```
>> fdstencil(2,-2:2)

The derivative u^(2) of u at x0 is approximated by

          1/h^2 * [
                     -8.333333333333333e-02 * u(x0-2*h) +
                      1.333333333333333e+00 * u(x0-1*h) +
                     -2.500000000000000e+00 * u(x0) +
                      1.333333333333334e+00 * u(x0+1*h) +
                     -8.333333333333333e-02 * u(x0+2*h) ]

For smooth u,
       Error = 0 * h^3*u^(5) + -0.0111111 * h^4*u^(6) + ...

>> c=([-25/300,4/3,-5/2,4/3,-25/300])' %coefficients obtained from above

c =

   -0.0833
    1.3333
   -2.5000
    1.3333
   -0.0833

>> V=[1,1,1,1,1;
-2,-1,0,1,2;
2,1/2,0,1/2,2;
-8/6,-1/6,0,1/6,8/6;
16/24,1/24,0,1/24,16/24] %Vandermonde matrix computed in problem 3, part (a)

V =

    1.0000    1.0000    1.0000    1.0000    1.0000
   -2.0000   -1.0000         0    1.0000    2.0000
    2.0000    0.5000         0    0.5000    2.0000
   -1.3333   -0.1667         0    0.1667    1.3333
    0.6667    0.0417         0    0.0417    0.6667

>> V*c %checking the coefficients satisfy expected system of equations

ans =

   -0.0000
    0.0000
    1.0000
         0
         0

>>
```