

## **IE 471 Case Study guideline**

### **Case study part 1: Reading Assignment (a)**

You are requested to select a topic in manufacturing system and write an essay of 1200 - 1500 words plus illustrations. The contents of the essay should contain the following:

- 1- **Overview:** cover background material and concepts about the topic include: definition; importance; benefits; uses and applications in general; etc.
- 2- **Principles:** discuss the topic requirements as: types; methods; tools; components
- 3- **Applications:** list the various applications in industry with brief description. Take one application and give details.
- 4- **Design issues:** provide the techniques for design visibility principles and how to design?)
- 5- **Conclusion:-** give final finding summary and concluding remarks.

### **Case study part 2: Mathematical Formulation of a manufacturing design issues (c,e,k)**

You are requested to select a particular problem in manufacturing design issues of topic selected in part 1 and carry the following procedure:

- 1- **Problem definition:** define the problem objective and parameters related to it; (posing the question about selected application). Study your case and define the factors and adenitis of the problem and the performance measures to be studied.
- 2- **Formulation:** Define the system parameters and their behavior and formulate the objective function and constraints.
- 3- **Solution methodology:** discuss the method (s) for solution.

### **Case study part 3: Design analysis of formulated manufacturing system (c,e,k)**

You are requested to solve the design problem you selected and carry the following procedure:

#### **1- Data collection:**

Find the system parameters and their characteristics

#### **2- Solution and analysis:**

Based on your formulation and solution methodology, solve and get results. Then analyze the result.

#### **3- Interpretation:**

Explain and discuss your analysis and conclude your finding. Then put your recommendation.

## **Guideline for Case study final Report writing**

**Front page:** student name and ID, course name, title of case study, semester and year, and name of supervisor.

**Title:**

**Objective and problem definition:** aim of the case study and what is to be accomplished?

**Background (part1):** brief review of background knowledge about the subject to be studied.

**Formulation (part2):** the specific details of formulating the problem and its solution methodology.

**Data Analysis (part3):** setting data variables of problem formulations and developing results.

**Discussion:** interpretation of the results and reasoning the outcomes.

**Conclusion:** concluding remarks and developing proper investigated solution to engineering problem.

**Reference:**