

Unit 12 - Week 10: Linearization

Course outline

How does an NPTEL online course work?

Week 0 : Prerequisite

Week 1: Introduction

Week 2: Mathematical Preliminaries - 1

Week 3: Mathematical Preliminaries - 2

Week 4: Kinematics - 1

Week 5: Kinematics - 2

Week 6: Kinetics - 1

Week 7: Kinetics - 2

Week 8: Hyperelasticity - 1

Week 9: Hyperelasticity - 2

Week 10: Linearization

Lec 30: Introduction, Linearization Process Overview

Lec 31: Linearization of Internal Virtual Work and External Virtual Work

Quiz : Assignment 10

Feedback form

Lecture Notes

Week 11: Discretization

Week 12: Solution Procedure

Live session

Assignment 10

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-11-25, 23:59 IST.

1) Linearization of the equilibrium equations is needed to obtain the _____ position.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) equilibrium
(Type: String) current

1 point

2) Choose True/False for the following assertion: "The directional derivative of the virtual work equation is the source of the tangent matrix needed to set up the Newton-Raphson procedure "

- (a) True
 (b) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) True

1 point

3) Choose True/False for the following assertion: "It is convenient to perform the linearization in the material configuration as the initial elemental volume is constant during the linearization."

- (a) True
 (b) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) True

1 point

4) The Eulerian linearized internal virtual work

- (a) can be obtained by push-forward of the material form of the linearized internal virtual work expression.
 (b) can not be obtained directly very easily.
 (c) both of these.
 (d) none of these.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) can be obtained by push-forward of the material form of the linearized internal virtual work expression.
(b) can not be obtained directly very easily.
(c) both of these.

1 point

5) The linearization of the internal virtual work can be carried out easily using

- (a) the material form of the internal virtual work expression.
 (b) the spatial form of the internal virtual work expression.
 (c) both of these.
 (d) none of these.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) the material form of the internal virtual work expression.

1 point

6) 6 Choose True/False for the following assertion: "The virtual velocities are function of the configuration."

- (a) True
 (b) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
(b) False

1 point

7) Choose True/False for the following assertion: "The pull back of the virtual rate of deformation tensor gives the directional derivative of the Green-Lagrange strain tensor in the direction of virtual velocity."

- (a) True
 (b) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) True

1 point

8) Choose True/False for the following assertion: "The symmetry of the tangent stiffness matrix is because the virtual work equation is symmetric in the virtual velocity and the displacements."

- (a) True
 (b) False

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) True

1 point