

LABORATORY ASSIGNMENT

Consider a one span beam loaded by a piecewise constant loading. Use the FDM and 5 point stencils to approximate solution to the appropriate BVP. Plot nodal values of deflection, deflection derivative, bending moment and shear force. Check that you get exact results for a statically determined beam loaded by a constant distributed loading.

```
%% central finite difference formulas
% ~w'      → [ 1  -8   0   8  -1] / (12*h)
% ~w''     → [-1  16 -30  16  -1] / (12*h^2)
% ~w'''    → [-1   2   0  -2   1] / (2*h^3)
% ~w''''   → [ 1  -4   6  -4   1] / (h^4)
```