

## Goofs to Avoid During MEEG3311 Exams (and elsewhere)

1. Do not calculate  $P/A$  if a structure is only being twisted or bent.
2. Do not use loads (Forces or Moments) as stresses in Mohr circle calculations or Factor of Safety calculations.
3. Do not use diameter when you should use radius, or vice versa.
4. Do not mix English and Metric units.
5. Don't mix PSI and KSI or Pa and MPa or mm and meters or inches and feet.
6. Read the problems carefully. Reread them when you think you're done, just to be sure.
7. Stand back and ask: Is the answer ridiculously large, crazy small, or does it have the wrong units?

Examples: A 6-inch-long beam that deflects 12 inches.

A metal that needs to be heated beyond its melting point.

8. Don't ignore the hints.
9. A Free Body Diagram (FBD) isn't just a cartoon. It has force and moments shown with their magnitudes and all forces and moments are balanced, meaning they have equal and opposite loads shown so nothing spins or flies away.
10. In a Mohr circle, the Principal Stresses are defined with  $\sigma_1$  farthest to the right,  $\sigma_2$  next to the left, and  $\sigma_3$  farthest to the left.
11. In all problems, start with the equation to be used, then the equation populated with the values you are using, then show intermediate calcs like numerator & denominator, then the final answer.
12. Use "Preferred Units" that you can visualize, like millimeters instead of  $10^{-3}$  meters, MPa instead of  $YY \times 10^6$  Pa.
13. Don't randomly multiply forces by 32.2 to make them more forceful. They are already forces, not masses. In Class #1, I told you never to use 32.2 in MEEG3311. Do not.