Mary Lynn McPherson – Assignment 2

Assumption: Each student takes 5 credits

1. **Classify the different cost items as either fixed or variable costs (matching row number to Fixed or Variable as appropriate) and as capital or recurrent costs. Give short explanation of the two distinctions.**

Line	Cost Item
3	Fixed/Recurrent
4	Fixed/Recurrent
8	Variable/Capital
9	Variable/Capital
12	Fixed/Capital
13	Fixed/Capital
15	Fixed/Capital
16	Fixed/Capital
17	Fixed/Capital
18	Fixed/Capital
19	Fixed/Capital
22	Fixed/Capital
23	Fixed/Capital
27	Semi-Variable/Recurring
29	Variable/Recurring
30	Variable/Recurring
31	Variable/Recurring
32	Variable/Recurring
33	Variable/Recurring

- Fixed costs are constant and do not depend on output/production. They do not vary with any change in the level of activity or output (Grumble, p. 23).

- Variable costs change with output/production. Every time one unit of output is added, the cost goes up by the cost of that unit (Grumble, p. 24).

- Semi-variable costs may vary with significant changes in the level of activity (Grumble, p. 24).

- Capital costs generally building, creating, developing, or improving assets which have a certain life expectancy. Expenditure incurred on items that, once bought,

provide benefits beyond the accounting year within which they were bought (Grumble, p. 10)

- Recurrent costs generally occur regularly such as maintenance, salaries and overhead. Recurrent costs are also known as baseline expenditures (Grumble, p. 10).

2. **Calculate the recurrent fixed costs of overheads (management and secretarial support).**

    - $55,000 USD

3. **Calculate the aggregate Fixed Costs of Development (FD) and the aggregate Fixed Costs of Maintenance (FM). The modified course is offered from year 5 onwards.**

    - FD = $50,570 USD
    - FM = $700 USD

4. **Calculate the variable costs per Student (V)**

    - Variable cost per student $238 USD. There was a semi –variable cost with group size per online discussion costs.

5. **Calculate the depreciation rate on a basis of the lifetime of the presentation of the project (compare Rumble Table 6.1) and charge it to each year of the presentation. You may use the format of the attached spreadsheet).**

    - FD (depreciated over 7 years) = FD/7 = $50,570/7 years = $7,224 a year
    - FM (depreciated over 4 years) = FM/4 = $700/4 years = $175 a year (revisit after third year)

6. **Following the template of Rumble Table 6.4, annualize the fixed cost of Development (FD) over the specified years of presentation at the specified rate of interest and the fixed Costs of maintenance (FM) over the specified years at the same rate.**

    - FD annualized (depreciated over 7 years at 2.0%) = $7,814 a year
    - FM annualized (depreciated over 4 years at 2.0%) = $184 a year (revisit after third year)

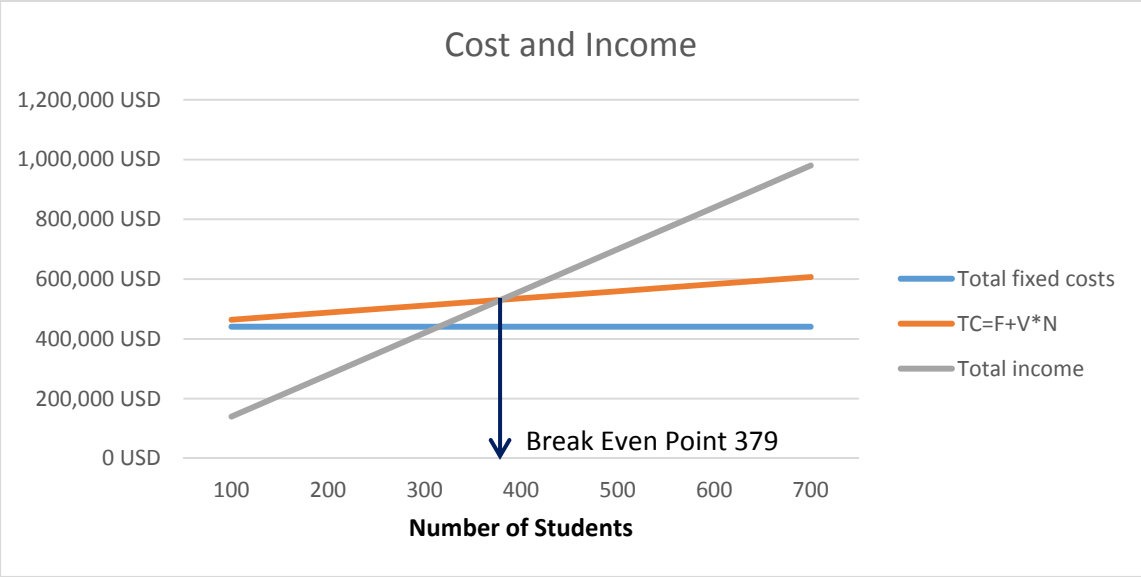
7. **Mini-essay: Summarize in a short paragraph the reasons for the and against annualization in your own words.**

Annualization estimates calculations that occur in less than a year to account for the length of a year. Annualization shows a bigger picture by reflecting the investment by taking the depreciation and interest (cost of capital) as total cost. Annualization makes a better comparison in decisions when comparing projects for investment. However, Eicher (as quoted in Rumble, 1997, p. 47) argues that there are problems with annualizing capital costs. The first issue is "the need to distinguish clearly between the cost of depreciation and the opportunity cost of capital." Eichel points out it would be unreasonable to apply the total cost of a building to the first year of a project; capital costs should be depreciated to compare the annual depreciated cost. Eicher further states that "it is by no means clear that the opportunity cost of capital expenditure should be taken into account" (p. 47). The decision to use interest rates is not based on a sound theoretical basis for public financial decisions. Rumble also states that one flaw in annualization is that the estimated cost depends on the facility age. Annualization helps take the depreciation into account since the course materials are to be use over the term of the course.

8. **Calculate the equation of total costs (TC=F+VxN) using the annualized figure for fixed costs and the total number of students expected over the lifetime of the course.**

- TC = F+V*N (with F = fixed costs, V = variable costs, and N = number of students)
- TC = $440,434.+($238*100)
- TC= $ 464,234

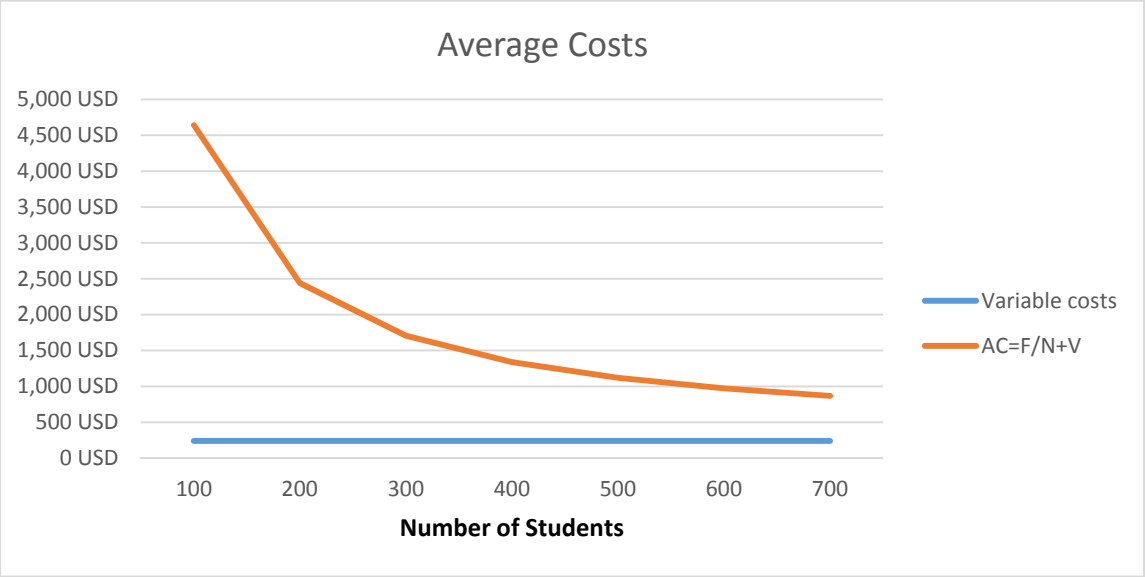
9. **Draw the respective graph of total cost function.**



10. **Calculate the equation of average costs (AC=F/N+V) using the annualized figure for fixed costs and the total number of students expected over the lifetime of the course.**

- AC=F/N=V (with F = Fixed costs, V=Variable costs, and N= number of students.
- AC + ($ 440,434/ 100) + $ 238

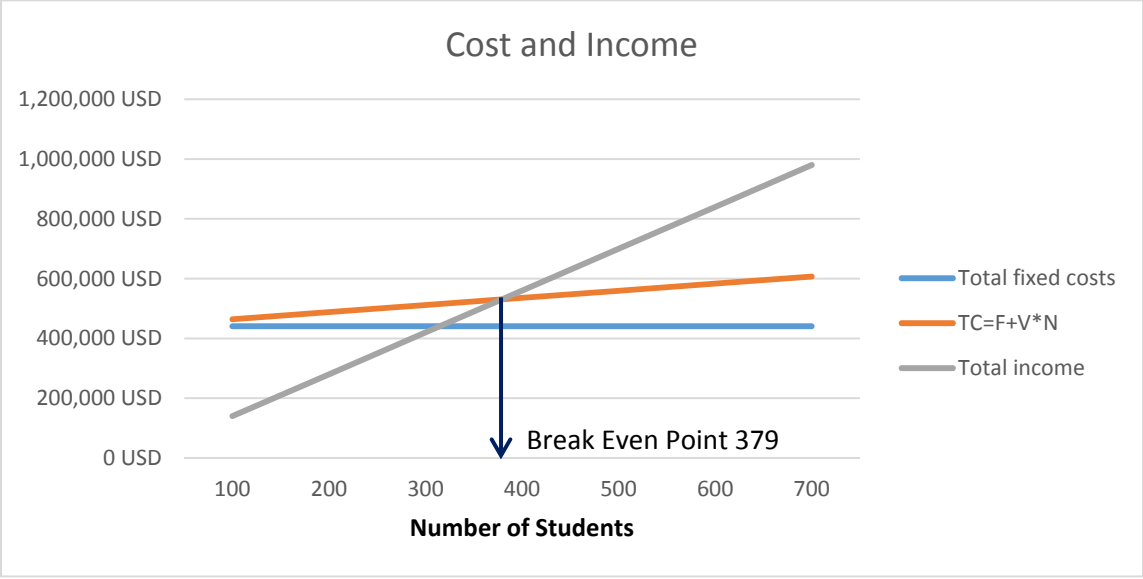
11. Draw the respective graph of the average cost function.



12. If the student is charged the per student fee specified calculate the break- even point. (Use the equation TC=F+VxN and the income equation: I=SFxN(Income=Student fee X No of Students) the break – even point is N=F/SF-V).

- N=$440,434/(1400-238)= $ 379

13. Represent the break-even point graphically (overlaying the graphs of TC and I)



14. Mini-essay: Summarize in a short paragraph why it is believed that the TC and AC equations and the specific costs structure of DE suggests the DE may be more cost-efficient than conventional modes of education provision.

The Total Cost (TC) and Average Costs (AC) take into consideration the fixed cost, variable cost and the number of students. Conventional education (CE) has a finite facility and is restricted to its location and geographical area for its number of students. Distance education (DE) usually has a higher start-up cost than CE requires to develop vast material resources in the beginning. DE has the ability due to lack of geographical restrictions to approach vast numbers of students in order the drive the variable cost down. Both CE and DE have TC and VC, but due to the economies of scale DE should be able to approach more students, thus lowering the variable cost in the TC and AC equations. Over time, the cost per DE student will be less than CE education given sufficient numbers of students.

15. Overall presentation

Reference:

Rumble, G. (1997). *The costs and economics of open and distance learning*. Abingdon, Oxon: RoutledgeFalmer.