ME392

HOMEWORK 1

1. The maintenance department of a medium-sized single engine airplane manufacturing plant routinely calibrates an electronic control unit for its planes. A time study is performed on this operation, resulting in the data below (in minutes):

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cycle | | | | | | | | | Performance rating |
| Element | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Get and position unit | 0.10 | 0.12 | 0.15 | 0.10 | 0.09 | 0.14 | 0.12 | 0.10 | 1.05 |
| 2. Perform Calibration | 1.50 | 1.90 | 1.60 | 1.80 | 1.70 | 1.90 | 2.00 | 2.00 | 1.20 |
| 3. Perform standard tests | 4.90 | 3.85 | 5.19 | 4.50 | 5.50 | 4.72 | 4.60 | 5.21 | 0.85 |
| 4. Update card and remove unit | 0.50 | 0.60 | 0.70 | 0.60 | 0.60 | 0.50 | 0.80 | 0.60 | 1.00 |

Allowance per shift – 82 minutes

Compute the standard time for the operation

1. a. Show the relationship between time study and methods engineering. Explain each fully with the aid of diagrams.

b. What advantages are there for establishing time standard by using standard data rather than by doing individual time studies?

1. You work in the IE department of the Metal fab Company. You have been asked to study the layout for an operation that has been in operation for at least five years and suggest changes for improvement. Name and draw three of the process charts you will use to solve this problem. For each chart, state what information you will be looking out for that will help you in your solution.
2. a. What is a Simo Chart and what is it used for?
3. Draw a Simo Chart
4. The management of the Cando Manufacturing Company has cause to believe that workers in the production section have a problem which is affecting productivity. Absenteeism and sick days are rampant. Medical claims are also increasing.
   1. State briefly what you think the problem is (half page).
   2. Name and draw two process charts you will use to investigate this problem.