GLOBAL EDITION

Finite Element Analysis

Theory and Application with ANSYS

FOURTH EDITION

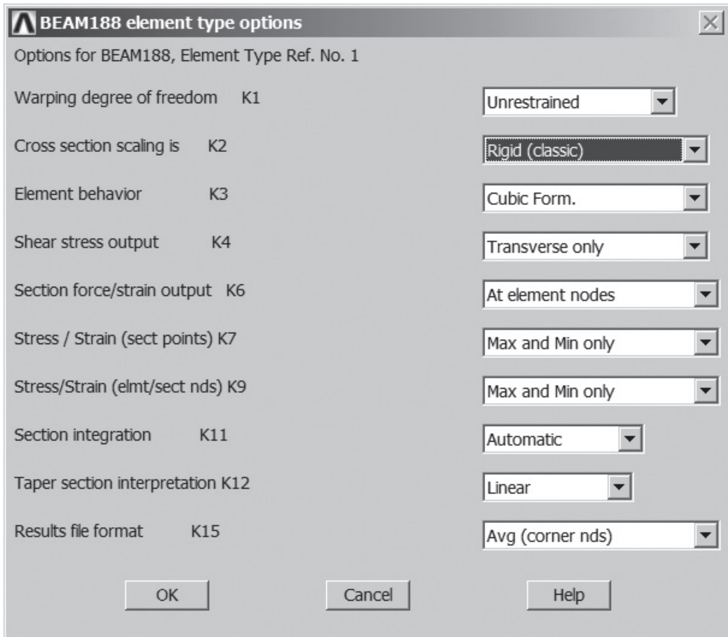
Saeed Moaveni

ALWAYS LEARNING

PEARSON

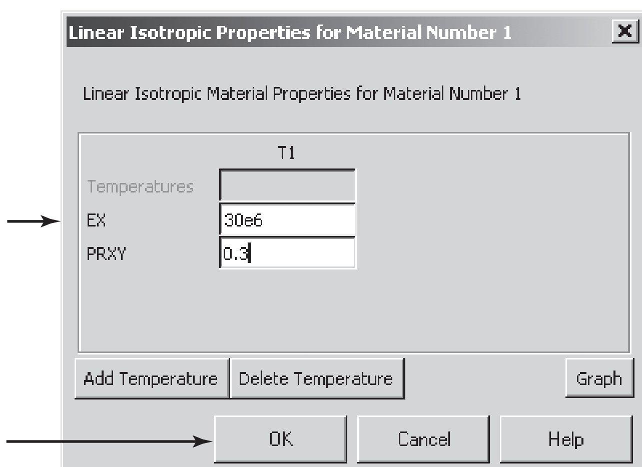
FINITE ELEMENT ANALYSIS

Next click on **Options** . . . button and set K1, K2, . . ., K15 option as shown.



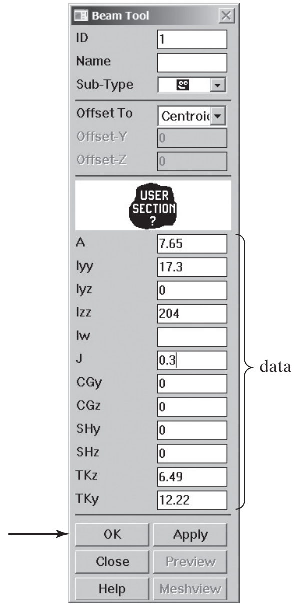
Assign the modulus of elasticity by using the following commands:

main menu: **Preprocessor** → **Material Props** → **Material Models** → **Structural** → **Linear** → **Elastic** → **Isotropic**



Close the "Define Material Model Behavior" window.

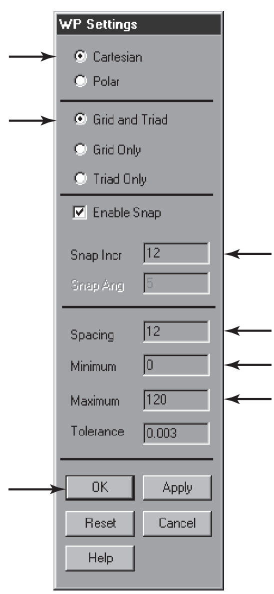
main menu: **Preprocessor → Sections → Beam → Common Sections**



ANSYS Toolbar: **SAVE_DB**

Set up the graphics area (i.e., work plane, zoom, etc.) with the following commands:

utility menu: **Workplane → WP Settings** . . .



utility menu: **Workplane → Display Working Plane**

Bring the workplane to view by the command

utility menu: **PlotCtrls → Pan, Zoom, Rotate** . . .

Click on the small circle until you bring the workplane to view. Then create the nodes and elements:

main menu: **Preprocessor → Modeling → Create → Nodes → On Working Plane**

[WP = 0,108]

[WP = 120,108]

[WP = 120,0]

OK

main menu: **Preprocessor → Modeling → Create → Elements → Auto Numbered → Thru Nodes**

[pick node 1]

[pick node 2]

[apply anywhere in the ANSYS graphics window]

[pick node 2]

[pick node 3]

[anywhere in the ANSYS graphics window]

OK

utility menu: **Plot → Elements**

Toolbar: **SAVE_DB**

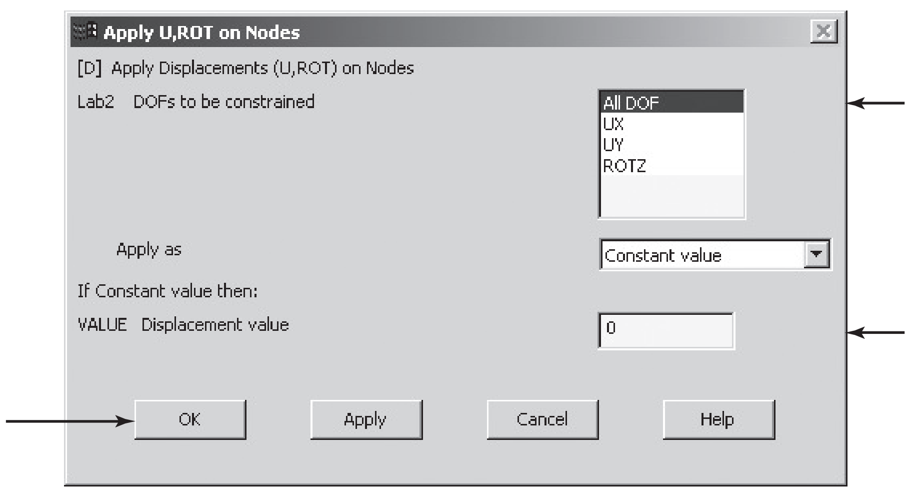
Apply boundary conditions with the following commands:

main menu: **Solution → Define Loads → Apply → Structural → Displacement → On Nodes**

[pick node 1]

[pick node 3]

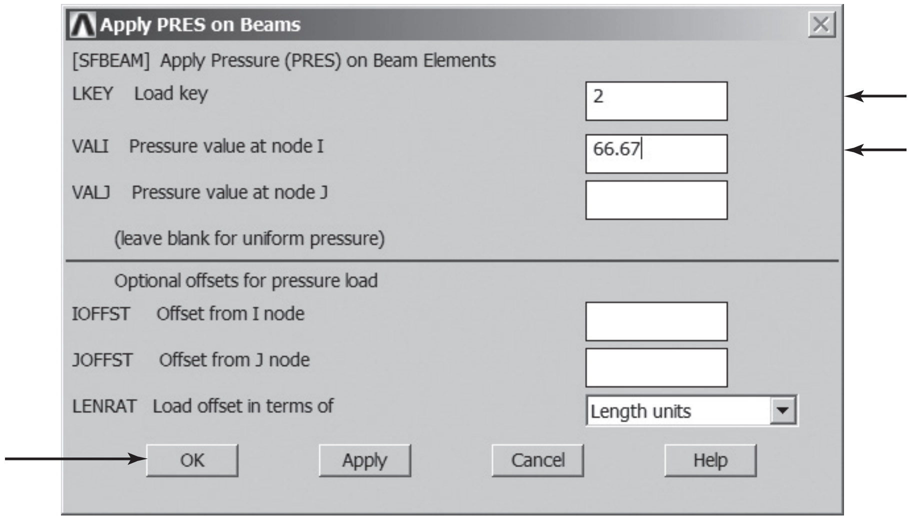
[anywhere in the ANSYS graphics window]



main menu: **Solution → Define Loads → Apply → Structural → Pressure → On Beams**

[pick element 1]

[anywhere in the ANSYS graphics window]

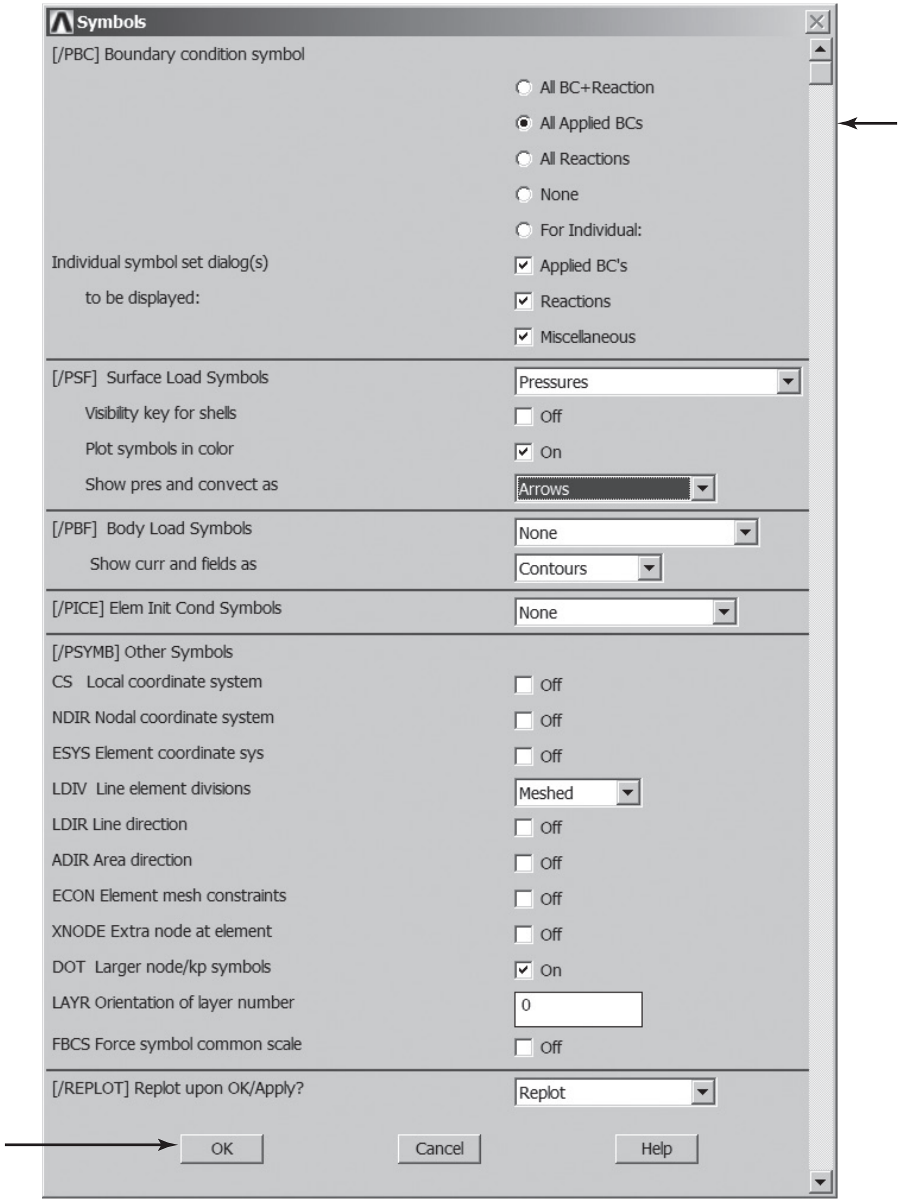


To see the applied distributed load and boundary conditions, use the following commands:

utility menu: **Plot Ctrls → Symbols** . . .

utility menu: **Plot → Elements**

ANSYS Toolbar: **SAVE_DB**



Solve the problem:

main menu: **Solution → Solve → Current LS**

OK