

Engineering Transfer

South Seattle College

Albert Engel

DISCOVER



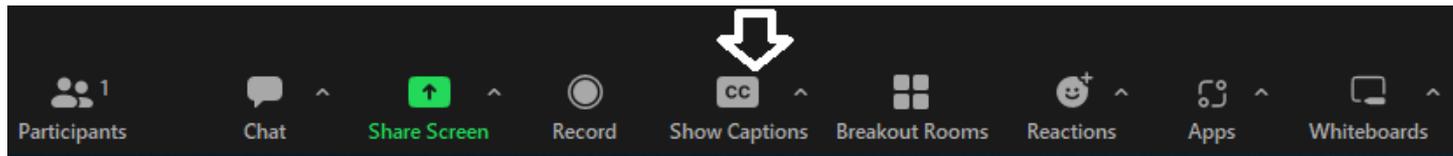
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Zoom Tips – Auto-Captioning

Enabling Auto-Captions and Record

- Each participant who wants the captions should click “Show Captions.”



Select the language participants will use in this meeting

Speaking Language

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English

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Topics

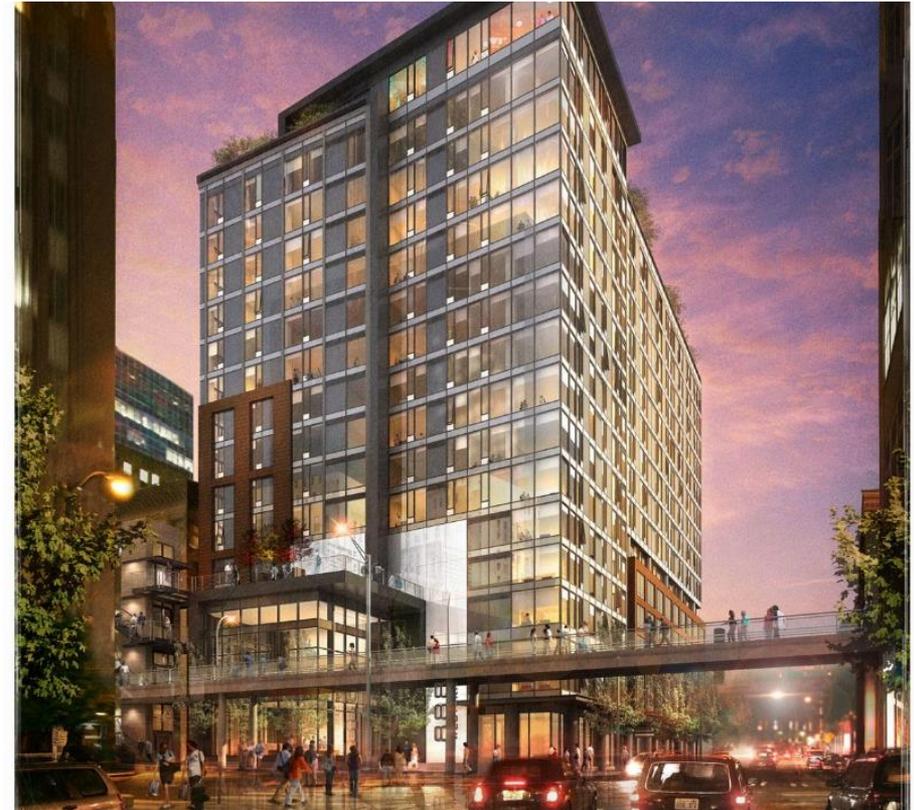
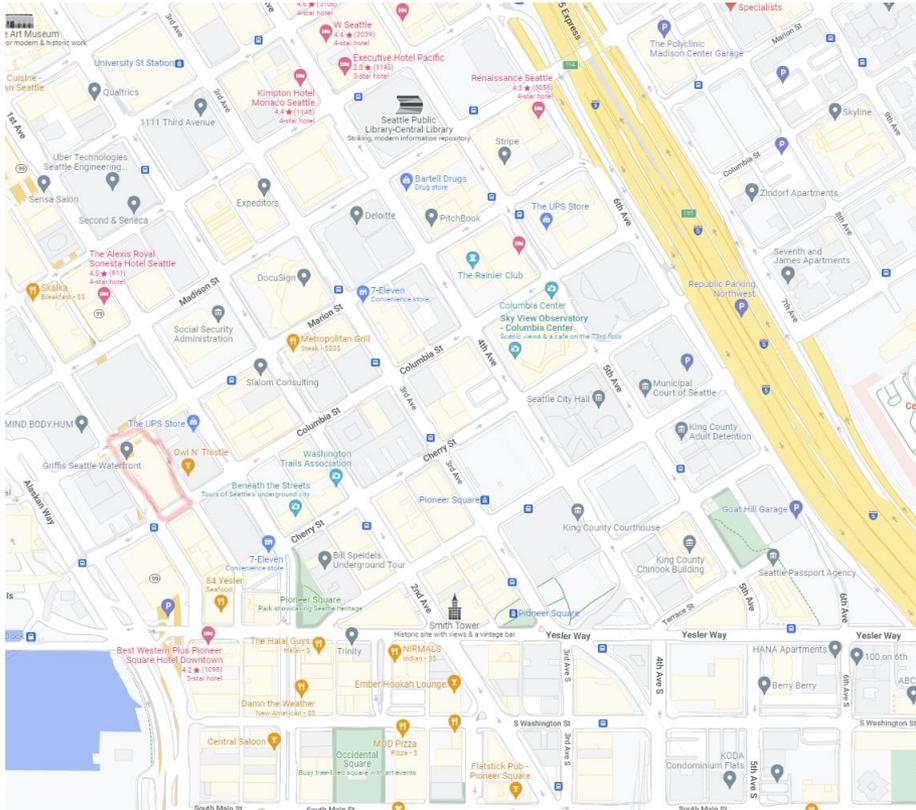
- Introduction/Faculty Background
- What is ENGR Transfer?
- South Seattle STEM Community
- ENGR Pathway
- ENGR Program Review
- ENGR Job Information

Faculty Background

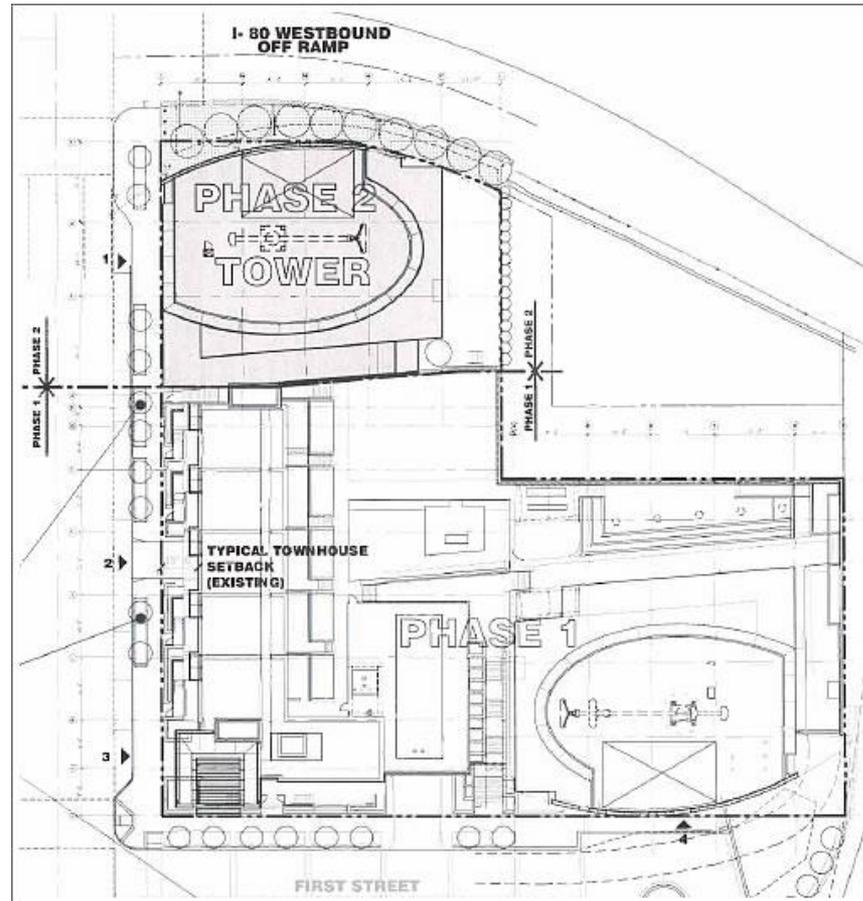
- Albert Engel
- Started out at community college in Texas (TCC)
- Transferred to Vanderbilt University
 - BE in Civil Engineering
- Graduate School at Stanford University
 - MS in Structural Engineering and Geomechanics
- Worked two years in industry as structural engineer



Coleman Building



1 Rincon Phase 2



What is ENGR Transfer?

Prepare students to become **design** engineers in several fields including

- Civil
- Environmental
- Mechanical
- Aerospace
- Electrical

Which discipline/major?

- ENGR 110 can help you explore your options!
 - Which industries/jobs?
 - Which four year transfer colleges/universities to attend
- Professional skills for succeeding in industry
- Develop course plan for transfer
- Complete projects around real engineering problems



Transfer

- Design engineers require 4 year bachelor's degree to practice engineering
- Transfer to a four-year program to complete Junior and Senior level coursework
 - UW Seattle
 - UW Tacoma
 - UW Bothell
 - Seattle U
 - Seattle Pacific University
 - Washington State University



Design vs Technology

ENGR Designer

- More theoretical
- Focus on physics theory and mathematics to analyze and design objects or processes
- Creates plans for fabricators
- Take more advanced math and theory courses

ENGR Technologist

- Typically more hands on
- Creates prototypes
- Drafting expertise
- Manufacturing expertise
 - Soldering
 - Welding
 - Casting
 - Fabrication



Where is this program offered?

- South Seattle College
- Central Seattle College*
- North Seattle College*

STEM Community at South

- Rocket Club
- MakerSpace
- RST Scholarship
- STEM Core

Rocket Club

- Design, build and launch high powered rockets
- Lead launches for local scouts and museum of flight programs

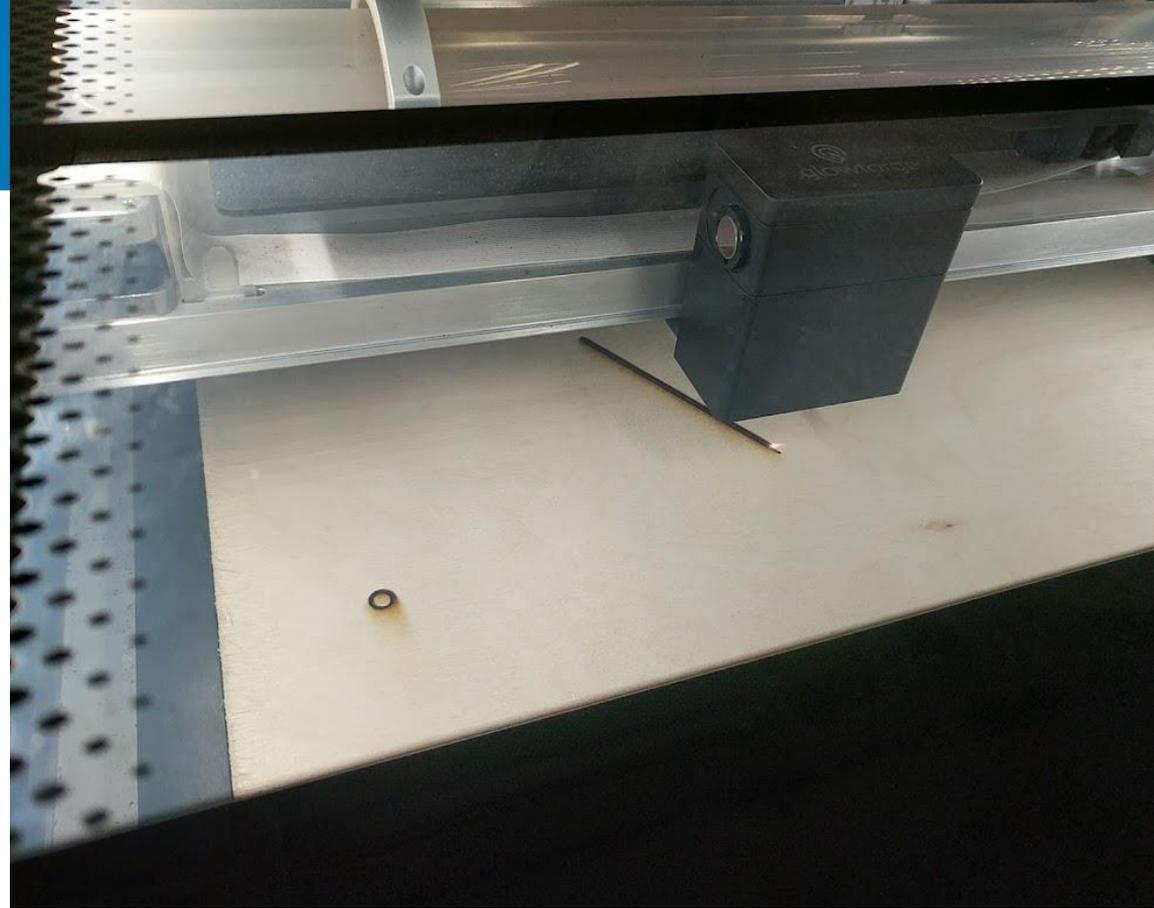


Tahoma Photography 2019



MakerSpace

- Design, prototype and build!
- Support for high-tech and low-tech fabrication skills
 - 3D printing
 - Laser Cutting
 - Vinyl Cutter for making stickers
 - Electronics soldering and fabrication
 - Fiber Arts
 - Miniatures and Props
- Practice design and prototyping skills



MakerSpace Photos

RST Program

- Ready, Set, Transfer
- STEM Events
 - Workshops
 - Speakers
- Scholarship
 - \$2500/quarter
 - STEM Mentor
 - UGR Research Funding
 - Renewable until transfer



STEM Core

- Cohort based Group
- Paid Internship Opportunity
 - NASA
 - Nation Labs
- Student Support Specialist



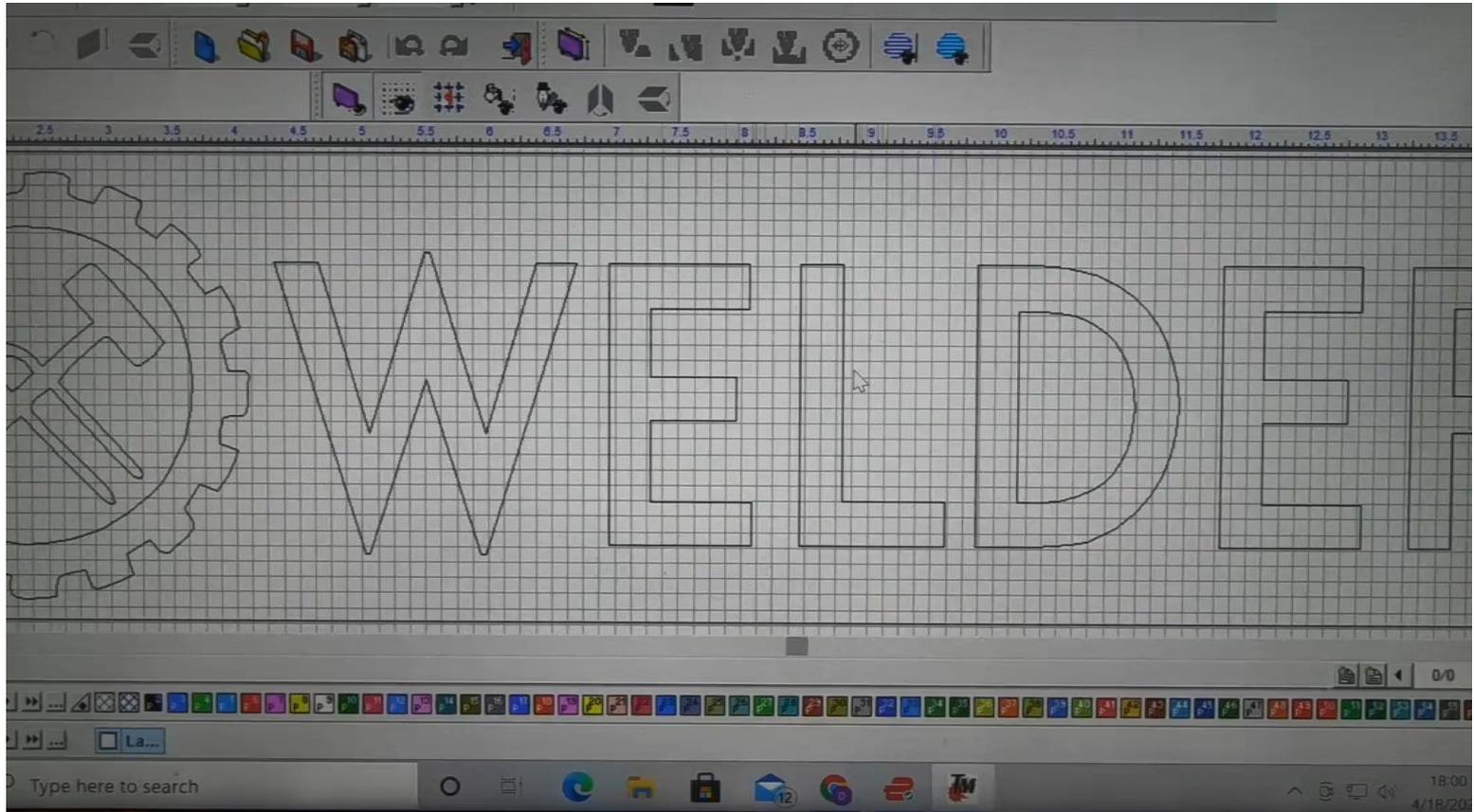
ENGR Transfer Advantages

- Small class sizes (~15 or so)
- Taught by engineers with real world design experience
- Course catalog includes most sophomore level engineering
 - (200 level courses)
 - Specialized courses for ME, AE, CE, Env E, EE
- Active learning Classrooms
- Hands on capstone projects

ENGR 115 CAD/CNC Plasma



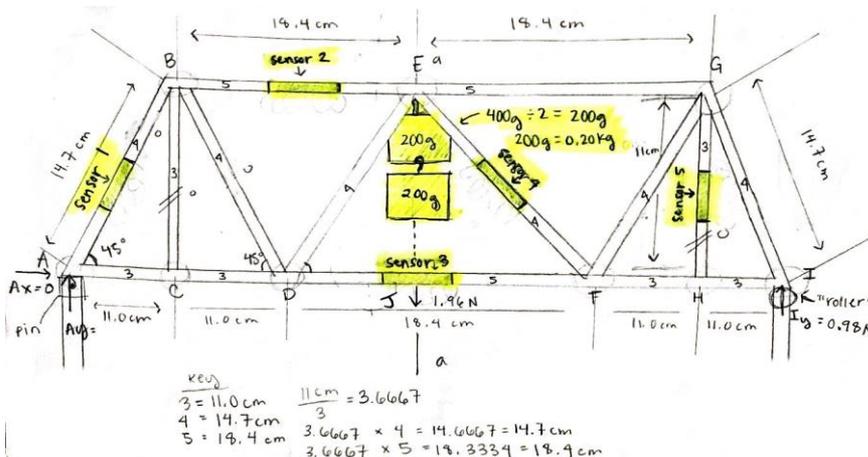
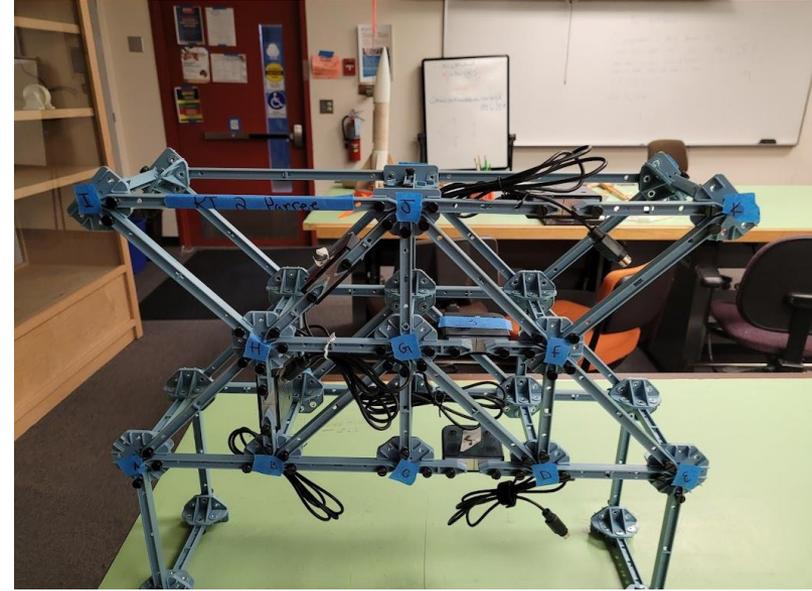
ENGR 115 Plasma Cut



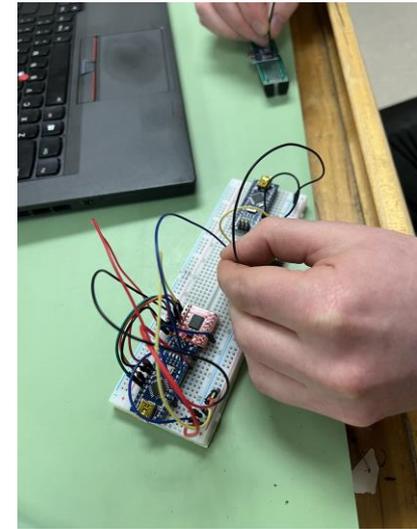
ENGR 214 Project Example

Truss Analysis Project

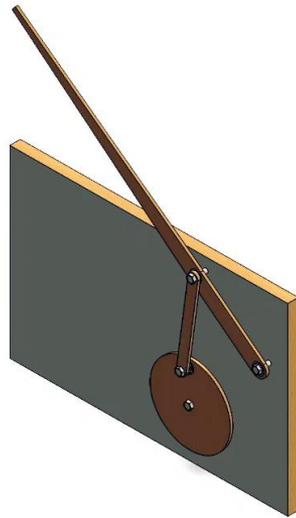
- Build Truss Bridge
- Measure internal forces using digital sensors
- Analyze using hand calculations
- Analyze using software



ENGR 215 Project



ENGR 215 Project Example



ENGR Student Quotes

- Everyone actually wants to be in class and learn. It is a very positive place to be in.
- (Small) Class sizes!! The class sizes at my old school were between 50-300 students, depending on the class
- Seeing examples in class has really helped me succeed. Most of class is practice problems and questions and not just lectures.
- I really like the project-based learning.



Education Pathway (3+2)

- 3 YEARS BEFORE TRANSFER
 - @ South, North or Central Seattle College
 - Most engineering tracks require 9 quarters
 - More time for math and science requirements complete their MRP Degree
- 2 YEARS AFTER TRANSFER
 - @ 4-year University/College
 - SSC student's MRP credits transfer due to DTA
 - Complete their four-year BE/BS degree in two years

Entry Requirements

- ENGR 110 – Intro to Engineering
 - Placement in Math 098
 - Placement in ENGL 101
- ENGR 214/215/225
 - Completion of PHYS&221

Civil and Environmental Engineering

- Median Wage: **\$93,729**
- **Industries**
 - Environmental Impact Studies
 - Road Design
 - Drainage Design
 - Waste water and water treatment
 - Structural Design of buildings and bridges



Mechanical Engineers

- Median Wage: **\$104,000**
- **Industries**
 - Heating Ventilation and AC (HVAC)
 - Aerospace
 - Controls Engineering
 - Vehicle design



Electrical Engineering

- Median Wage: **\$120,347**
- **Industries**
 - Power Systems for buildings
 - Power Grids
 - Power Generation
 - Controls design
 - Robotics and manufacturing

Q & A

What questions do you have about engineering transfer?

Contact Information

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FAQ

Q1) What is the typical schedule?

A1) Synchronous classes for math, science and engineering meet during morning and early afternoon (M-Th).

Q2) Can students balance work with school?

A2) Sometimes students can handle part-time employment and attend engineering classes. However, lots of scholarship and financial aid opportunities exist to help finance your classes.

Q3) Do students need any equipment or materials? What are the costs for these?

A3) Most students spend less than \$150-200 in textbooks or equipment per quarter. Many classes are open resource or allow for lower cost used textbooks to accommodate student budgets



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