

ENMA 4030, Engineering Logistics

This course is required for the engineering management concentration

Course Coordinator: Paul Kauffmann

Catalog Description:

Study of logistics from a systems engineering perspective. Covers design of systems for supportability and serviceability, the production and effective distribution of systems for customer use, and the sustaining maintenance and support of systems throughout their period of utilization.

Course Structure:

Three 50- minute lectures per week (three credits)

Prerequisites:

MATH 3307

Required Materials:

Blanchard, B.S., Logistics Engineering and Management, 6th Edition, Pearson Prentice Hall, Upper Saddle River, NJ 2003 (ISBN - 0-13-142915-9);

Case studies

1. Ford Motor Company: Supply Chain Strategy (Harvard Business School Case 9-699-198)
2. The Power of Virtual Integration: An Interview with Dell Computer's Michael Dell (Harvard Business Review Reprint 98208)
3. What is the Right Supply Chain for Your Product? (Harvard Business Review Reprint 97205)
4. Barilla SpA (A) (Harvard Business School Case 9-694-046)

Current fundamentals of engineering formula text

Course Objectives:

Upon completion of this course, students will be able to:

1. Define logistics and the elements of an engineering logistics system
2. Apply engineering tools to logistics system design
3. Use quantitative tools to analyze and evaluate logistic system performance
4. Examine logistics decisions involved in life cycle design
5. Evaluate a life cycle cost for an engineering system
6. Apply trade off analysis to logistic system analysis
7. Evaluate and apply forecast models to logistic systems.

Lecture Topics

- Motivation- Introduction to Logistics for Engineers (1 class)
- Performance measures in logistic systems (2 classes)
- Supportability analysis (3 classes)
- Logistics in design and development (3 classes)
- Logistics in production and construction (3 classes)
- Logistics in utilization and support (3 classes)
- Logistics in the System Retirement, Material Recycling, and Disposal Phase (3 classes)
- Logistics Management and analysis tools (4 classes)
- System design review (4 classes)
- Supplier partnership and evaluation (2 classes)
- Supply chain management and integrated information systems (4 classes)
- Risk analysis in logistics (5 classes)
- Maintenance task analysis (4 classes)

Relevant Program Outcomes

- c) Graduates of the Engineering Program will demonstrate an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- j) Graduates of the Engineering Program will demonstrate a knowledge of contemporary issues.
- l) Graduates of the Engineering Program will demonstrate an ability to apply engineering concepts to an area of concentrated study, chosen from systems engineering, engineering management, bioprocess engineering and biomedical engineering.

Professional Component Content:

Math/Science: 0; Engineering: 3 credits; General Education: 0

Assessment Requirements:

Student Work Samples

- Case study report (outcome c and j) related to contrasting various approaches to supply chain management.
- Exam questions (outcome l) analysis of case study relating logistic system with product needs.

Exam questions

- Targeted questions on quantitative analysis of maintenance tasks
- Targeted questions on risk analysis in logistics and risk pooling

Student Course Survey

Last Review:

February 19, 2008 by Paul Kauffmann