IE 621 Facilities Planning

Catalog Description

IE 621 Facilities Planning. 3 Credit Hours. Covers the relationships between facilities planning and logistics operations including optimal location of single and multiple facilities, layout and flow analysis, design and analysis of material handling systems, and warehousing and distribution center operations. The course focuses on solution of a case study using a team based approach as well as the application of state-of-the-art software tools.

Prerequisites

None

Textbook

Tompkins, J., White, J., et al, *Facilities Planning, Third Edition*, John Wiley, New York, 2003.

Course Coordinator

Dr. John S. Usher, Professor, Department of Industrial Engineering

Course Objectives

Develop an understanding of the importance of facility design on overall logistics systems.
Develop engineering skill in the design and analysis of complex facilities.
Provide team-based design experience through use of case studies and computer analysis.

Topics Covered

Introduction to Facilities Planning (2 hours)
Systematic Layout Planning, Relationship and Flow Analysis (4 hours)
Space Planning and Block Layout Formation (4 hours)
Layout Evaluation Techniques (2 hours)
Computerized Facilities Planning (2 hours)
Layout Analysis Using VisFactory Software (4 hours)
Midterm Exam (2 hours)
Overview of Material Handling Systems (2 hours)
Analysis of Material Handling Systems (2 hours)
Design of Warehousing and Distribution Centers (4 hours)
Order Picking (2 hours)
Single and Multi-Facility Location Analysis (2 hours)
Location of Facilities on a Network (4 hours)
Term Project Presentations (4 hours)
Final Exam (2 hours)

Computer Usage

VisFactory, CRAFT, Microsoft Excel.

Evaluation

Exams (two)	50%
Homework	25%
Term Project	25%

Class Policies

All exams will be closed-book, closed-notes. All homework and project reports are due at the start of class on the day assigned. Late assignments will not be accepted, no exceptions.

Description of Term Project

This course requires solution of an open-ended design case study project provided by the instructor. Students are required to work in teams, chosen randomly by the instructor. Students may not switch teams at any time. Students are required to:

(1) Submit a typewritten engineering report that documents the work performed.

(2) Present solutions formally to the class in a 20 minute presentation. (Each member of the team is required to make part of the presentation.)

Project grades will be assigned based upon the quality of both the written report (70%) and the effectiveness of the presentation (30%). Each team member must also submit a statement indicating the percentage contribution of all other team members. This will help to ensure that everyone in the team contributes equally towards the completion of the assignment. It is the responsibility of the entire team, to ensure that the work is divided fairly among all members. An individual student's project grade may be lowered if the team evaluations indicate poor performance by that student.

Syllabus Prepared by:

Dr. John S. Usher, December 2002