****

**TCET 4140 Telecommunication Network Management**

**Professor Viviana Vladutescu**

**Project 2**

**By Kelvin Delgado, Richard Matos, Jafes Veras-Martinez**

1. Cisco company is trying to bring a new model of a router (let’s say Cisco 3845 Integrated Services Router) to the market. According to the marketing department, the best selling price for a similar model from a world-class competitor is $250 per router. The company wants to sell at the same price as its best competitor. The cost break down of the new model is as follows:

Assembling time for the first unit: 1 hour

Handling time: 10% of assembling time

Direct labor rate: $15/hour \*1,230.38 hour = $18,455.70

Planning labor: 10% of direct labor = $1,845.57

Quality control: 50% of direct labor = $9,227.85

Factory overhead: 200% of total labor = $22,146.84

General and Administrative expense: 300% of total labor = $33,220.26

Direct material cost: $7.5/router = $15,000 for 2000 unit

Outside manufacture: $70/router = $140,000 for 2000 unit

Packing cost: 10% of total labor = $3,322.026

Facility rental: 10% of total labor = $3,322.026

Profit: 20% of total manufacturing cost

Number of units: 2000

Since the company mainly produces subassemblies purchased from other manufacturers and repackages the product, the direct material cost is estimated at only $7.5 per router. Direct labor consists of handling time and assembling time. The company estimates that the learning curve for assembling the new model is 95%. Compute the total manufactured cost for 2000 of these routers and determine the selling price. How can the company reduce its costs to meet its target costs?

$246,540.272 Total cost of 2000 $123.270 Cost a router

$49,308.05 Total Profit of 2000 $24.65 Profit of one router

$147.92 Selling price

$$Tx=1\sum\_{u=1}^{2000}u^{n}$$

$$n=\frac{log⁡(.95)}{log2}=-0.074$$

$$Tx=1\sum\_{u=1}^{2000}u^{n}=1\sum\_{u=1}^{2000}u^{-0.074}=1\left[1^{-0.074}+2^{-0.074}+3^{-0.074}………+2000^{-0.074}\right]=1,230.38 total hours of 2000 router$$

2. Find the value of the unknown quantity Z in the following diagram, such that the equivalent cash outflow equals the equivalent cash inflows when r=20% compounded continuously.

A=$500/year

 1 2 3 4 5 6 7 8 9

Z0

Z

 Z3=F3

500(P/A,20%,4)

$$500[\frac{(e^{rN})-1}{e^{rN}\left(e^{r}\right)-1}]$$

500(3.156) = $1,578.13

Z0= F3(P/F,12%,3)

Z0=1,578.13(0.5488) = $866.10