Homework 4 – 2004 Solution

56:134 Process Engineering


Question 1 (50 points)
An engineer from XYZ company has proposed the following process plan. Information regarding the activities, resources, cost and processing times is provided in Figure 1.

- Model the process using the Scitor Process software (55 points).
- Perform the analysis for one week (5 day).
- From test for size activity to the finishing operations use shortest queue path.
- Carry out the analysis using the statistics and the graphs (provided by the software)
- Perform and analyze process simulation with the following options (30 points)
  1. Option A: Number of Cutting Machines = 1
  2. Option B: Number of Cutting Machines = 2
  3. Option C: Number of Cutting Machines = 3
- Animate the process flow (5 points).
- Suggest other improvements to the process plan (10 points).

Figure 1. Process plan.

Provide a soft copy (floppy disk) of the program with your name and university ID on the disk.
The process flow is as follows:

Option A
Cutting machines = 1
Option 2
Cutting Machines = 2
Option 3
Cutting machines = 3
The overall performance is as follows:

Other possible modifications are as follows:
- Buy new cutting machines, which will reduce processing time.
- Reduce processing time via process improvements for both cutting and finishing operations.
- Modify the lathe machines to perform cutting as well as lathe operations.