Geomatics Engineering Program *Continuous Improvement Worksheet for Geomatics Engineering Courses*

Course (use complete catalog description):	**Semester:**	**Prepared by:**	**Preparation Date:**
Engineering Economics (EGN 4613) 3 credits **Prerequisite:** Junior or senior standing Course introduces concepts of economic decision making, including present worth analysis, cash flow equivalence, replacement analysis, equipment selection. Open to students in any discipline.	Fall 2012	D. Leone	1/20//2013

Course Outcomes:

1. Define engineering cost estimating
2. Understand the concept of the time value of money
3. Understand and apply the concept of the equivalence of cash flows
4. Compare and select the best project from multiple alternatives based on Present Worth, Annual Cash Flow, or Rate of Return analyses.
5. Understand the concept of depreciation

PART1. How Course Outcomes are Related to Program Outcomes

Indicate with High-H, Moderate-M, Low or none-L, for strength of relationship

Program Outcome	**Course Outcomes**
Outcome 1: An understanding of professional and ethical responsibility.	H
Outcome 2: A working knowledge of fundamentals, engineering tools, and experimental methodologies.	H
Outcome 3: An understanding of the social, economic, and political contexts in which engineers must function.	M
Outcome 4: An ability to plan and execute an engineering design to meet an identified need.	L
Outcome 5: An ability to function on multi-disciplinary teams.	M
Outcome 6: An ability to communicate effectively	H
Outcome 7: Graduates will have a proficiency in oe or more of areas of geomatics engineering: (a) boundary and land surveying (b) geographic and land information systems, (c) photogrammetry (d) mapping, (e) geodesy, (f) remote sensing, and (g) other related areas**.**	M
Outcome 8: Graduates will have an adequate appreciation for the role of civil engineering in infrastructure planning and sustainability, including safety, risk assessment, and hazard mitigation.	M
Outcome 9: Graduates will be successful in finding professional employment and/or pursuing further academic studies.	H

PART 2. How Course Outcomes are Related to ABET Outcomes

ABET Outcomes	Course Outcomes
ABET Outcome a: An ability to apply knowledge of mathematics, science, and engineering.	1,2,3,4,5
ABET Outcome b: An ability to design and conduct experiments, as well as to analyze and interpret data.	
ABET Outcome c: An ability to design a system, component, or process to meet desired needs.	3
ABET Outcome d: An ability to function on multi-disciplinary teams.	
ABET Outcome e: An ability to identify, formulate, and solve engineering problems.	2,3,4,5
ABET Outcome f: An understanding of professional and ethical responsibility.	1,2,3,4,5
ABET Outcome g: An ability to communicate effectively.	
ABET Outcome h: The broad education necessary to understand the impact of engineering solutions in a global and societal context.	1,2,3,4,5
ABET Outcome i: A recognition of the need for, and an ability to engage in life-long learning.	
ABET Outcome j: A knowledge of contemporary issues.	
ABET Outcome k: An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	1,2,3,4,5

PART 3. Assessment of Course Outcomes (updated each semester when the course is offered)

Semester: Fall 2012	**Prepared by: D. Leone**		
Course Outcomes (Related ABET Outcomes)	**Assignment[1]**	**Course Assignment Assessment (Avg.)[2]**	**Student Survey Assessment (Avg)**
1. Comprehend and apply engineering cost estimating methods (a,f,h,k)	Exam 1 HW 1,2	4.67	4.25
2. Understand and apply the concept of the time value of money (a,e,f,h,k)	Exam 2 HW 3,4,5,6	4.33	4.31
3. Understand and apply the concept of the equivalence of cash flows (a,e,f,h,k)	Exam 2, Exam 3 HW,7,8,9	4	4.31

4. Compare and select the best project from multiple alternatives based on Present Worth, Annual Cash Flow, or Rate of Return analyses. (a,c,e,f,h,k)	Exam 3 HW,7,8,9,10,11	4	4.5
5. Understand the concept of depreciation. (a,e,f,h,k)	**Exam 3** **HW9,10**	4.33	4.25

[1]**Describe the methods used to assess the achievement of each outcome and the indicators of achievement.**
[2]**Grade the achievement as 1-5 with 5 being the highest.**

PART 4. Suggested Improvements

Course Improvement Suggestions[3]
Make lectures more interactive
Course Improvement Implementation[4]
Increased the use of spreadsheets
Curriculum Improvement Suggestions[5]

[3] **List suggested improvements for this offering.**
[4] **Summarize the actions taken to implement the improvements listed for the previous offering.**
[5] **List suggested improvements to program educational objectives, learning outcomes, content, sequencing, assessment methods, course prerequisites and corequisites.**