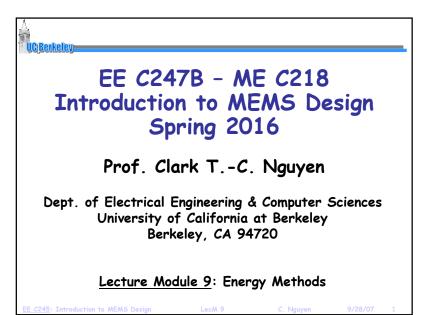
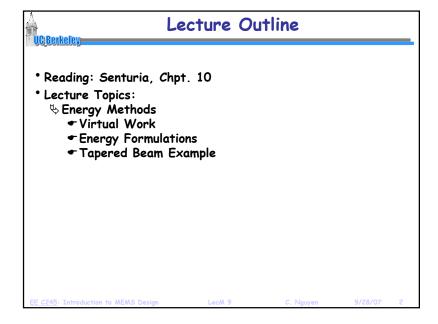
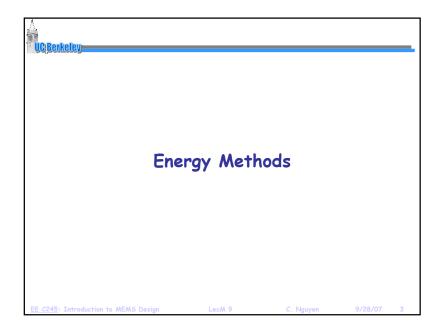
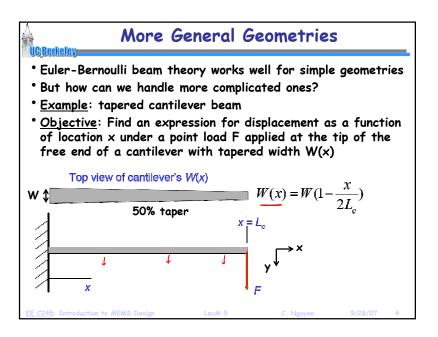
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Lec16m: Energy Methods









Lec16m: Energy Methods

Solution: Use Principle of Virtual Work

- In an energy-conserving system (i.e., elastic materials), the energy stored in a body due to the quasi-static (i.e., slow) action of surface and body forces is equal to the work done by these forces ...
- Implication: if we can formulate stored energy as a function of the deformation of a mechanical object, then we can determine how an object responds to a force by determining the shape the object must take in order to minimize the difference U between the stored energy and the work done by the forces:

U = Stored Energy - Work Done

 <u>Key idea</u>: we don't have to reach U = 0 to produce a very useful, approximate analytical result for load-deflection

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