Engineering Technology –MET Option

Course Number and Name: ET 435, Senior Design and Project Management

Credits & Contact Hours: 3cr., two weekly class meetings of 50 min. each. Students also meet together once weekly in separate project teams for 2.5 hours. Total semester contact hours to include class meetings and instructor-attended team meetings are approx. 50.

Instructor's name: Craig Ricketts
Textbook *titles*, author, and year: *The Unwritten Laws of Engineering*, Skakoon J. G., 2001; *The Elements of Mechanical Design*, Skakoon J. G., 2008.
Supplemental materials: selected readings of contemporary global and societal issues as assigned.

Specific Course Information:

a. **Course Catalog Description** – Capstone course. Practical application of student's cumulative knowledge to assigned design project that requires implementation of standard analysis techniques and design principles, teamwork, and project management skills. Stresses the importance of codes, standards, and economics in design practice. Demonstration of student's written and oral communication skills via project documentation and presentation of results.
b. **Prerequisite** – status of graduating senior.
c. **Laboratory** – weekly, primarily self-directed, 2.5-hour meetings of separate project teams, with instructor present as needed.
d. **Augmenting** – This is a required course in the MET curriculum.

Course Goals and Objectives:

This is a team-based, project-oriented course that furnishes the challenges of meeting expectation for good practice in mechanical design and project management in a technical workplace. Design projects typically reflect those to be encountered in industrial settings. Students are expected to demonstrate a certain minimum level of technical competency, based upon completing the requirements of a mechanical engineering technology curriculum. Additionally, student work is employed to assess most of the department's outcomes for program assessment.

Related ABET Outcomes:

As **specifically pertinent** to the assigned senior design project and topics covered on the senior competency exam, 3.a – 3.k. and 9.a – 9.e typically reflect course outcomes.

Course topics and class hours devoted to each topic:

Topics	Class Hours
· Introduction: Overview, background, and significance of course	1
· Professional and ethical responsibilities and issues of safety	2
· Discussions of contemporary global and societal issues	2
· Relevant aspects of the design process in multiple contexts	3
· Brainstorming: guidelines, process, documentation, and participation in	3
· Resume guidelines	2
· Good practice in career fair participation	1
· Review of experiences following student career fair participation	1
· Guidelines for creating a portfolio and its function	1
· The basics in preparations for a successful interview	1
· Employment search presentation by NMSU Career Services professional	1
· Career guidance and planning discussions	3
· Aspects of good practice in short- and long-term professional development	2
· Project planning and management fundamentals and their implementation	3
· Good practice in project documentation: journals, progress and final reports	1
· Important aspects of quality, timeliness, and continuous improvement	1
· Implementation of standard industry practices/codes and standards	1
· Recognizing and drawing upon available resources toward project and career success	1
· Economic and cost analysis in project planning	1
· Generation of a project timeline; its function and significance	1
· Good practice guidelines for positive working relations with a client	1
· Oral presentations of proposed project goals and timeline by students	1
· Informal oral presentation of updates on project progress by students	4
· Midterm oral presentation of project progress by students	1
· Final oral presentation of project results by students	2
· Senior competency exam	1

Project-Team Meetings: Weekly, primarily student-directed, 2.5-hour meetings of separate teams, with instructor present as needed. Total semester hours of students in team meetings are approximately 45.

Tasks Addressed in Team Meetings:

All relevant aspects of technical project planning, implementation, and completion: typically to include brainstorming or communications with instructor, clients, mentors, and vendors; as well as calculations, coordination, documentation, product/vendor searches, fabrication, construction, and economic or cost analyses.

Prepared by: Craig Ricketts **Date**: 12/21/10