

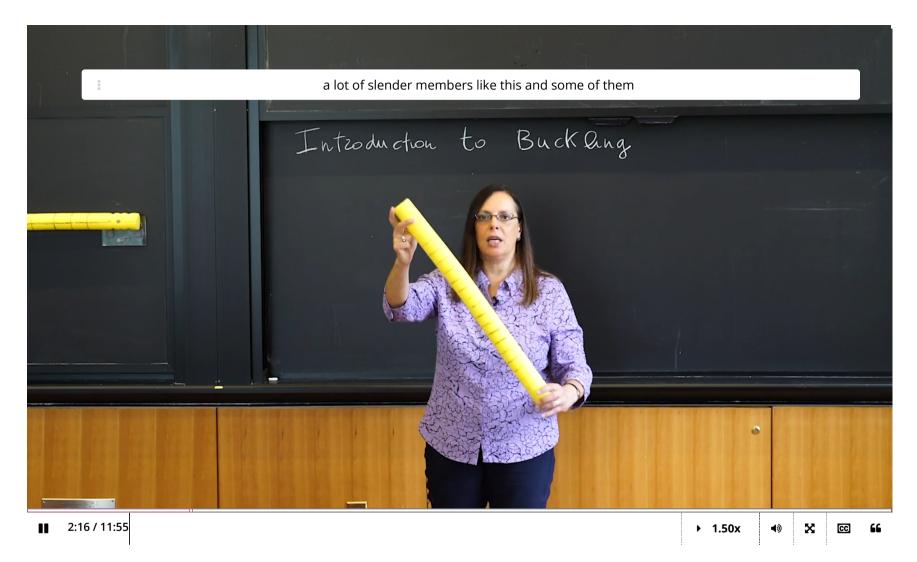
Unit 2: Boundary value problems

11. (Optional) A beam bending equation for both transverse and

Course > and PDEs

> 4. Boundary Value Problems > axial loading

11. (Optional) A beam bending equation for both transverse and axial loading An equation for beam buckling due to compression



Video

Download video file

Transcripts

<u>Download SubRip (.srt) file</u>

<u>Download Text (.txt) file</u>

We can extend the model for beam bending to a model of a horizontal beam that has a distributed load $a_n(x)$, a deflection of v(x), and an axial load F via the equation

$$EIrac{d^{4}}{dx^{4}}v\left(x
ight) +Frac{d^{2}}{dx^{2}}v\left(x
ight) =q_{y}\left(x
ight) .$$

When the axial loading is zero, this reduces to the beam bending equation we derived previously.

11. (Optional) A beam bending equation for both transverse and axial loading

Topic: Unit 2: Boundary value problems and PDEs / 11. (Optional) A beam bending equation for both transverse and axial loading

Hide Discussion

Add a Post

Show all posts ✓	by recent activity 🗸
? An equation for beam buckling: Why moment due to reaction force R is not considered in the video?	4
 A literary reference This sounds something like the way Sampson killed himself and many Philistines by pushing out the pillars of the temple. Community TA 	1
? Coefficient of fourth derivative term Ljust wonder if the coefficient is not 2El instead of El.	1

© All Rights Reserved