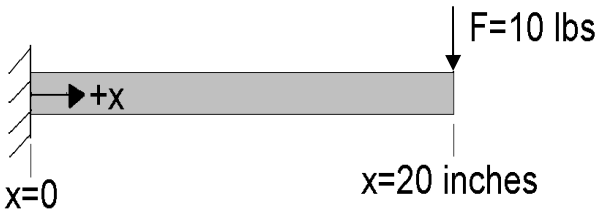
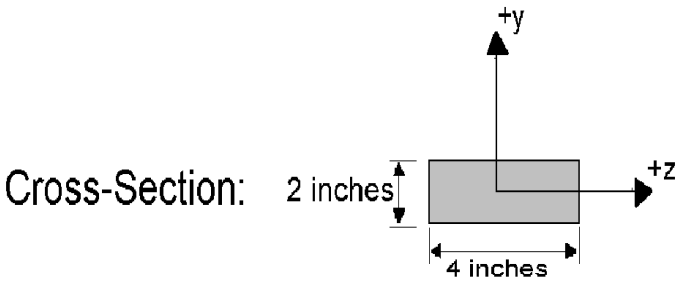
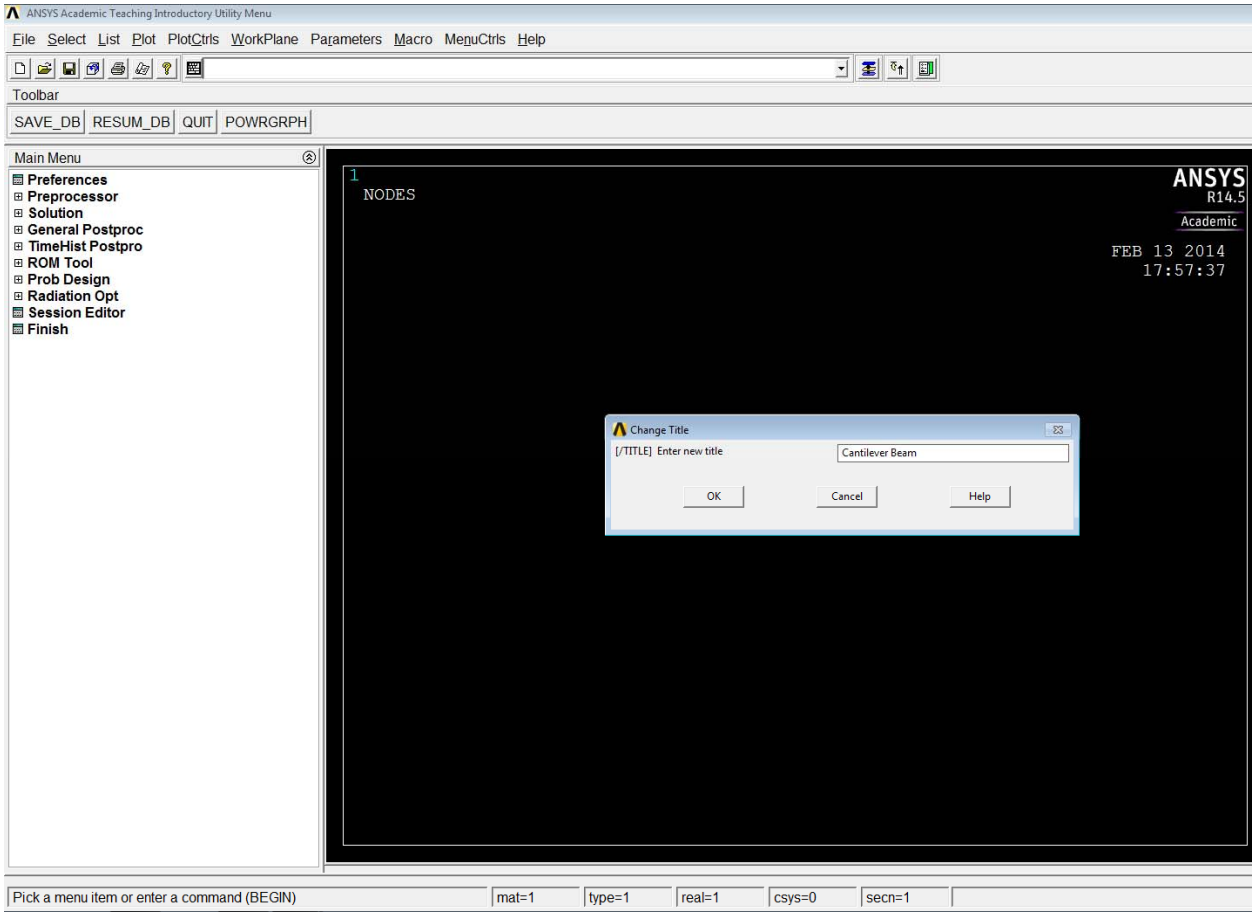
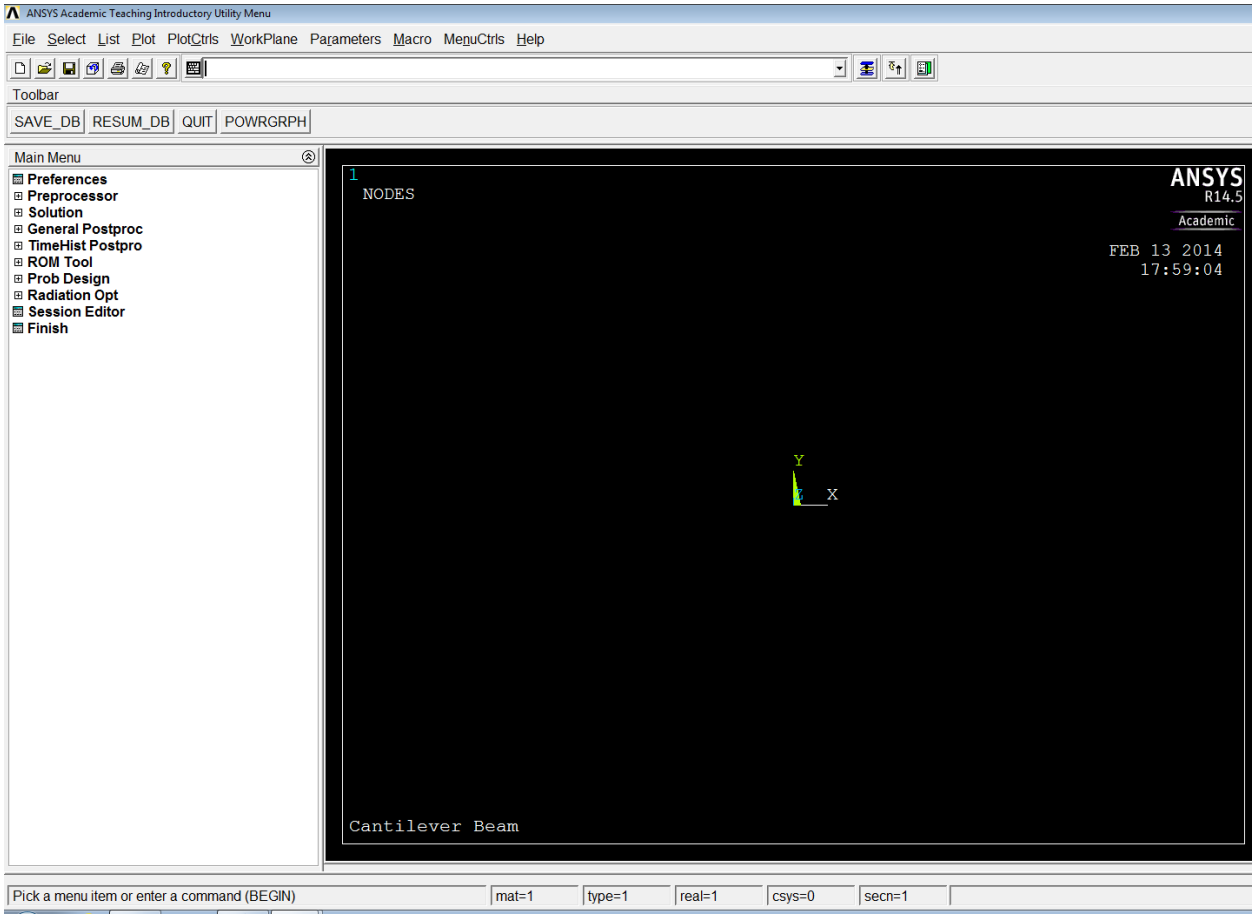

F=10 lbs
+x
x=0
x=20 inches


Cross-Section:
+y
+z
2 inches
4 inches

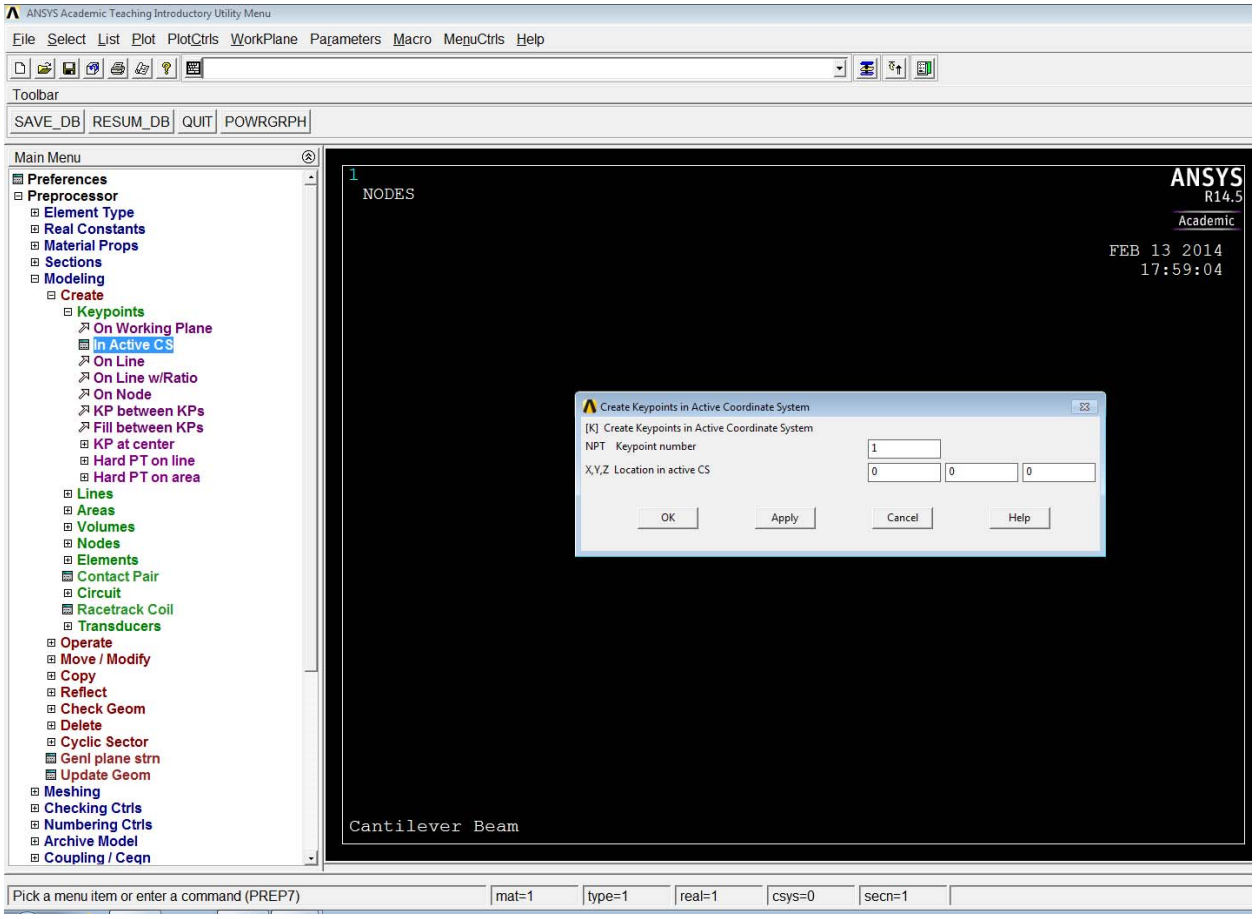
1. Title: Utility Menu> File> Change Title



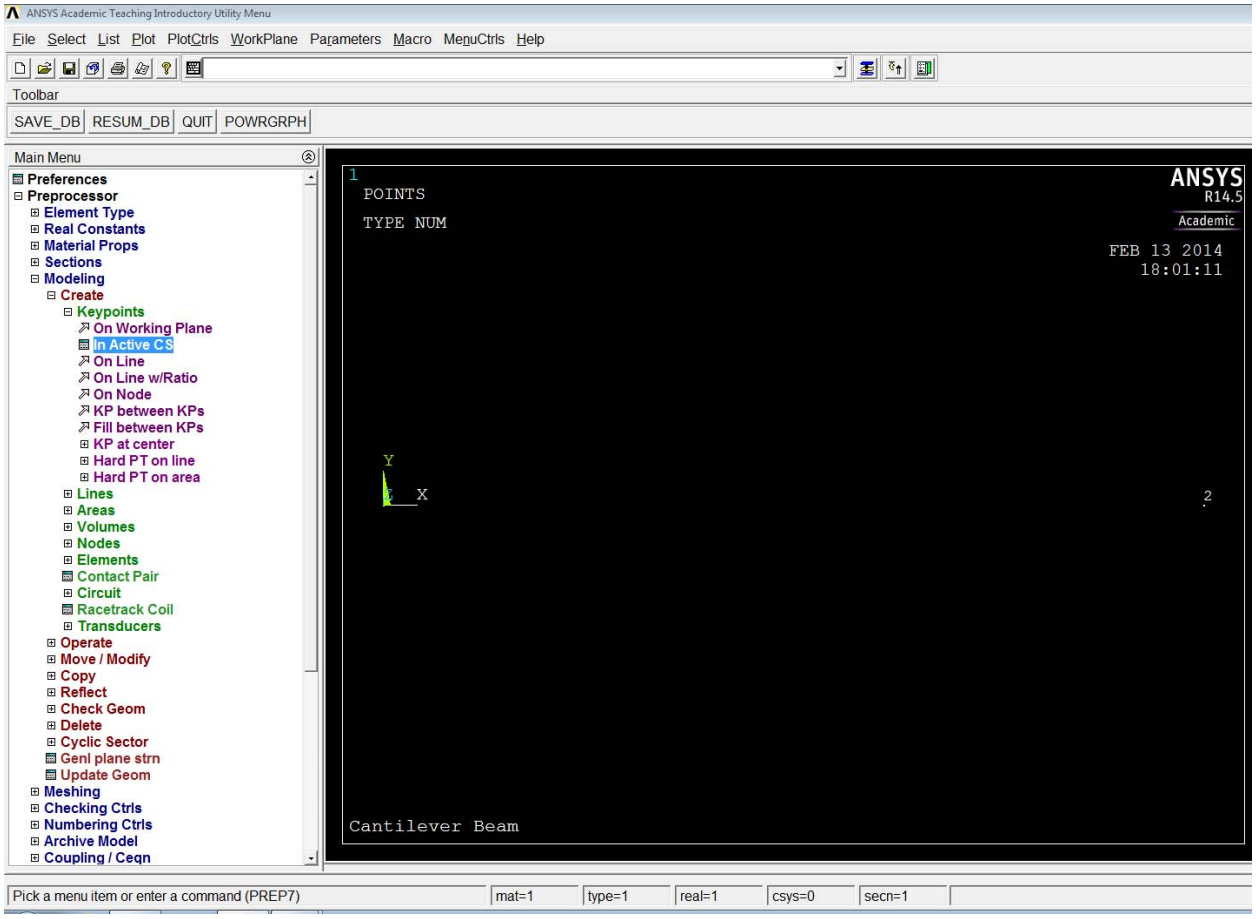
2. Enter title, Ok and then Utility Menu> Plot> Replot



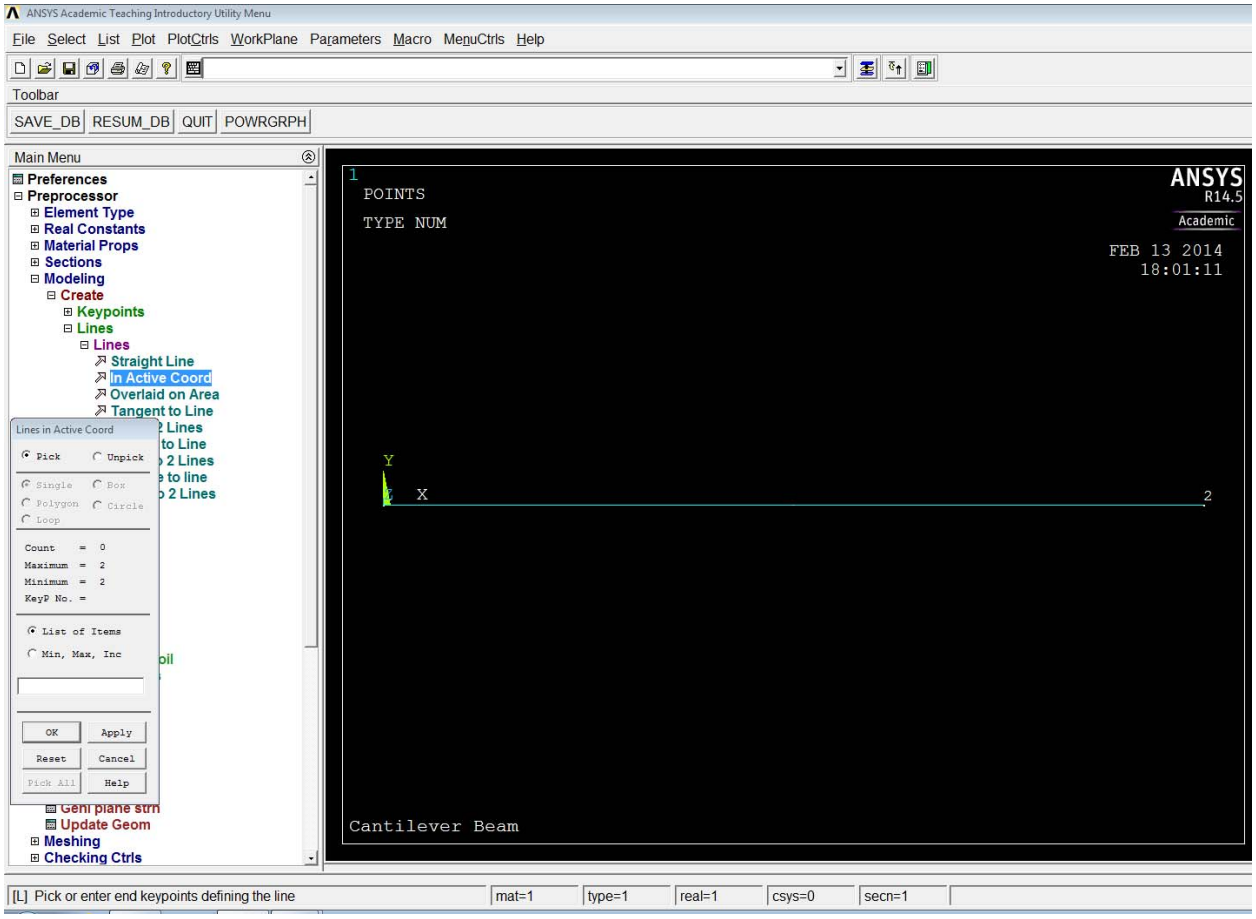
3. Keypoint selection: Main menu> Preprocessor> Modeling> Create> Keypoints> In Active CS



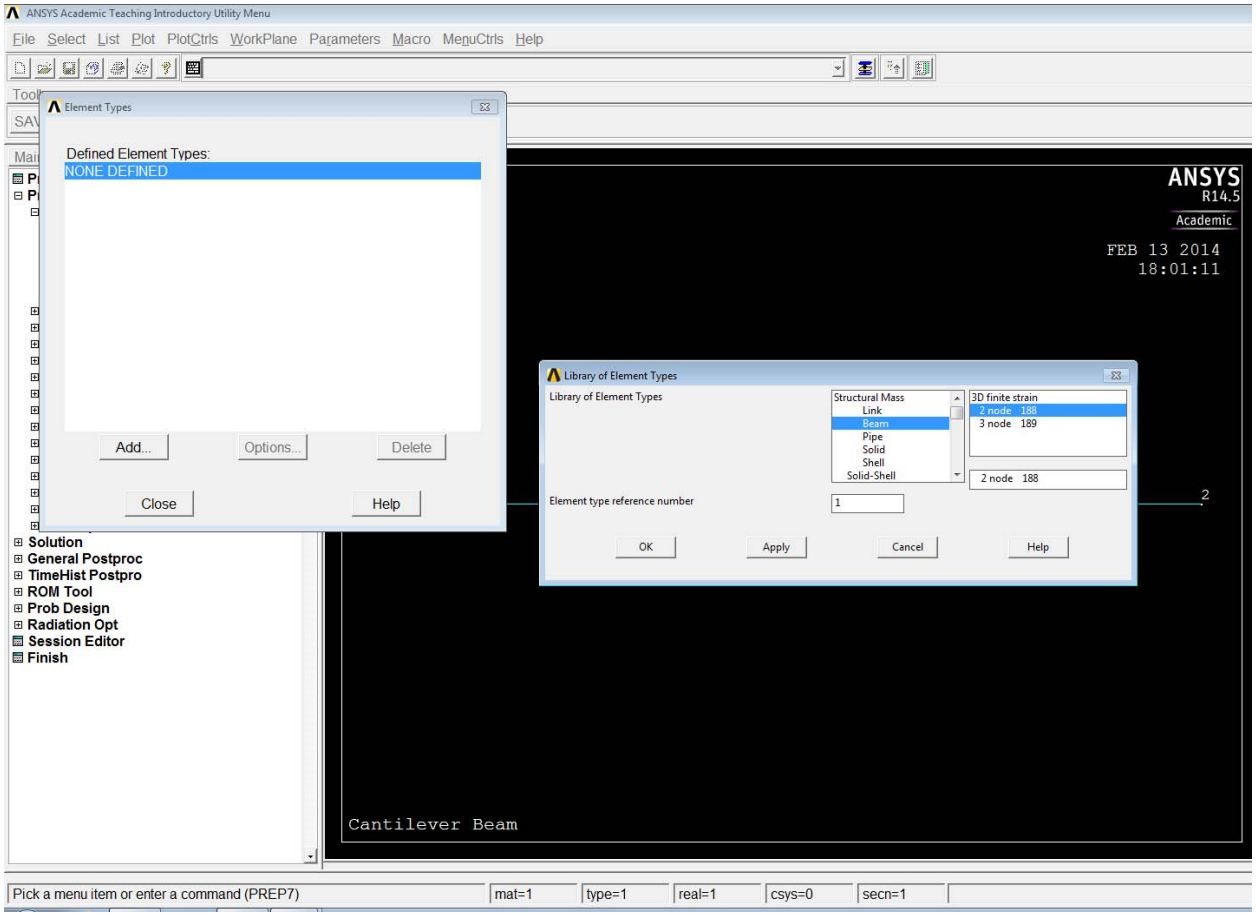
4. Enter the coordinates (0,0) and (20,0). Press apply until done and then press ok.



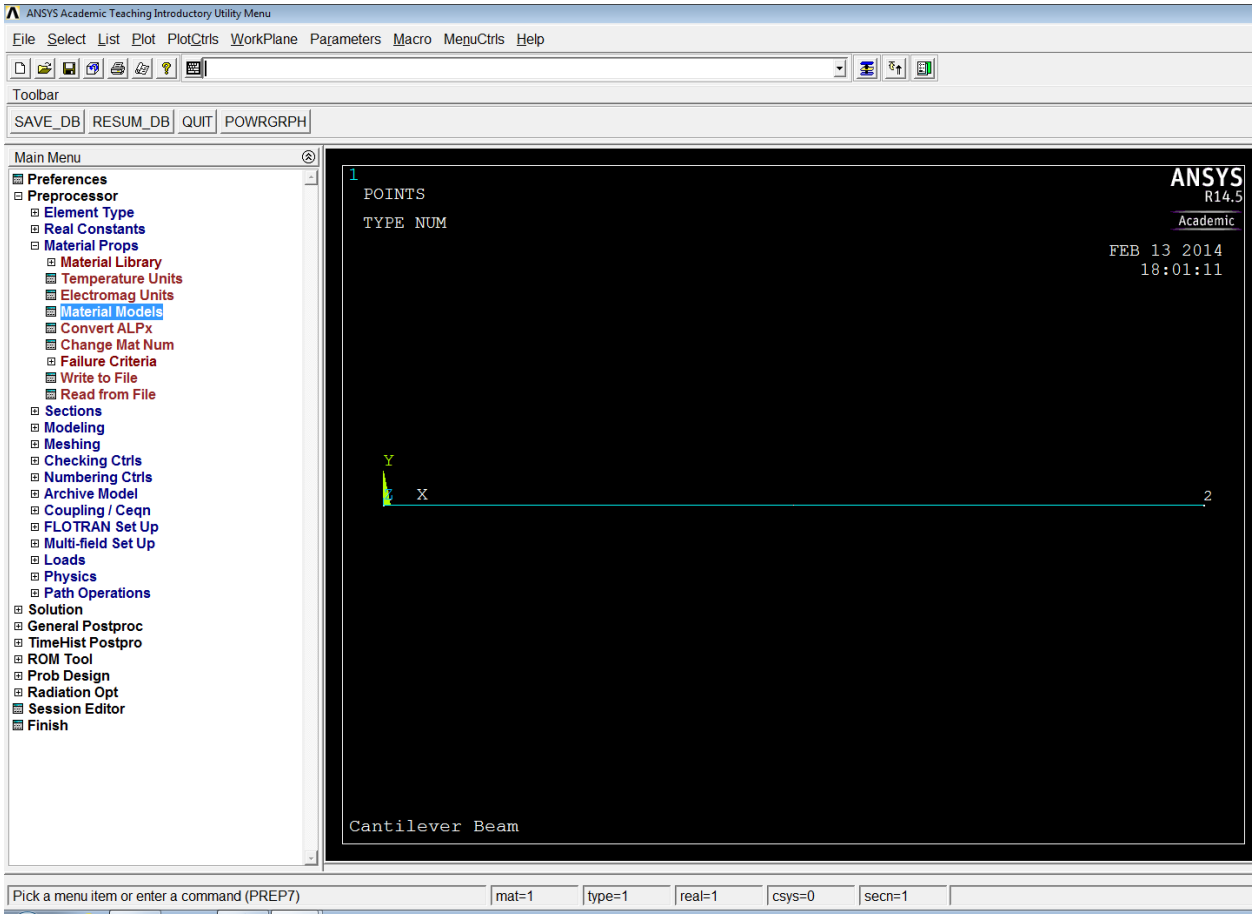
5. Drawing lines: Preprocessor> Modeling> Create> Lines> Lines> In Active Coord. Pick the two keypoints and then press ok.



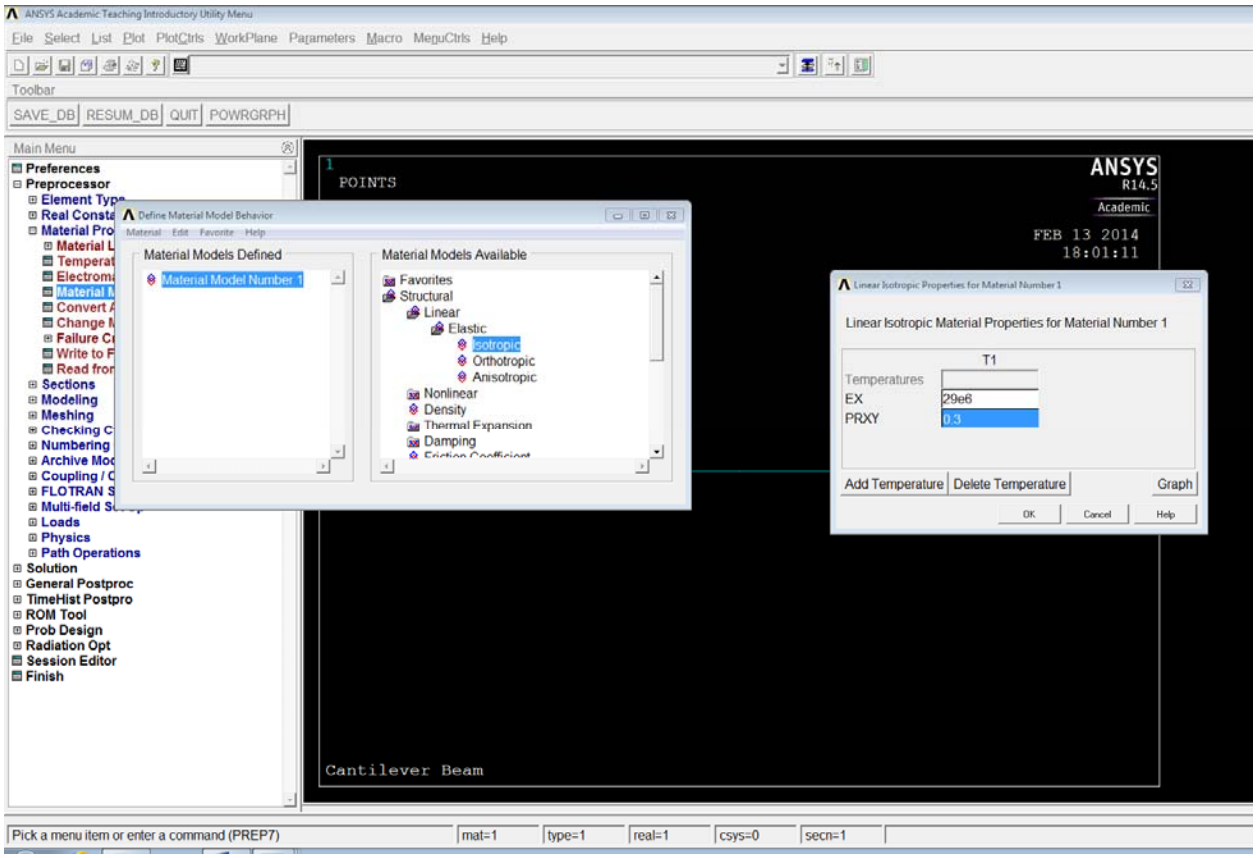
6. Defining elements: Preprocessor> Element type> Add/ Edit/ Delete. Choose Structural mass> Beam> 2 node 188 and then ok.



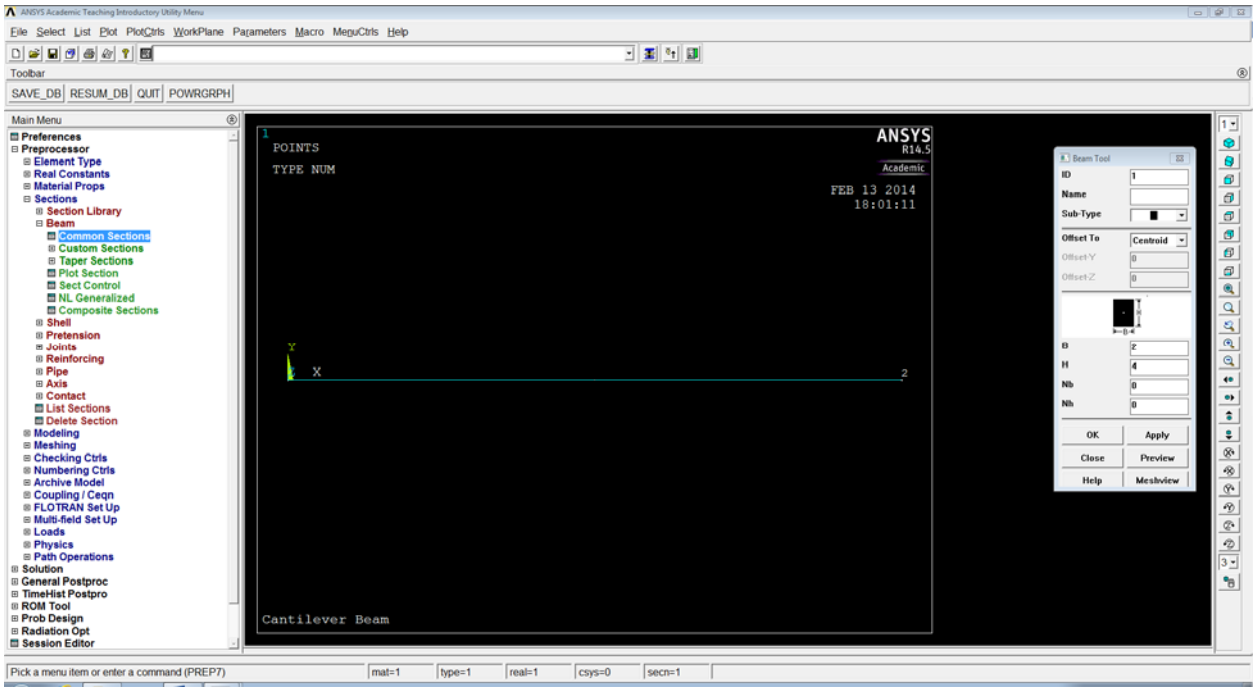
7. Material properties: Preprocessor> Material props> Material Models.



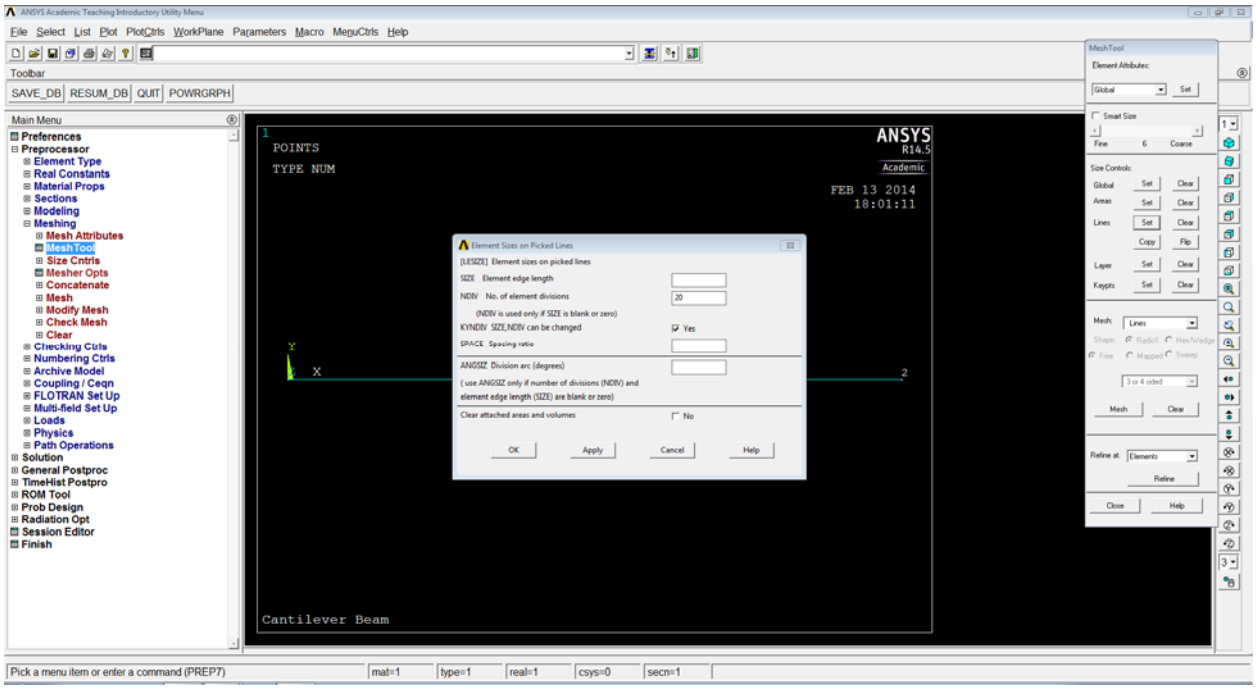
8. Structural> Linear> Elastic> Isotropic. Enter 29e6 as Ex and 0.3 as PRxy. Then select ok and close material model window.



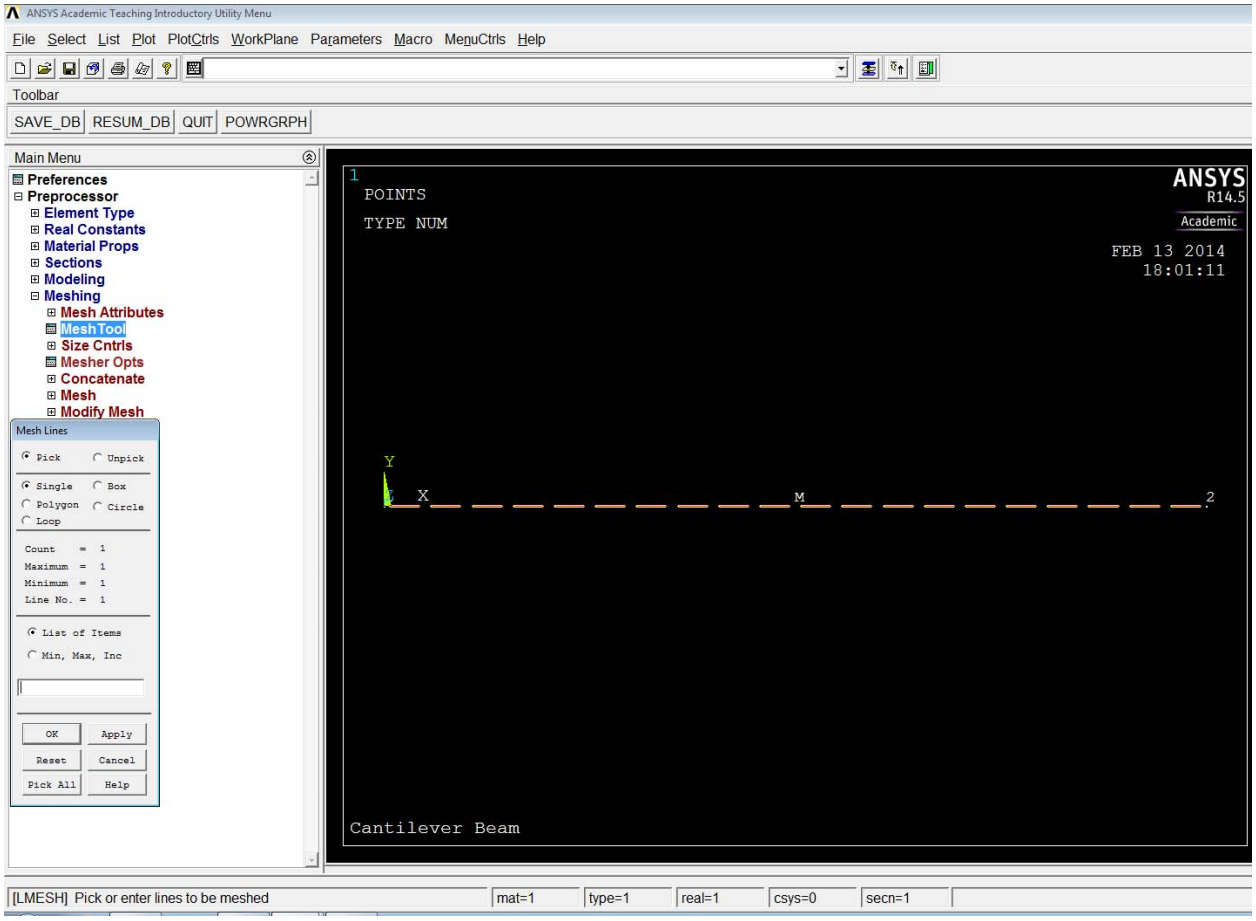
9. Beam section: Main Menu> Preprocessor> Sections> Beam> Common Sections>. Choose the rectangular section and enter 2 for H and 4 for B as the dimensions.



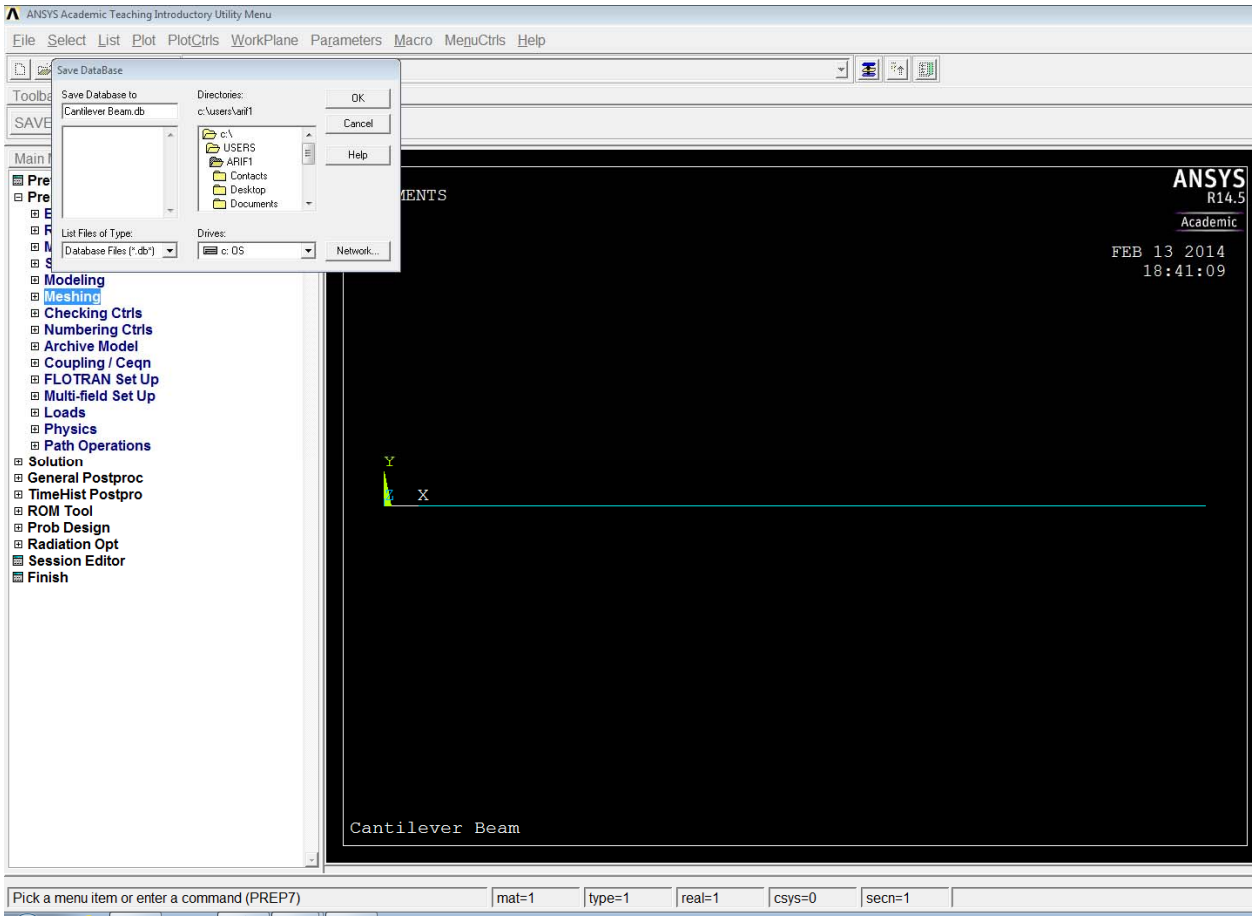
10. Meshing: Preprocessor> Meshing> MeshTool> Size Cntrls> Lines> Set. Select the line and enter 20 in the NDIV field and then select ok.



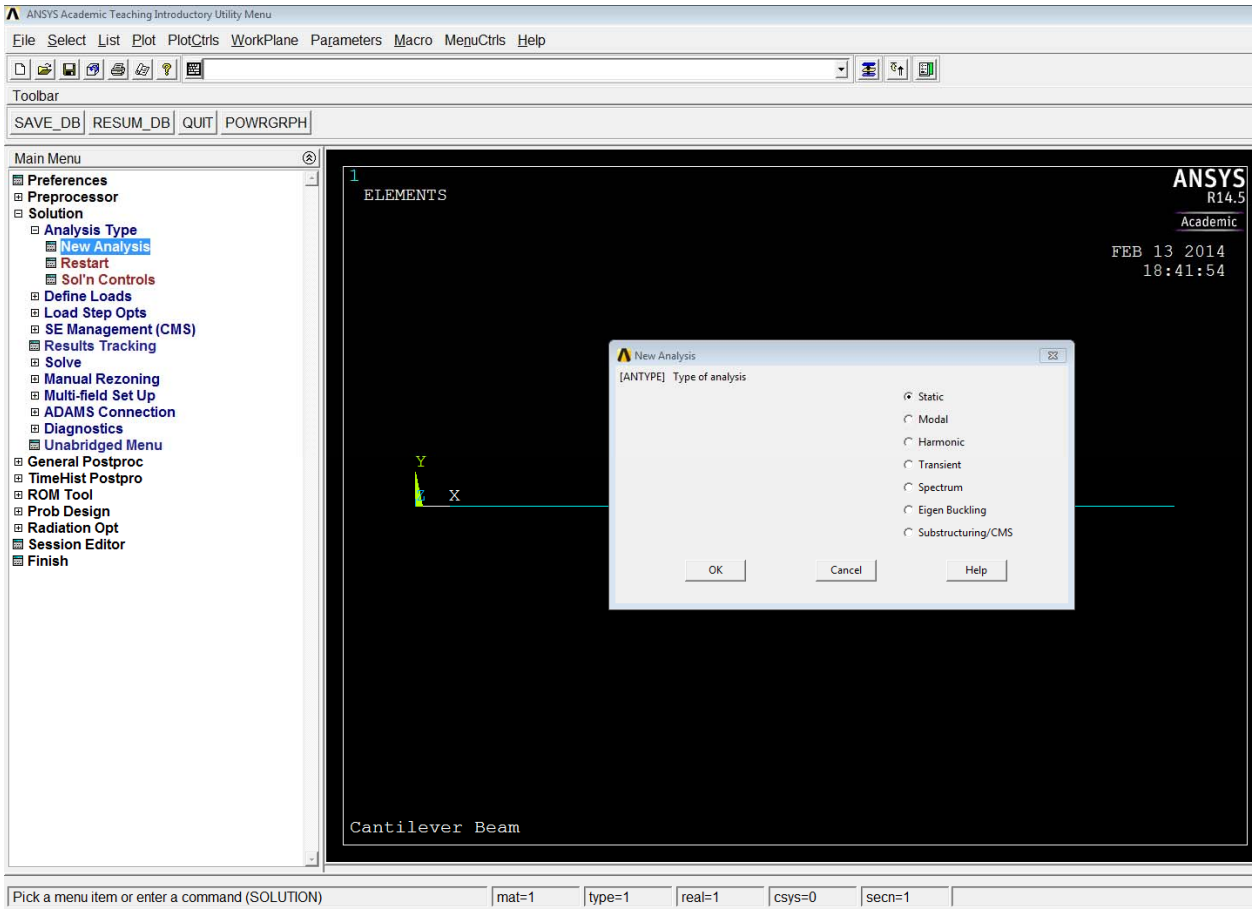
11. Preprocessor> Meshing> MeshTool> Mesh. Select the line and then select ok.



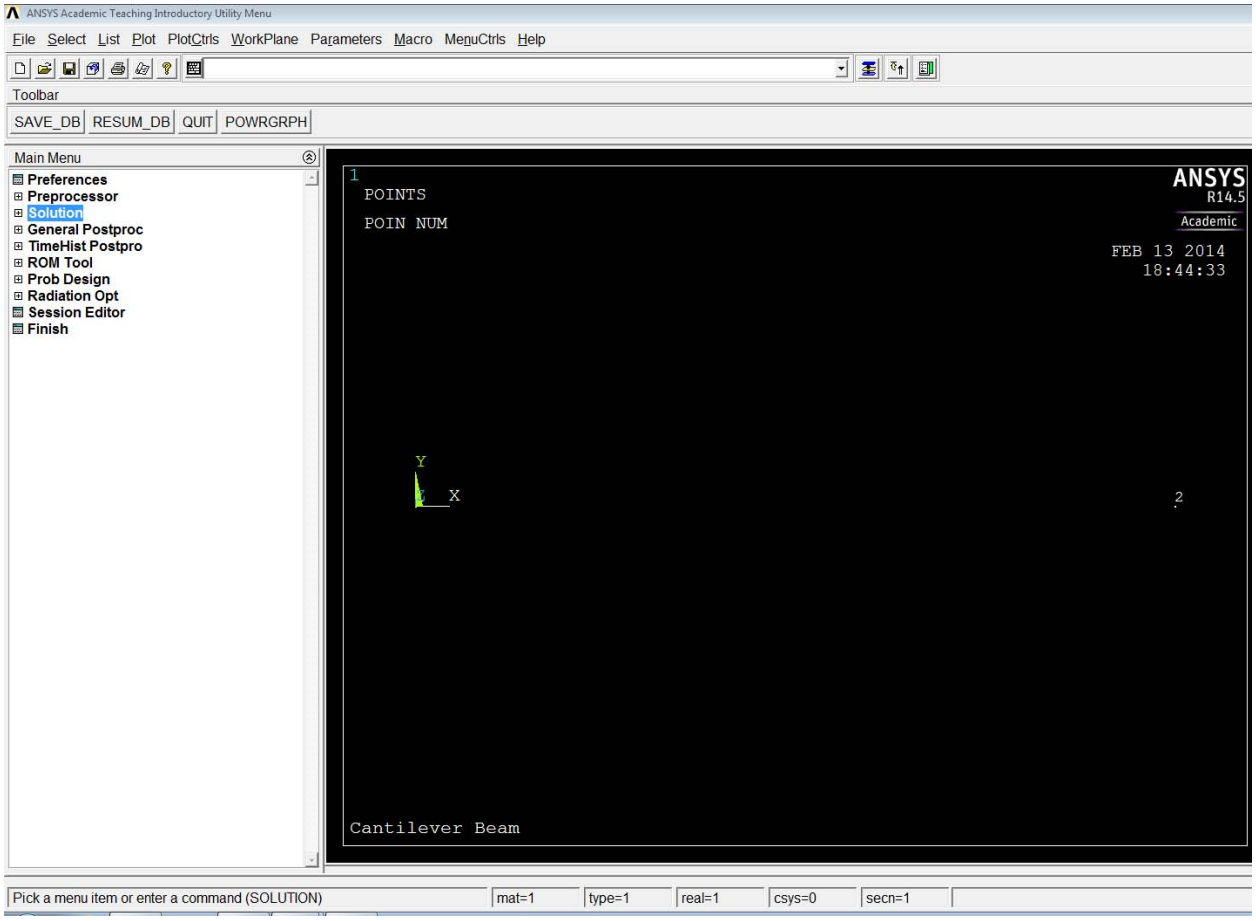
12. Saving: Utility Menu> File> Save as. Enter the file name and select the directory where you would like to save your file and then select ok.



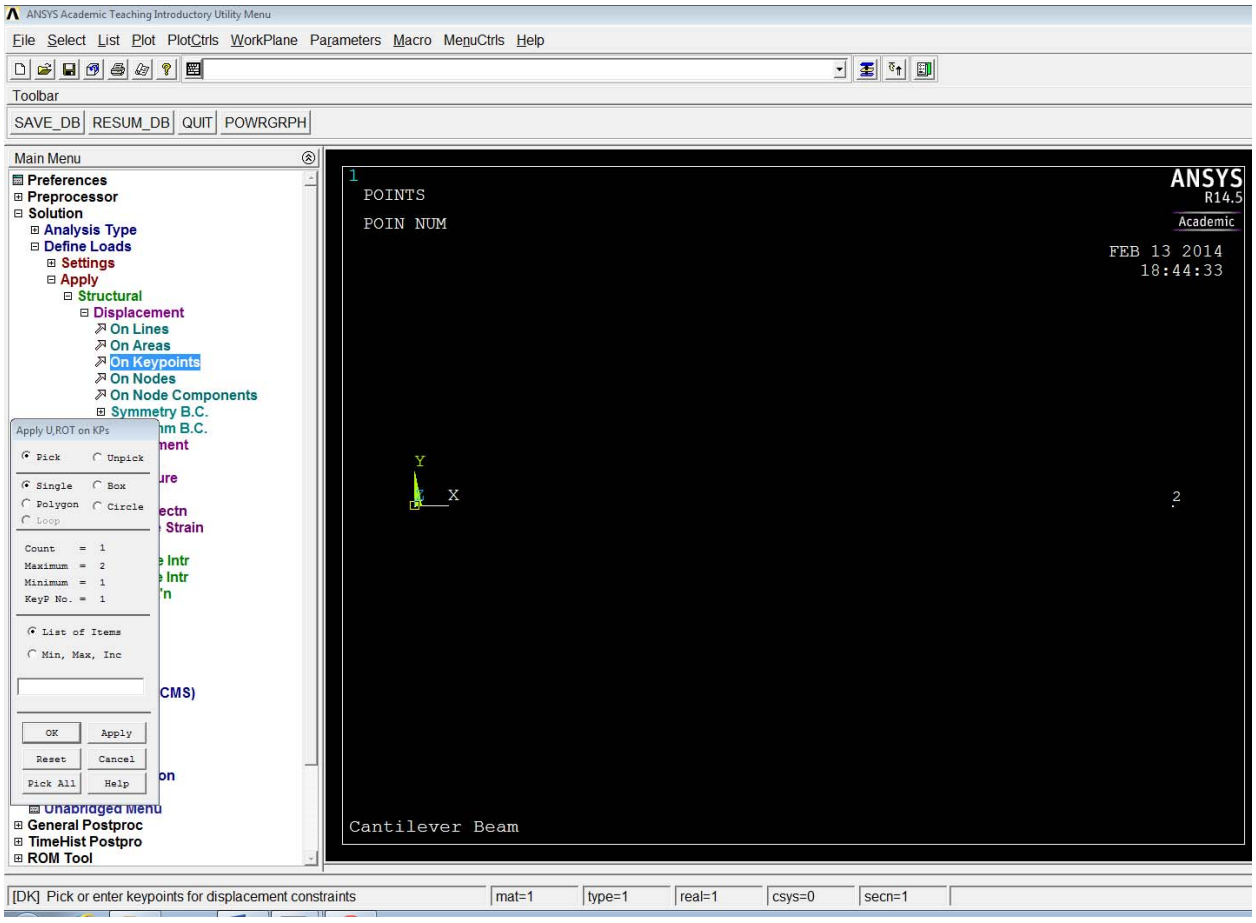
13. Solution type: Main Menu> Solution> Analysis Type> New Analysis. Select Static and then ok.



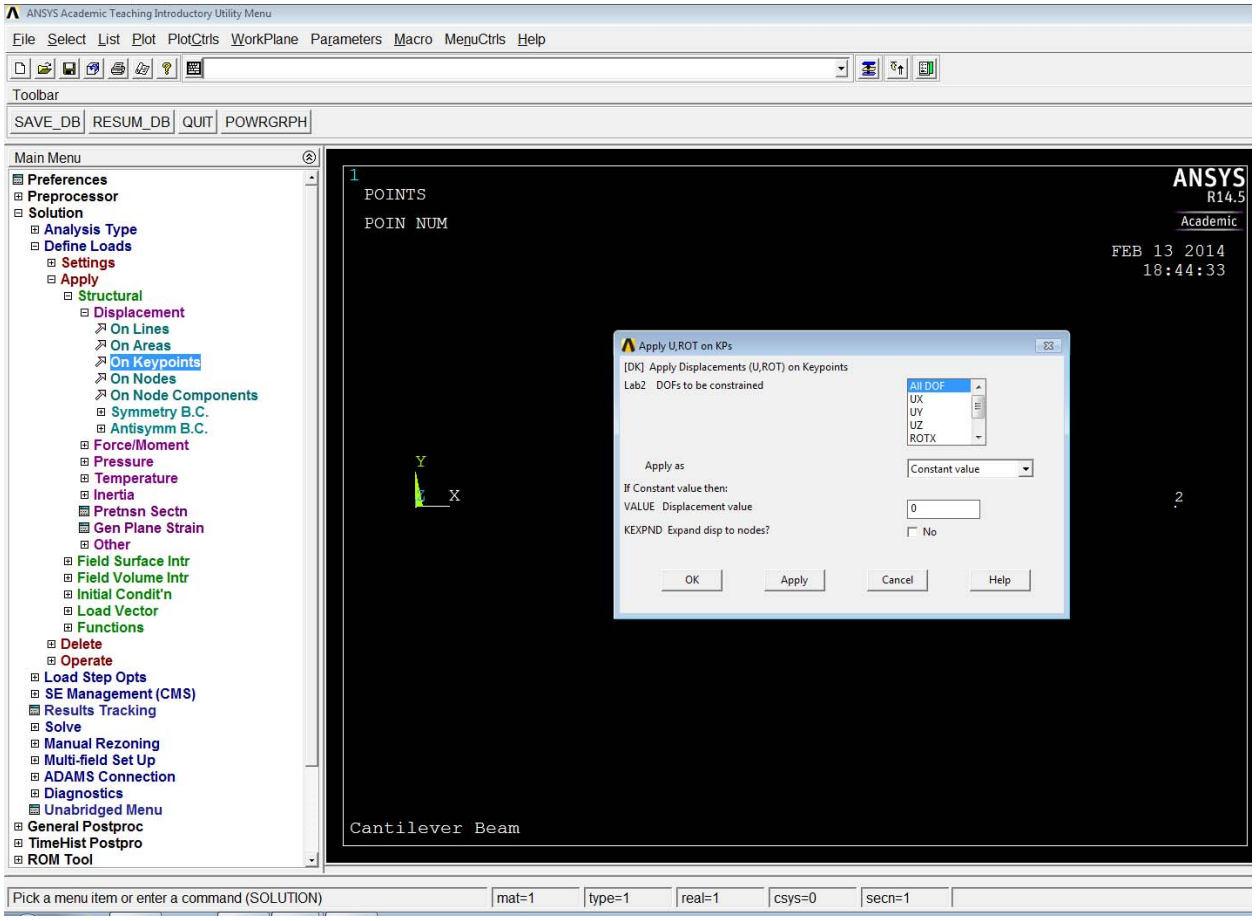
14. Utility Menu> Plot> Keypoints> Keypoints.



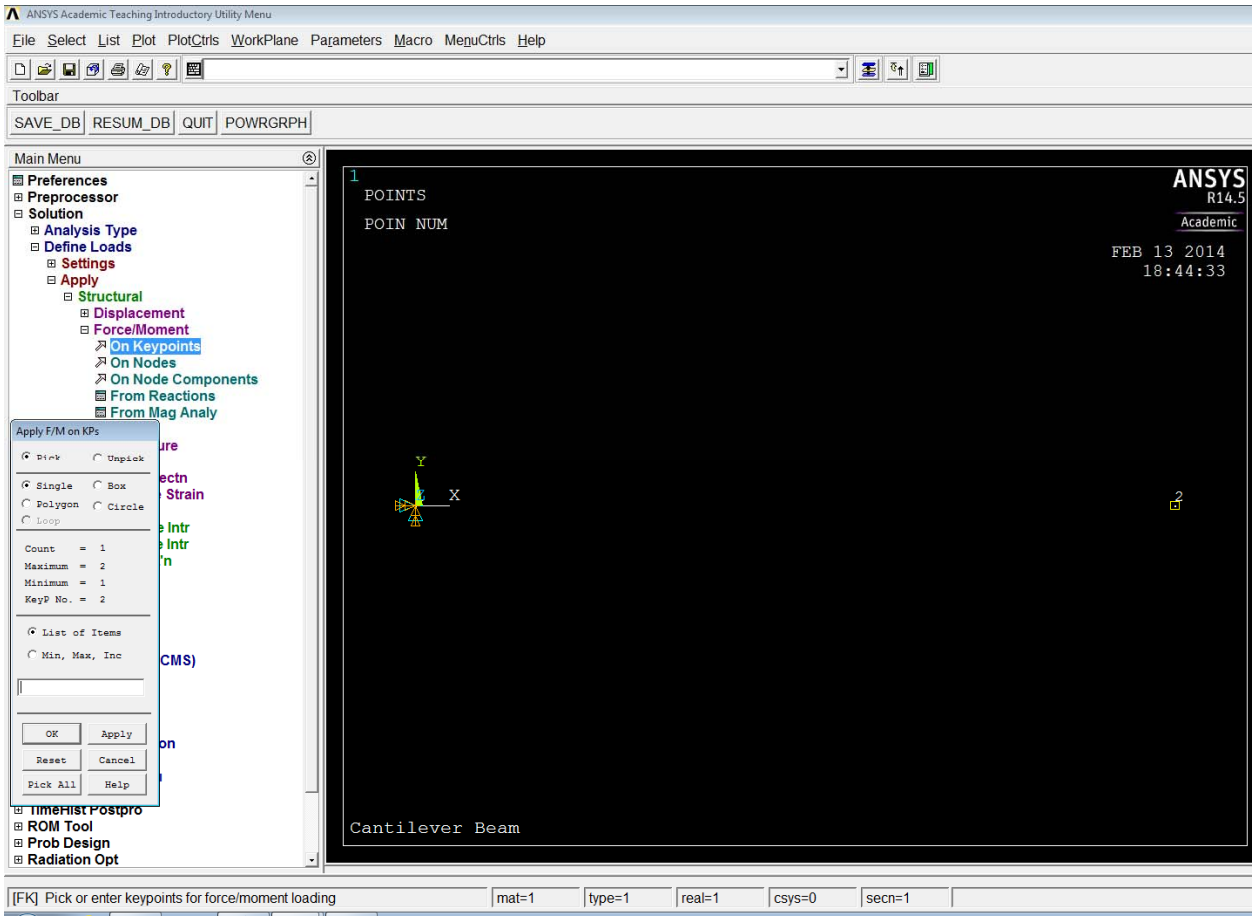
15. Constraints: Main Menu> Solution> Define Loads> Apply> Structural> Displacement> On Keypoints. Select Keypoint 1 and select ok in the selection box.



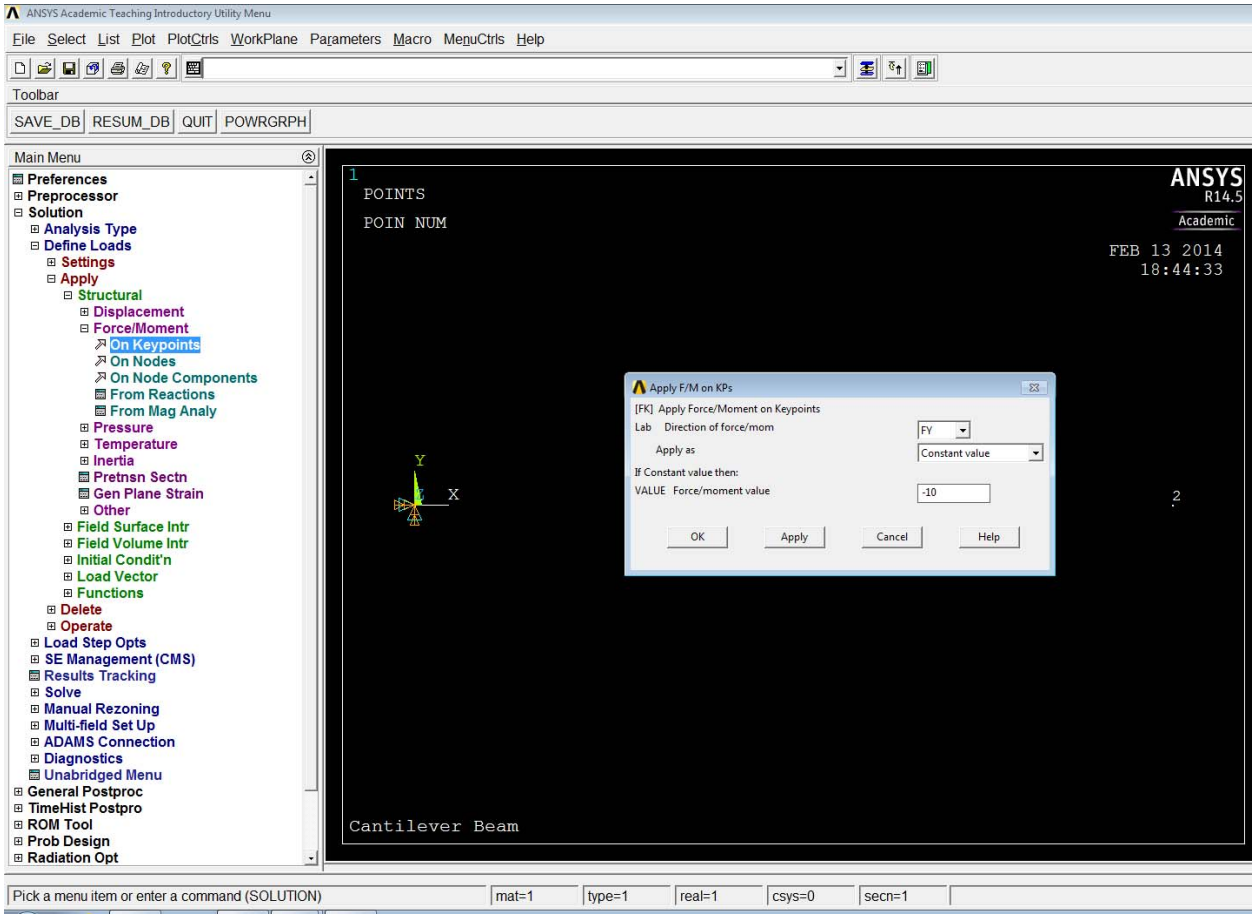
16. Select All DOF, enter 0 in VALUE and then select ok.



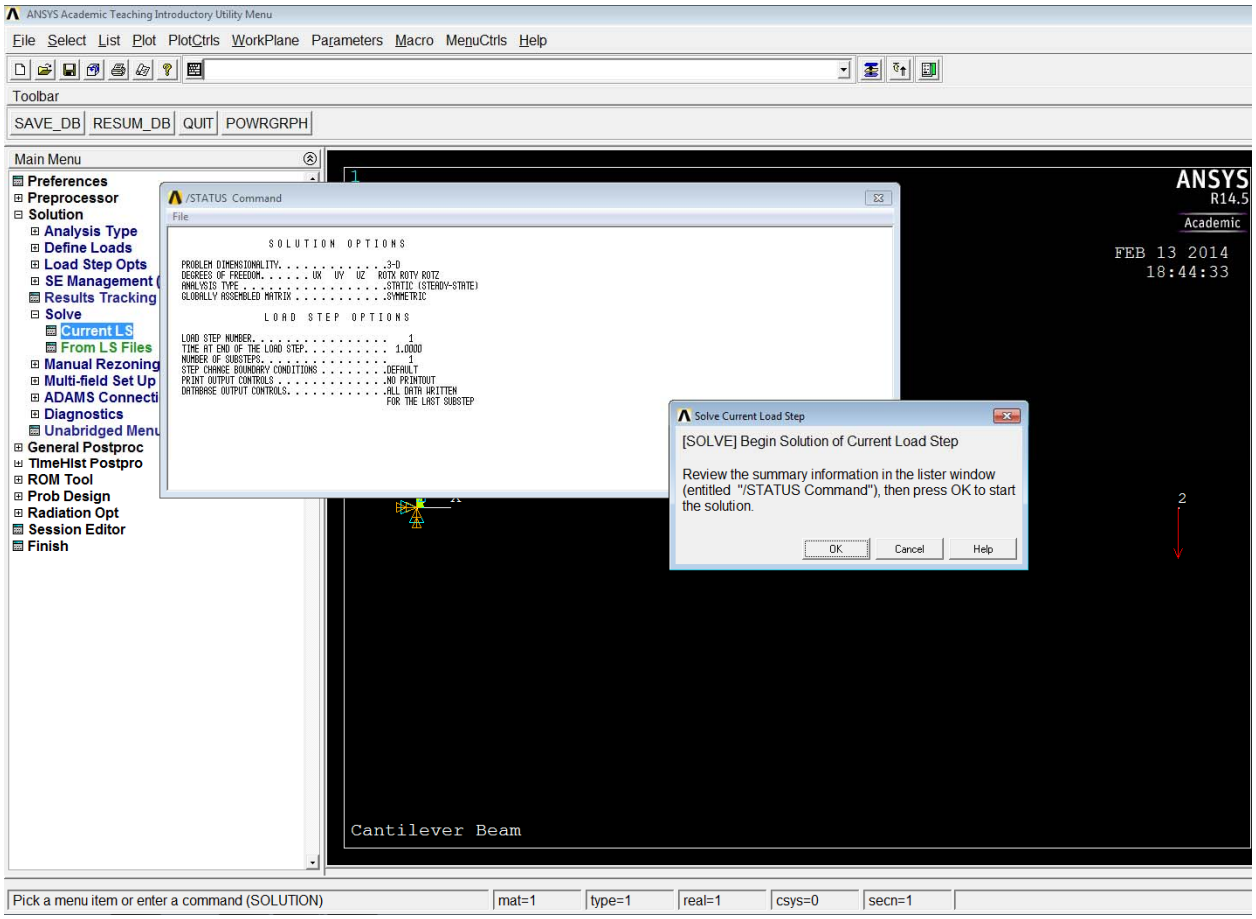
17. Loading: Solution> Define Loads> Apply> Structural> Force/ Moment> On Keypoints. Select Keypoint 2 and then select ok.



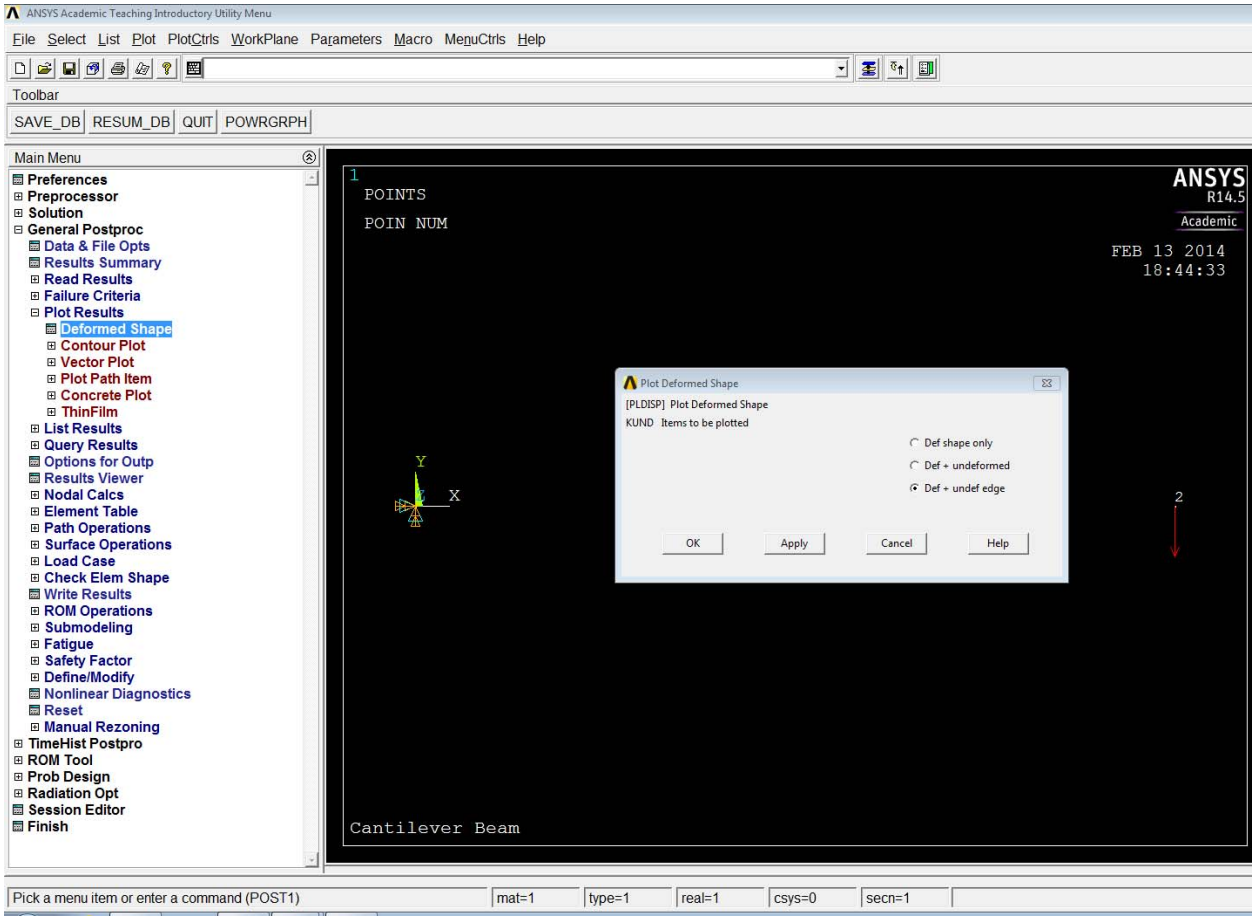
18. Select FY in Direction of force/ mom, Constant value in Apply as and enter -10 in VALUE. Then select ok.



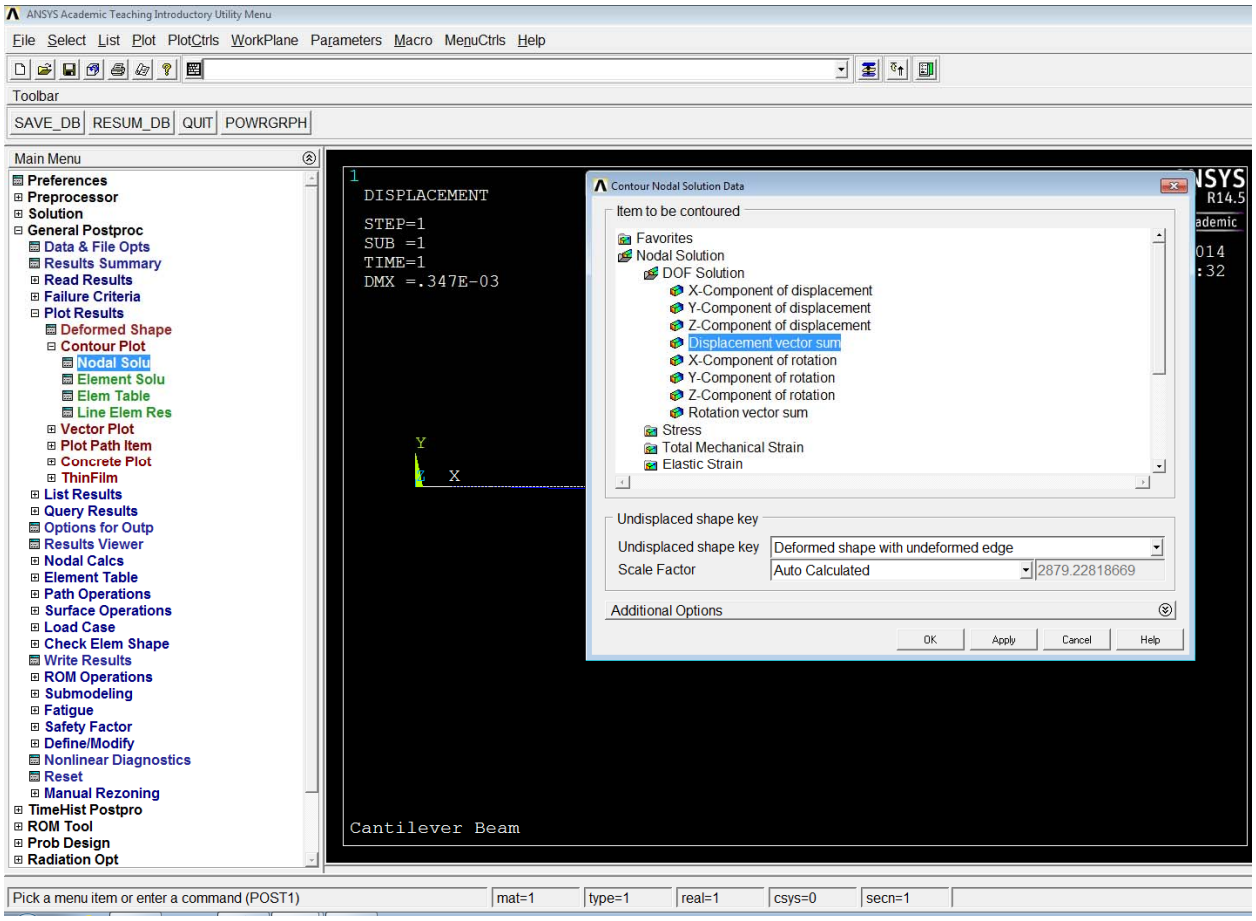
19. Solving: Preprocessor> Solution> Solve> Current LS. Then select ok. Once solution is done close the box.



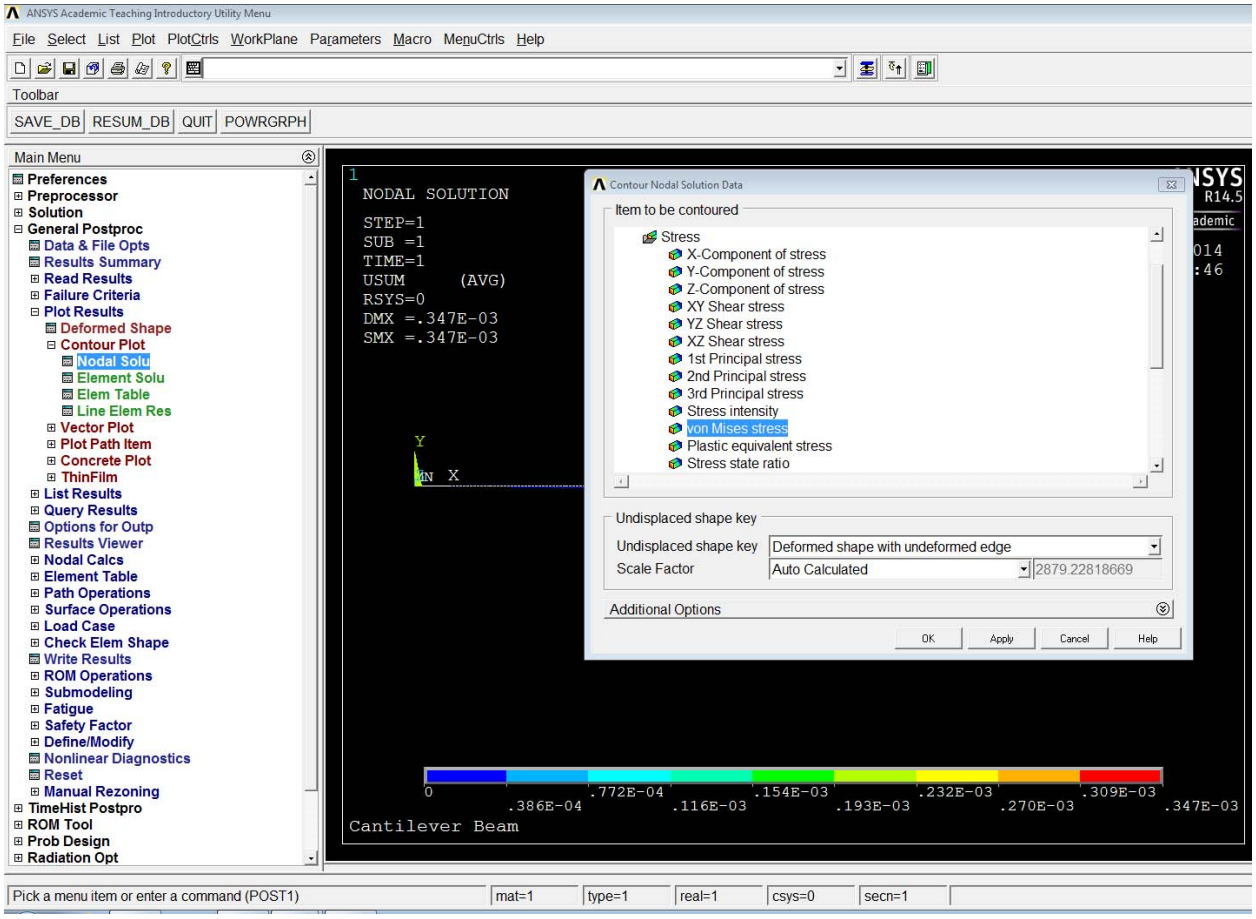
20. Deflection : General Postproc> Plot Results> Deformed Shape. Select Def + undef edge and then ok.



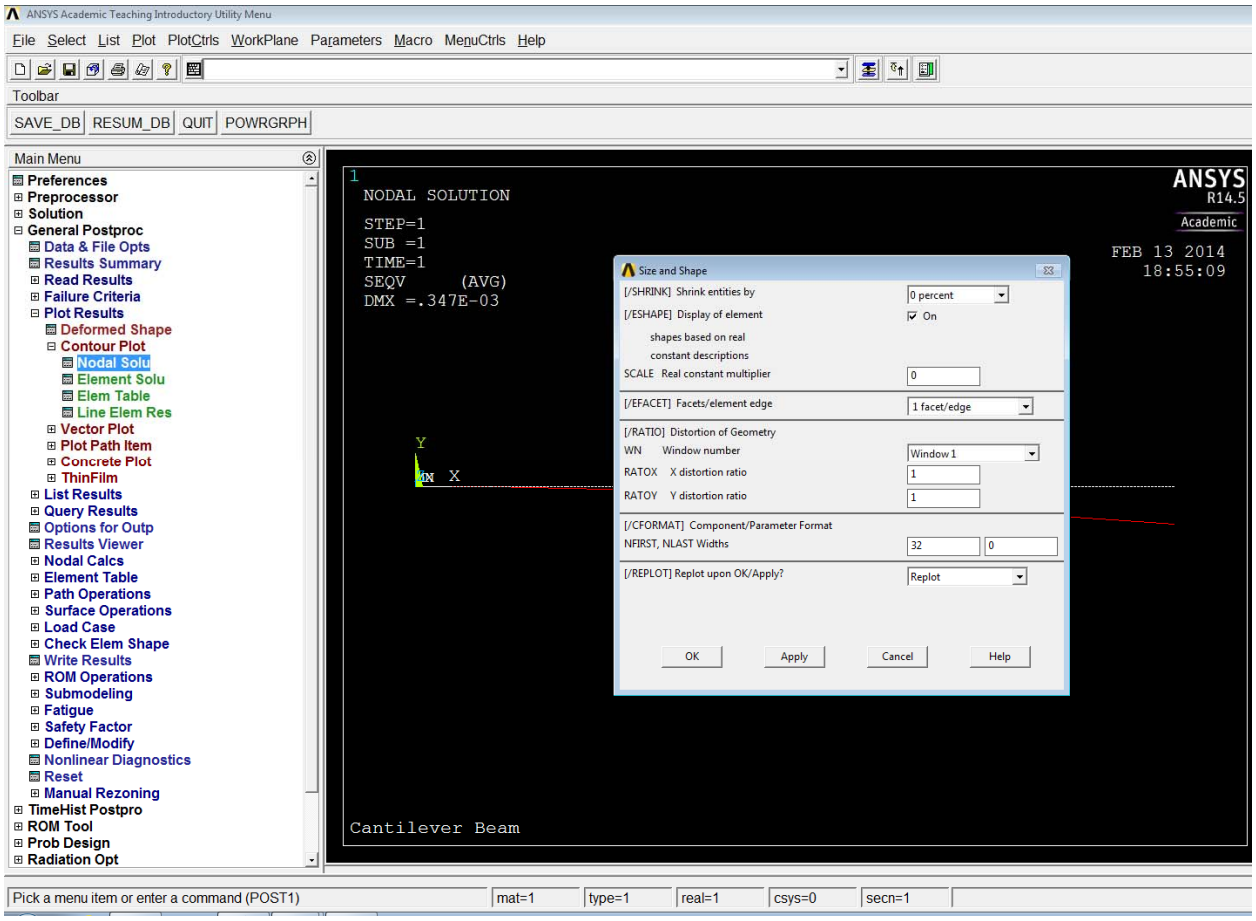
21. Deflection contour: General Postproc> Plot results> Contour Plot> Nodal Solution> DOF Solution> Displacement vector sum> ok.



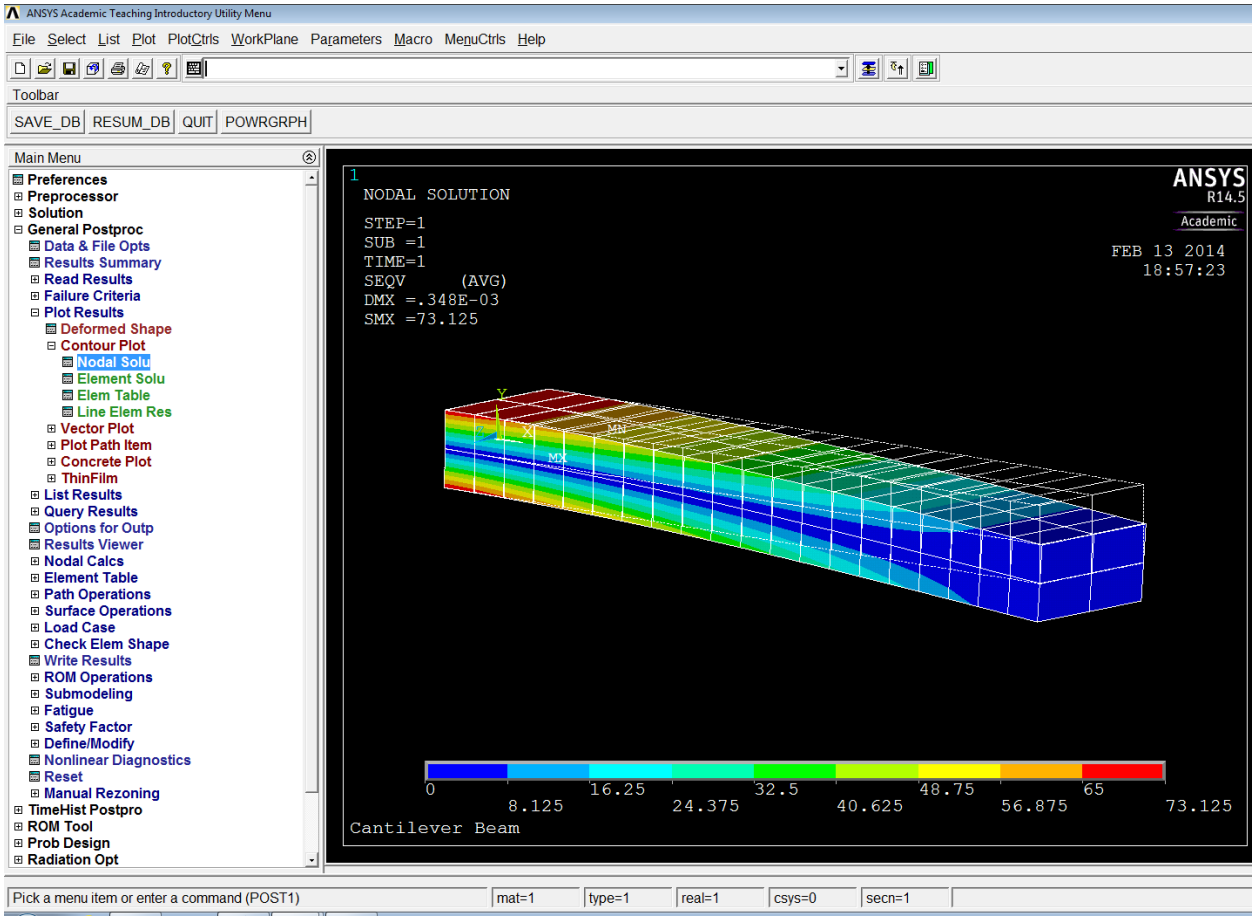
22. Stress contour: General Postproc> Plot results> Contour Plot> Nodal Solution> Stress> von Mises stress> ok.



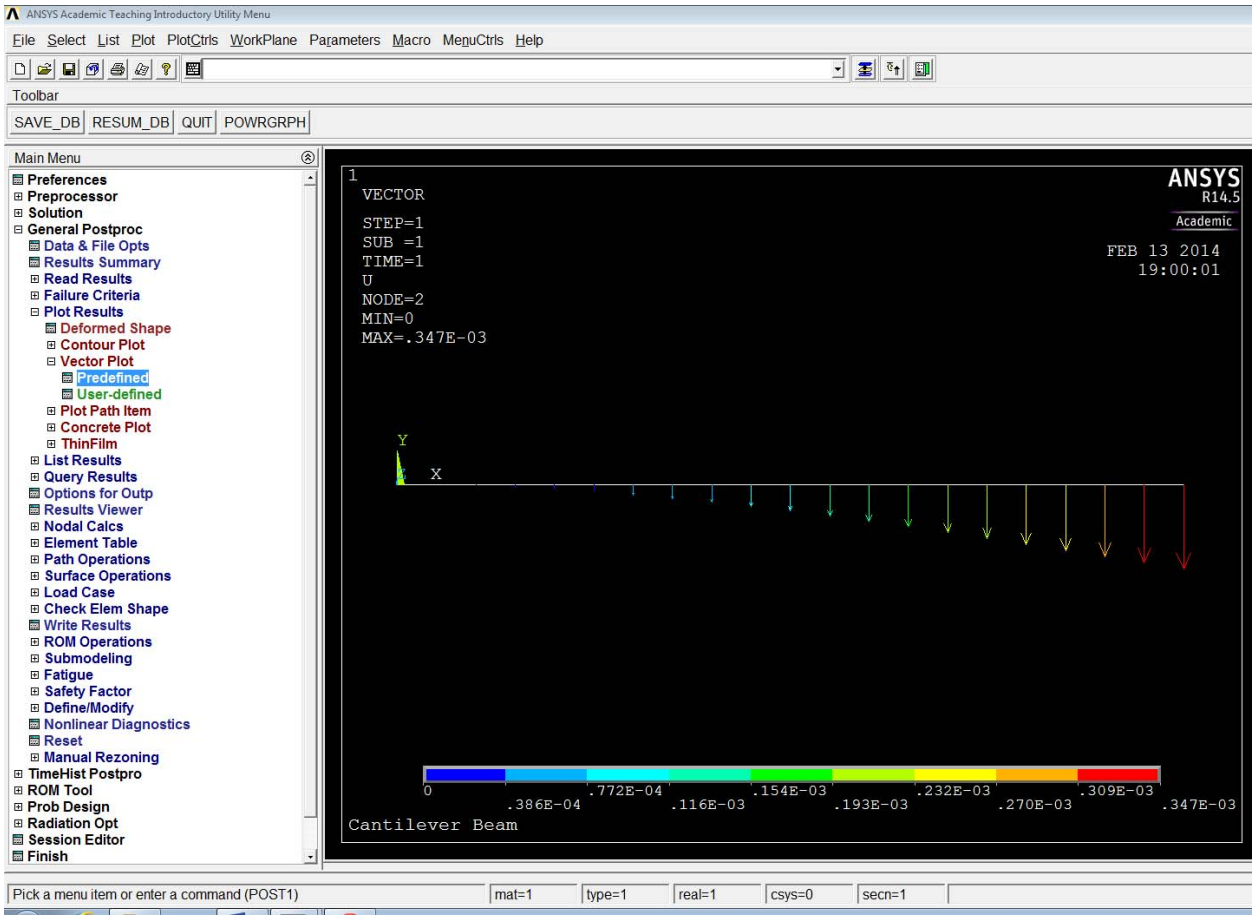
23. Element view: Utility Menu> PlotCtrls> Style> Size and Shape. Select Display of element as on and then select ok.



24. Select Dynamic model mode and then rotate the geometry.



25. Y - Deflection contour: General Postproc> Plot results> Contour Plot> Nodal Solution> DOF Solution> Y-Component of displacement> ok.



26. Vector plot: General Postproc> Plot results> Vector Plot> Predefined> DOF Solution> Translation U> ok.