ABET Course Syllabi for IND E 337: Introduction to Manufacturing Systems

1. **Course number and name**: IND E 337: Introduction to Manufacturing Systems

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

3. **Instructor’s name**: Richard L. Storch

4. **Text book, title, author, and year**

4a. **Other supplemental materials**: None

5. **Specific course information**
   5a. **Brief description of the content of the course (catalog description)**:
       Description of manufacturing systems. Includes discussion of current trends in manufacturing. Introduces process flow analysis, manufacturing organizations including job-shop, assembly lines, and group technology, manufacturing inventory philosophies (just-in-time, MRP, OPT), work environment, and work simplification.

5b. **Prerequisites or co-requisites**: NONE

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

6. **Specific goals for the course**
   6a. **Specific outcomes of instruction**
       The objective of this course is to introduce the basic Industrial Engineering concepts that are applied in manufacturing. Students will have a basic understanding of lean principles (including process improvement approaches), manufacturing organization, time and motion study, group technology, process flow mapping, value stream mapping, Gantt charts, OPT, learning curves and job shop scheduling. Additionally, students will learn how to use the library for research purposes and identify current issues in manufacturing.

6b. **explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course**.
   a) an ability to apply knowledge of mathematics, science and engineering
   e) an ability to identify, formulate, and solve engineering problems
   g) an ability to communicate effectively
   h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
i) an understanding of the integrated nature of the discipline
j) a knowledge of contemporary issues
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
l) an understanding of the integrated, interdisciplinary nature of the discipline

7. Brief list of topics to be covered
   - Manufacturing Organization
   - Lean Principles (including process improvement)
   - Time & Motion Study and Work Sampling
   - Process Flow Mapping, Value Streams and Value Stream Mapping
   - Group Technology
   - OPT
   - Learning Curves
   - Scheduling (Gantt Charts and Job Shop)
   - Global and Contemporary Issues in Manufacturing