

Ansys Mechanical Beyond the Basics

Module 05 Student Reference Guide: Additional Analysis Settings, Loads, and Supports

Release 2021 R2

Module 05: Learning Objectives

Upon successful completion of this module, the student should be able to:

- Understand the basic assumptions of mirror symmetry
- Define a Symmetry Region
- Describe the advantages of using symmetry
- Describe the underlying behavior of a Frictionless Support and its relationship to mirror symmetry
- Describe the underlying behavior of a Displacement support and its relationship to mirror symmetry

Module 05: Learning Objectives (Continued)

- Describe the purpose of stepped analyses
- Understand the general behavior of a Bolt Pretension load
- Define a basic Bolt Pretension load in a multiple-step solution
- Compare and contrast three methods for modeling a bolt: solid bodies, line bodies, and Beam Connections

/ Module 05: Reference Material

For reflective symmetry, each of the following must exhibit symmetry about the mirror plane:

- *Geometry*
- *Material Properties*
- *Loads*
- *Supports*

Multistep Analysis:

<u>Step</u>	<u>Description</u>
1	Pretension Applied, $P = 0$
2	Pretension Locked, $P = 0$
3	Pretension Locked, $P = 7.0 \text{ MPa}$

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