ABET Course Syllabus for IND E 439: Plant Layout and Material Handling

1. Course number and name: IND E 439: Plant Layout and Material Handling

2. Credits and contact hours: 4 credit hours, 4 hours per week.

3. Instructor’s name: Benita Beamon

4. Textbook, title, author, and year:
   4a. Other supplemental materials: Online lecture notes, technical handouts

5. Specific course information:
   5a. Brief description of the content of the course (catalog description): In this course, students will learn how to use material flow in: 1) facilities design (designing high-performance interiors and supporting systems for manufacturing and service facilities) and 2) facilities location (determining optimal facility/object locations within a network of facilities/objects).

5b. Pre-requisites or co-requisites: IND E 410.

5c. Required, elective, or selected elective (as per Table 5-1) course in the program: Elective.

6. Specific goals for the course: This course is an introductory course in plant layout and material handling. Therefore, the objectives of this course are for students to understand the underlying mechanisms for how to design, measure, analyze, and compare facility layouts and how to make facility location decisions. Students also learn the basics of material handling techniques and how they can be effectively and efficiently used to support facility objectives.

6a. Specific outcomes of instruction:
   ▪ Students will be able to effectively design and analyze facility layouts.
   ▪ Students will be able to apply and evaluate appropriate facility location models.
   ▪ Students will be able to design, measure, and analyze material flow systems.

7. Brief list of topics covered:
   Introduction
   Criteria
   Strategies/Tactics
   Sustainability and Eco-Efficiency in Facility Design
   Basic Planning
   Alternative Machine Arrangements
   Flow Lines
   Location Models
Americans with Disabilities Act/Building Details
Aisles and Security
Storage
Shipping and Receiving
Offices
Specialized Areas
Workstations
Unit Loads & Containers
Conveyors
Vehicles
Lifting Devices
Workstation Material Handling
Ethics in Facility Design