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Ohio Articulation Number (OAN)
Course Submission Form
2005-2006

College/University Lakeland Community College

Course(s) Submitted(Title & Course #) ENGS 2820 Engineering Economics Cost Analysis for Ohio Articulation Number OES005

Date October 24, 2006 Course 1 of a 1 Course OAN mapping.

Name and title of individual submitting on behalf of the college/university

Name Marilyn S. Jones Title Associate Provost

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Credit Hours 3 qtr _____ sem X
Lecture Hours 3
Laboratory Hours _____ (if applicable)
Pre-Requisites(s) Course work (if applicable)
MATH 1101 Technical Mathematics I or MATH 1700 Trigonometry

Placement Score (if applicable)
(Name of test)
(Domain) (Score)

Catalog/Course Description (Includes Course Title and Course #)

ENGS 2820 Engineering Economics Cost Analysis: This course will introduce students to the methods that are routinely utilized to make economic decisions in real-world engineering problems. Topics include cash flow analysis, time value of money calculations, replacement decisions, depreciation schedules, economic analysis of engineering proposals, costing in engineering projects, and

optimizing profitability.

Texts/Outside Readings/Ancillary Materials

Engineering Economy by William Sullivan, Elin Wicks and James Luxhoj, Prentice Hall 2006

Course Objectives and/or Plan of Work

GENERAL COURSE GOALS:

1. Introduce processes for data collection to help assess the economic decision making process.

2. Develop the ability to perform compound interest calculations.

3. Develop the ability to perform cash flow analysis to break-even and pay-back time calculations.

4. Develop the ability to perform time value of money calculations, including the effect of knowing the present and future value of alternative solutions.

5. Develop the ability to perform benefit/cost analysis when considering alternative solutions.

6. Develop the ability to evaluate replacement, and make vs. buy decisions.

7. Develop the ability to incorporate after tax, inflation, and depreciation schedules in making economic decisions.

8. Develop the ability to do costing analysis in engineering projects, including the cost of capital, materials, and labor.

9. Develop the ability to maximize and optimize the profitability of a project by minimizing costs and the number of inputs.

COURSE OBJECTIVES:

Upon completion of the course, the student should be able to:

1. Demonstrate how to make compound interest calculations.

2. Demonstrate the importance of cash flow, and time value of money analysis in engineering economic decisions.

3. Describe how to perform alternative, replacement, and make vs. buy decisions.

4. Demonstrate how to incorporate after tax analysis, and depreciation schedules into economic analysis.

5. Demonstrate how the concepts learned in the class can be incorporated into the costing of engineering projects.

6. Demonstrate how to optimize the profitability of a project.

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Description of Assessment and/or Evaluation of Student Learning

SUGGESTED GRADING PROCEDURES:
Tests and homework assignments
Group project
Case studies

SUGGESTED COURSE EVALUATION PROCEDURE:
A: 90% or greater
B: 80-90%
C: 70-80%
D: 60-70%
F: below 60%

Master Syllabi and Working Syllabi (if both are used)

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* THIS IS A VERSION OF THE COURSE OUTLINE THAT HAS BEEN
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* APPROVED, AND WILL BE EFFECTIVE AS OF FALL 06
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LAKELAND COMMUNITY COLLEGE - COURSE OUTLINE FORM

ORIGINATION DATE: 12/05/05 APPROVAL DATE: 03/30/06
LAST MODIFICATION DATE: 06/12/06 EFFECTIVE TERM/YEAR: FALL 2006

PRINTED: 10/12/06
COURSE NUMBER: ENGS2820
COURSE TITLE: Engineering Economics Cost Analysis

	LECTURE	LAB	CLINICAL	TOTAL	OBR MIN	OBR MAX
CREDITS:	3.00	0.00	0.00	3.00	3.00	3.00
CONTACT HOURS:	3.00	0.00	0.00	3.00		

PREREQUISITES:

MATH1101 OR MATH1700

PROGRAMS & CERTIFICATES FOR WHICH THIS COURSE IS REQUIRED:
NONE

PROGRAMS & CERTIFICATES FOR WHICH THIS COURSE IS AN ELECTIVE:
NONE

COURSE ACCEPTED AS TRANSFER CREDIT BY:

RECOMMENDED CLASS SIZE: 30 RATIONALE: CLASSROOM RESTRAINTS

FREQUENCY OF OFFERING: 2 X YEAR
TERMS NORMALLY OFFERED: FALL SPRING

LAB FEE: NONE

RATIONALE FOR COURSE:
The course is designed to meet the requirements of the Ohio Board of Regents Transfer Applicability Guide for Engineering Economic, OES-005. Also, it introduces students to the methods that are routinely utilized to make economic decisions in real-world engineering problems.

COURSE DESCRIPTION:
This course will introduce students to the methods that are routinely utilized to make economic decisions in real-world engineering problems. Topics include cash flow analysis, time value of money calculations, replacement decisions, depreciation schedules, economic analysis of engineering proposals, costing in engineering projects, and optimizing profitability.

GENERAL COURSE GOALS:
1. Introduce processes for data collection to help assess the economic decision making process.

2. Develop the ability to perform compound interest calculations.

3. Develop the ability to perform cash flow analysis to break-even and pay-back time calculations.

4. Develop the ability to perform time value of money calculations, including the effect of knowing the present and future value of alternative solutions.

5. Develop the ability to perform benefit/cost analysis when considering alternative solutions.

6. Develop the ability to evaluate replacement, and make vs. buy decisions.

7. Develop the ability to incorporate after tax, inflation, and depreciation schedules in making economic decisions.

8. Develop the ability to do costing analysis in engineering projects, including the cost of capital, materials, and labor.

9. Develop the ability to maximize and optimize the profitability of a project by minimizing costs and the number of inputs.

COURSE OBJECTIVES:
Upon completion of the course, the student should be able to:

1. Demonstrate how to make compound interest calculations.

2. Demonstrate the importance of cash flow, and time value of money analysis in engineering economic decisions.

3. Describe how to perform alternative, replacement, and make vs. buy decisions.

4. Demonstrate how to incorporate after tax analysis, and depreciation schedules into economic analysis.

5. Demonstrate how the concepts learned in the class can be incorporated into the costing of engineering projects.

6. Demonstrate how to optimize the profitability of a project.

COURSE OUTLINE:
I. The Decision Making Process

II. Compound Interest Calculations

III. Present and Future Value

IV. Comparing Alternative Proposals

V. Break-Even and Pay-Back Analysis

VI. Optimization of the System

VII. Benefit/Cost Analysis

VIII. Taxes and Depreciation

INSTRUCTIONAL PROCEDURES THAT MAY BE UTILIZED:
 Lectures
 Group projects
 Case Studies

SUGGESTED GRADING PROCEDURES:
 Tests and homework assignments
 Group project
 Case studies

SUGGESTED COURSE EVALUATION PROCEDURE:
 A: 90% or greater
 B: 80-90%
 C: 70-80%
 D: 60-70%
 F: below 60%

[End of Course Outline for 'ENGS2820']

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COURSE OUTLINE -- GENERAL EDUCATION OUTCOMES

COURSE ID: ENGS2820 PRINTED: 10/12/06
TITLE: Engineering Economics Cost Analysis

General Education	Methods of Assessment
*** KNOWLEDGE ***	
1. Arts and Literature	
2. Complexities of Human Behavior	
3. Complexities of Social Institutions	

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|-|-|-|-|
   |  4. Math and Science                                     |1|2| | |
|6| | | |
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   |  5. Past and Present Cultures                            | | | | | |
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   |                                                          |-|-|-|-|-
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   |  6. Technology                                           |1|2| | |
|6| | | |
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   |    *** CRITICAL THINKING ***
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   |  7. Identify Personal Assumptions                        | | | | | |
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   |  8. Identify Ethical Dimensions                          | | | | | |
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   |  9. Examine Issues by Suspending/Challenging Assumpt | | | | | |
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   | 10. Evaluate Issues from Various Perspectives            | | | | | |
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   | 11. Collect, Analyze, Interpret Information              |1|2| | |
|6| | | |
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   | 12. Support Hypotheses                                   | | | | | |
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   |                                                          |-|-|-|-|-
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   | 13. Synthesize Information                               |1|2| | |
|6| | | |
   |                                                          |-|-|-|-|-
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   | 14. Draw Conclusions                                     |1|2| | |
|6| | | |
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   |    *** COMMUNICATION SKILLS ***
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   |---------------------------------------------------------------------
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   | 15. Speak Clearly and Effectively                        | | | | | |
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16. Read with Comprehension					
17. Write Clearly & Effectively in Standard English					
18. Work Effectively in Groups					
19. Listen Actively and with Understanding					
20. Practice Effective Interpersonal Skills					
21. Interpret/Use Graphic Communication					
22. Use Technology-Based Communication					

Methods of Assessment codes:

1. Test/Examination	4. Collaborative Writing	7. Portfolio
2. Homework/Written Assignment	5. Oral Presentation	8. Demonstration of Skills
3. Research Paper	6. Lab Project	9. Other (specify)

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*** THIS COURSE OUTLINE WILL BE EFFECTIVE FALL 06

Additional Documentation

OBR Use	Action
Approved	
Additional Information Requested	
Rejected	
Date	