



# IC 150 P Computation for engineers lab

## Lab assignment sheet no: 1, Odd semester, 2016

Basic uses of CALC

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### Task 1: calculate grades using formulae

You will get an input file with a name like: `filename.csv`

Each line on this file will have two comma separated fields: roll number of a student, and the total marks obtained by that student in a course. Your task is to write an output file (in the same format) that will have the student roll numbers, and the grades calculated. You are asked to grade the performance of the students using the following formulas:

Range of marks	Grade
$\mu + 2\sigma \leq \text{Marks}$	A
$\mu + \sigma \leq \text{Marks} < \mu + 2\sigma$	B
$\mu \leq \text{Marks} < \mu + \sigma$	C
$\mu - \sigma \leq \text{Marks} < \mu$	D
$\mu - 2\sigma \leq \text{Marks} < \mu - \sigma$	E
$\text{Marks} < \mu - 2\sigma$	F

In this table:  $\mu$  is the mean, and  $\sigma$  is the standard deviation.

### Task two: Grade using a table of precise cutoffs

Now you are asked to grade the same student marks using the table of cutoffs contained in the second .csv file. To perform this, you will need to use the CALC function `VLOOKUP()`.

### Task three: some plots

#### Part (a): calculate function values

In a new spreadsheet, in cells A1..A20, enter the numbers 1 to 20 as values taken by a variable  $x$ . We ask that you do this using the Edit->Fill->Series command. In cell B1 enter the formula to compute  $f(x) = x^2 - 25x$ . Copy the formula to cells B2..B20.

#### Part (b): plot function

Using the Insert-Chart command, create a line graph to plot  $f(x)$  versus  $x$ . Experiment with changing the graph type.

#### Part (c): modify function

Now, change the formula in Column B to  $\cos(x)$ . Observe the change in the graph.