Why **invest** in Capstone Design?

Insights from Research

Industry-oriented capstone courses give new employees critical skills in five key areas that support their transition to work.

> *I would say the best three things about capstone would be:*
>
> **1** *It teaches you to manage your time and your resources really well.*
>
> **2** *It teaches you to work with other people in a team to get a goal accomplished.*
>
> **3** *... the third is learning how to find information that you don't already have - research, basically - to get what you need done.*
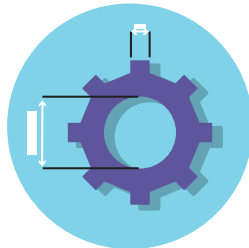
Capstone to Work Data:
More than 100 recent engineering graduates, 4 diverse institutions, 12 weeks of surveys, and quarterly interviews for a year.

Lifelong Learning
Managing one's own time & knowledge
- time management
- finding work & keeping busy
- finding resources
- developing work ethic

Technical Work
Doing authentic engineering design & technical work
- working with tools & equipment
- handling ambiguity & uncertainty
- defining requirements
- generating, prototyping & testing designs

Teamwork
Engaging in teamwork & project management
- project planning
- coordinating project logistics
- participating in team meetings
- carrying out team functions

Engineering Identity
Seeing oneself as an employee or engineer
- experiencing responsibiliy & accountability
- learning one's role
- thinking like an engineer
- feeling competent

Communication
Communicating clearly with team members & clients
- formal & informal presentations
- formal & informal writing
- interpersonal communication
- interfacing with clients

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What distinguishes Capstone Design?

Industry Collaboration
with practicing engineers, vendors, and other stakeholders

Guided Mentorship
in a structured, supported learning environment

> "In Capstone we still had to ...come up with intermediate goals
>
> and I guess right now, that part has translated over because I really have to mainly come up with a lot of my own intermediate goals to really try to keep moving forward..."

Design Rationale
Decisions that have consequences in terms of time, money, and/or product function, and require students to explain and justify their reasoning

Client Interaction
Expectations from faculty and clients of professional-level engineering work and interactions

> "I felt the capstone was a really good prep.
>
> I got a lot of manufacturing experience, a lot of CAD.
>
> ... It was the closest thing in college I had to projects I deal with now."

Student **Confidence** in their ability to "do" engineering work rather than just solving textbook problems

Authentic Projects
Open-ended projects that have significant meaning in the world

> "One thing that prepared me well is working in teams ... and getting to work with our liaisons and everything. I feel like that was helpful. The whole working with other engineers on the same project and trying to work out solutions for different problems and get everybody's input."

Deliverables that reach

Beyond the Classroom
and help students communicate with working professionals

Project Management
of time, tasks, and team members

> "...being able to maintain work relationships and a level of professionalism and realizing what you do impacts others and helps others grow. That was my biggest take away."

Opportunity and necessity of
Learning New Domains, information, and technology

Design Cycle
Experience from definition through prototype production and testing

Recognition of their need to
Keep Learning

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