ASE 211 Homework 7

Due: 12:00 noon, Friday, March 10.

1. Using the code you developed for assignment 6, construct and plot a Lagrange interpolant of the function $f(x) = \frac{1}{1+25x^2}$ using

(a) 5 equally spaced points between -1 and 1,

(b) 11 equally spaced points between -1 and 1,

(c) 21 equally spaced points between -1 and 1.

Plot the Lagrange polynomial versus the function f for each case. This is a classical example of where Lagrange interpolation goes bad.

2. Construct, by hand, the cubic spline which interpolates the points $(0,0)$, $(1,1)$ and $(2,1)$.

Hand in all matlab m-files and diaries.