

PROFESSIONAL SKILLS IN CAPSTONE DESIGN – Tuesday @2:15

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What Professional Skills Matter?

- Authentic teamwork and communication (internal & external)
 - recognizing different audiences and targeting messages appropriately
 - often requires unlearning fear of collaboration inherited from other academic courses
 - see Department of Labor competencies 2014 document (source of common definitions)
 - active and empathetic listening is an important stepping stone
- Critical thinking and decision-making (especially under uncertainty)
 - Prioritization is an essential supporting skill for decision-making
 - Ambiguity and change is a reality => believe in life-long learning
- Visual and narrative storytelling
 - successfully doing this helps reinforce project motivation
 - use engineering process as backbone for telling the story
- Multi-Disciplinary Issue: There seems to be different pushback from different departments
- Positive Attitude & motivation
- Risk-Taking to unlock opportunities with acceptance that failure is possible
- Recognizing wider impacts of solutions (also in global economy)
- Displaying cultural sensitivity (empathy)
- Professional ethics
- Getting your technical work done is important too!

How to get students to care about Professional Skills?

- Connect these skills with expectations of modern workplace
- Adopt cognitive apprenticeship model
 - help students visualize the skill in action first
 - leverage the power of third party feedback-
- Promote holistic view of engineering work (it's more than hand and computer calculations)
- As instructors, we need to adopt a salesmanship mindset
- Highlight importance of professional skills assessment on the job and in job interviews
- Explain what is meant by 'networking' along with its benefits
- At its core, this is **personal/professional identity development**

How should we facilitate skill development?

- Team up with campus groups on delivering leadership training/workshops
- Cultivate a growth mindset (using regular self-assessment) => start on day 1 of course
- Take advantage of teachable moments for reflection/debriefing (in teams and one-on-one)
- Regularly incorporate clients in instructor/team meetings and ask them to give honest feedback

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- As instructors, promote genuine inter-generational dialogue/rapport => set an example!

What is the hardest professional skill to teach?

- Ethics (moral absolutism versus relativism) => framing a compelling context/case studies
- Self-Assessment (taking time out to inventory strengths, areas for improvement, and insights)

How to assess Professional Skills?

- Map skills (use professional profile to organize these skills) => skills aren't isolated
- Couple objective assessments with self-assessments (look for alignment)
- Need meaningful performance tasks => **making performance visible**
- Need good metrics that tease out key aspects of performance
- Don't confound these with a grading system that devalues/trivializes working on these skills