

ETE 6090

Program Design in Engineering and Technology Education

Summer 2008
3 semester credits

COURSE SYLLABUS

Instructor: Dr. Edward M. Reeve, Professor
Utah State University
Department of Engineering and Technology Education (ETE)
Room 108
6000 Old Main Hill
Logan, Utah 84322-6000
(435) 797-3642
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Class Schedule: July 7 - August 1
Monday - Friday: 1:30 - 3:45 p.m.

Recommended Course Materials: 3-Ring Notebook, USB Flash Drive

Course Textbook:

Wiggins and McTighe (2005). *Understanding by Design*. Expanded 2nd Edition.
Alexandria, VA: Association for Supervision and Curriculum Development
(ASCD) (www.ascd.org)

Course Reference Materials:

ITEA (2000/2002). *Standards for Technological Literacy: Content for the Study of Technology*. Reston, VA: The International Technology Education Association (ITEA). Available at: <http://www.iteaconnect.org/TAA/PDFs/xstnd.pdf>

ITEA (2003). *Advancing Excellence in Technological Literacy: Student Assessment, Professional Development and Program Standards*. Reston, VA: The International Technology Education Association (ITEA). Available at: <http://www.iteaconnect.org/TAA/PDFs/AETL.pdf>

ITEA (2005). *Planning Learning: Developing Technology Curricula*. Reston, VA: The International Technology Education Association (ITEA)

Martin, E. G., & Martin, C. M. (2006) *Best Practices in Technology Education*
<http://teched.vt.edu/ctte/ImagesPDFs/BestPracticesInTE.pdf>

Course Description:

The purpose of this course is to review the basic principles and practices of curriculum development used in engineering and technology education. Emphasis in this course will be placed on the development of curriculum guide that reflects the ITEA's Standards for Technological Literacy: Content for the Study of Technology. The course will also provide an overview of current trends affecting curriculum development and provide guidelines on how to select, arrange, and manage curriculum materials.

Course Objectives:

At the completion of this course the student will be able to:

1. Define and explain the relationships between the various terms used in the field curriculum development, and engineering and technology education and career and technical education.
2. Discuss the purpose of the Standards of Technological Literacy: Content for the Study of Technology and Advancing Excellence in Technological Literacy: Student Assessment, Professional Development, and Program Standards.
3. Discuss the role of the ITEA Program Standards in developing engineering and technology education curricula.
4. Explain the major concepts associated with using Backward Design to develop a curriculum.
5. Develop a standard-based "curriculum guide" for a selected area of study.
6. Discuss state and national curriculum efforts, including those identified by Utah's Classification of Instruction Programs (CIP codes).
7. Evaluate a variety of curriculum units or programs developed for those who teach in engineering and technology education.
8. Use the Internet as an effective teaching and learning tool and to search for curriculum materials.
9. Discuss "best practices" in curriculum development.
10. Develop a course syllabus.

Course Requirements:

1. Attend class regularly and "participate" in class discussions.
2. Complete all reading assignments and class activities. Selected assignments will have due dates that should be adhered to - materials turned in late will receive a 10% deduction in points. Materials with due dates are due at the beginning of the class period.
3. Working in small groups, complete the appropriate research and development needed develop a "high quality" curriculum guide.
4. Develop a course syllabus.
5. Critically evaluate selected engineering and technology education curricula.
6. Complete one final exam.

Major Course Project:

A curriculum provides the “specifications” needed in the delivery course content. The specifications include information about the way content is delivered, including the structure, organization, balance, and presentation of content in the laboratory-classroom. All courses needed a curriculum and this is achieved through curriculum planning. Curriculum planning is the "process of logically sequencing subject matter so students can achieve the goals, standards and benchmarks they need to learn at each grade level."

Each school subject area (e.g., technology education) has courses (e.g., Foundations of Technology, Engineering Design, etc.) that need a well-developed curriculum. An individual course may have a curriculum guide, made up of units, that details what is to be taught in the course. In this course you will work in teams to develop a Curriculum Guide for a selected area of study.

There are many components associated with a Curriculum Guide. These components may include the following:

- Introduction Section: title page, table of contents, and recognition of the curriculum development team.
- Course/Unit Introduction: purpose or mission of the course, target population, and prerequisites.
- Philosophy Section: brief philosophy of the field of study and the philosophy of the course.
- Goals and Objectives for the Course/Unit: listing of major course goals and major performance objectives for the course.
- Standards/Competencies Addressed in the Course/Unit: a listing of standards/competencies addressed in the course.
- Curriculum Resource Materials: including print-based materials (e.g., required textbooks, workbooks, and supplemental reading materials), and non-print materials (e.g., simulators, Internet sites, audio/video materials, and computer-based media).
- Instructional Strategies used in the Course/Unit: identification and description of recommended instructional strategies (e.g., cooperative learning, modular instruction, and problem solving).
- Course/Unit Outline: listing of the scope and sequence of major units of instruction and related lessons.
- Course/Unit Activities: student projects, portfolios, design briefs.
- General Safety and Behavioral Rules.
- Evaluation/Assessment Section: details of written and performance requirements.
- Appendix: course syllabus, sample activities, Vita of team members

COURSE OUTLINE

ETE 6090

Summer 2008

Week #1 (July 7-11)

Course Introduction

Introduction to Curriculum Development

Review of Standards for Technological Literacy: Content for the Study of Technology

Chapter 1. Backward Design

Chapter 2. Understanding Understanding

Chapter 3. Gaining Clarity on Our Goals

Week #2 (July 14-18)

Review of Current Curriculum Movements in Engineering and Technology Education

Chapter 4. The Six Facets of Understanding

Chapter 5. Essential Questions: Doorways to Understanding

Chapter 6. Crafting Understandings

Chapter 7. Thinking like an Assessor

Chapter 8. Criteria and Validity

Abstract #1 Presentation

Week #3 (July 21-25)

Chapter 9. Planning for Learning

Chapter 10. Teaching for Understanding

Chapter 11. The Design Process

Abstract #2 Presentation

HOLIDAY: July 24 (No Class)

Week #4 (July 28 - August 1)

Chapter 12. The Big Picture: UbD as Curriculum Framework

Chapter 13. "Yes, but . . ."

Curriculum Guide Presentations

Final Exam

NOTE: If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center, preferably during the first week of the course. Any requests for special considerations relating to attendance, pedagogy, taking of examinations, etc must be discussed with and approved by the instructor. In cooperation with the Disability Resource Center, course materials can be provided in alternative formats--large print, audio diskette or Braille

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Course Evaluation
Summer - 2008

NAME: _____

Summer Phone #: _____ E-Mail _____

Student Activities:

Activity #1 (25 points) _____

Activity #2 (20 points)..... _____

Activity #3 (20 points) _____

Abstract #1 (20 points)..... _____

Activity #2 (20 points)..... _____

Curriculum Guide (50 points)..... _____

Final Exam (50 points)..... _____

TOTAL (200 points) _____

Grading Scale

190 - 200	A	180 - 184	A-		
174 - 179	B+	166 - 173	B	160 - 165	B-
154 - 159	C+	146 - 153	C	140 - 145	C-
130 - 144	D+	120 - 129	D		