a Learning Experience
- Using Visuals to Teach

Module 9 – Microteaching Week

- No Class – Video Tape a lecture

Module 10 – Teaching & Learning Models

- Teaching Real World Problem Solving

Module 11 – Cooperative Learning

- Cooperative Learning in Technical Courses: Procedures, Pitfalls and Payoffs
- Creating and managing student teams
- Turning Student Groups into Effective Teams

Module 12 - Course Assessment

- Assessing Learning Outcomes
- Designing Tests to Maximize Learning.

Module 13 – Giving Feedback and Effectiveness

- Evaluating and Documenting Teaching Effectiveness
- Dealing with Students Who are Disappointed with Their Last Test Grade.
- Directions in Engineering Education (Optional)