Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Assignment 2**

*x*

*h*



*z*







Consider a bar element when *A* and *E* and distributed force  is the linear distributed force. Derive the virtual work expression of *internal* forces starting with the approximation  and the virtual work density expressions  and  of the bar mode.

**Solution template**

Displacement quantities in the virtual work density:

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When the approximation is substituted there, virtual work density of internal forces  becomes



Virtual work of internal forces  is the integral of  over the domain occupied by the element

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