1. Course Title:

Senior Project I
MET 495A – 3 Credits

MET Core Program Requirement
Prerequisite: Prerequisite for MET 495A is MET 315. MET 495A-B-C Courses must be taken in sequence.
This is a Technical content course under ABET Criterion 5

2. Faculty Member Information:

Instructor: Dr. Craig Johnson (Also Roger Beardsley, Charles Pringle)
Office: Hogue 304
Phone: 509- 963-1118
E-mail: cjohnson@cwu.edu

3. Course Description:

The senior project is a capstone course that integrates all the major elements of the MET curriculum in a project related activity. The topic is chosen by the student in concurrence with the instructor and must include elements of planning, design and analysis (Phase I), construction (Phase II) and test and evaluation (Phase III). Collaboration with representatives of industry, government agencies or community institutions is encouraged. As an alternative, it will be possible to select a design study for the senior project for all three quarters, providing it is sufficiently comprehensive and approved by the MET advisor.

4. Textbook and other required materials for the course:

'Engineering Senior Projects' by Craig Johnson. Also use any of your MET-related texts, materials and resources

5. Specific Learner and Expressive Outcomes and Assessment Strategies:

ABET Outcome Criteria #	Learner Outcomes The student will show their ability to:	Assessment Students will be assessed through
3a,b,d,f, g,h,i,j 9c,d,e,f,g,n	apply mechanical engineering skills through optimized design, construction, and evaluation of their project.	Project progress reports, documentation, and presentations
3g	communicate their progress and achievements through meetings, reports, and presentations.	meetings, reports, and presentations
3e,g	apply organizational skills to promote progress	Project progress reports and documentation

6. Course Topics and Schedule:

Week 1 Discuss Senior Projects, student/faculty behavior and expectations.
Week 2 Discussion of motivation, project criteria, lab notebooks and other legal matters.
Past projects will be discussed as well as minimum and maximum efforts.
Assignment: Create a Resume oriented toward getting a job.
Week 3 Vita Critique, Evaluate projects: Criteria*, RADD*. Optimization correlates to engineering merit. Discuss sponsors (MET IAC). * Sponsors/Mentors/Proposals, *FAQs
DUE WK3: SHOW YOUR NOTEBOOK/JOURNAL WITH RESUME, SR PROJECT IDEAS
Week 4 Propose an engineering problem suitable for MET495. Apply Decision Matrix* (spreadsheet)
Communication: What are appropriate ways to propose a project?
DUE WK4: EXAMPLE PROJECT (Function Statement, Requirements, Success Criteria)
DUE WK5: VALIDATE A PROJECT TOPIC (Use a decision matrix. Discuss the merit of your project.)
Week 5 RADD (Requirements / Analysis / Design / Drawings): A metric for engineering projects
Optimization, apply engineering optimization to sample project(s). Extra: Depth (CAD dwgs)
DUE WK5: VALIDATE A PROJECT TOPIC (Use a decision matrix. Discuss the project merit)
Week 6 Risk Analysis*: (Feasibility, Cost, Schedule, Environment, Resources, Interest)
Preliminary Proposal*, Feasibility: Do you have a single solution? Do you have a back-up?
Note: GO/NO-GO decisions made soon (COMMITT OR DROP)! Instructor must OK your project
DUE WK6: Example RADD: State Problem, and salient Requirements, Analysis, Design & Documentation
Week 7 Day1: Review Professional Engineering Licensure (NCEES.ORG, WADOL.GOV)
Day2: Review industrial job descriptions, CWU contacts, and networking options.
DUE WK7: LIST THREE EMPLOYMENT INTERESTS
Week 8 Budgets: Inventory the parts of your device. Assign a cost for each part. Really, do it.
Examples of Budgets.
DUE WK8: WRITE A PARAGRAPH ON HOW YOUR PROJECT MIGHT HELP YOU GET A JOB.
Week 9 Proposal*: Intro, Scope, Proc., Drawings, Construction, Budget, Schedule, Sponsors, Refs.
Examples of Phase 1 Proposals (refer to the Proposal Guide* provided).
DUE WK9: CREATE A BUDGET FOR YOUR PROJECT
Week 10 Day1: Presentations (audience, time limits, mode, other constraints. types: 4-square*, PP, WebX
Prepare a short (5 min.) **presentation for Wk 11 (next week!).**
Create a website. Post your resume, along with a picture and an abstract of your project.
Week 11 *Presentation* by each student (5 minutes and a few slides or illustrations) on their project.
FINAL: *WEBSITE PRESENTATION* by each student covering their project.

7. Grading:

Homework (10 points)		40%
Performance Reviews (100 points)		40%
Professionalism/Ethics	(20 pts)	20%

A(92-100), A-(90-92), B+(88-90), B(82-88), B-(80-82), C+(78-80), C(72-78), C-(70-72), D+(68-70), D(62-68), D-(60-62), F(<60)

8. ADA Statement:

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact me or Robert Harden, ADA Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related educational accommodations.

Prepared by Roger Beardsley June 24, 2009