Management Calculus Topics

The following topics are addressed in the Management Calculus course 92.122. This module addresses items 1-7 and relates Wal*Mart data to rate of change applications.

1. Graphs of equations: point plotting, TI, break-even analysis

2. y=mx+b: slope, derivation of a straight line, cost equation, wage equation

3. Least squares regression models

4. Functions: revenue, profit, cost, demand

5. Differentiation: marginal profit, marginal revenue, marginal cost

6. Relative max/min: maximum profit, minimum cost, maximum revenue

7. Differentials and marginal analysis: applications to cost, revenue, profit

8. Point of diminishing return: sales

9. Antiderivatives and indefinite integrals: find a cost function

10. Applications of the definite integral: average cost for c(t) and average balance assuming continuous compounding, change in revenue given the marginal revenue

11. Area of a region bounded by f(x) and g(x): producer and consumer surplus

12. Midpoint rule approximation for a definite integral

Technology

The development of the MAST module assumes familiarity with a TI-83+ or equivalent graphing as a visual aid for learning. While technology will be used, students are responsible for mastery of analytic procedures presented. Excel worksheets are used to help analyze and graph the data.