

**OAN Number:**

**OAN Date:**

**Board of Trustees Date: 05/22/08**

**Effective Date: 08/23/08**

**Board of Trustees Revision Date: 06/19/14**

**Revision Effective Date: 08/25/14**

**CUYAHOGA COMMUNITY COLLEGE  
OFFICIAL COURSE OUTLINE  
Mapped**

SUBJECT AREA TITLE

Mechanical Engineering Technology/Manufacturing Industrial Engineering Technology

COURSE TITLE

Fundamentals of Engineering Economics

SUBJECT AREA CODE-COURSE NUMBER

MET - 2421

COURSE CREDIT HOURS

2.00

**I. DESCRIPTION OF COURSE:**

A. CATALOG DESCRIPTION: Analysis of cost elements in manufacturing operations; comparison of manufacturing options; options selection applying Benefit/Cost Analysis; practical application of cost concepts and the analysis applicable to design, development, implementation of phases of manufacturing operations.

B. LECTURE HOURS: 2.0

C. LAB HOURS: None

D. OTHER REQUIRED HOURS: 00

E. PREREQUISITE(S):

Eligibility for MATH-1280 Advanced Intermediate Algebra or departmental approval.

**II. GENERAL EDUCATION OUTCOMES:**

Upon satisfactory completion of MET 2421 - Fundamentals of Engineering Economics, the student should be able to perform the following outcomes and supporting objectives:

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**A. Outcome: Critical Thinking: Analyze and synthesize ideas to make evidence-based decisions and find rational solutions to problems.**

Supporting Outcomes:

1. Apply the principles of Engineering Economics in planning and acquisition of manufacturing resources

### **III. OUTCOMES/OBJECTIVES:**

Upon satisfactory completion of MET 2421 - Fundamentals of Engineering Economics, the student should be able to perform the following outcomes and supporting objectives:

**A. Outcome: Apply the principles of Engineering Economics in planning and acquisition of manufacturing resources**

Supporting Objectives:

1. Explain Benefit/cost Ratio Evaluation Methods
2. Plan and conduct cost analysis of given manufacturing options
3. Determine the depreciation values of manufacturing resources and taxes
4. Conduct Benefit/cost Ratio evaluations

### **IV. COURSE CONTENT:**

- A. Understanding Money and its Management
  1. Engineering Economic Decisions
  2. Financial Mathematics
  3. Understanding Money Management
  4. Managing Money under Inflation
- B. Evaluating Business and Engineering Assets
  1. Present Worth Analysis
  2. Annual Equivalence Analysis
  3. Rate of Return Analysis
- C. Development of project cash flows
  1. Accounting for Depreciation and Income Taxes
  2. Project Cash Flow Analysis
  3. Handling Project Uncertainty
- D. Special Topics in Engineering Economics
  1. Replacement Decisions
  2. Benefit-Cost Analysis
  3. Understanding Financial Statements

**V. METHODS OF STUDENT EVALUATION MAY INCLUDE ANY OF THE FOLLOWING:**

- A. Exams and quizzes
- B. Reports and Projects

**VI. RESOURCES MAY INCLUDE ANY OF THE FOLLOWING:**

- A. Garcia-Diaz, Alberto & Smith, J. MacGregor . *Facilities Planning and Design*. Upper Saddle River, NJ.:Prentice Hall, 2008.
- B. Meyers, Fred and James Stewart. *Motion and Time Study for Lean Manufacturing*. 3rd Ed. Upper Saddle River, NJ.:Prentice Hall, 2002.
- C. Meyers, Fred and Matthew Stephens. *Manufacturing Facilities Design and Material Handling*. 5th Ed. Upper Saddle River, NJ.:Prentice Hall, 2013.
- D. Park, Chan. *Contemporary Engineering Economics*. 5th Ed. Upper Saddle River, NJ.:Prentice Hall, 2011.
- E. Park, Chan. *Fundamentals of Engineering Economics*. 3rd Ed. Upper Saddle River, NJ.:Prentice Hall, 2013.
- F. Quirk, Michael. *Manufacturing Teams and Improvement: The human Art of Manufacturing*. Upper Saddle River, NJ.:Prentice Hall, 1999.

**VII. ADDITIONAL RESOURCES:**