

Career field #1: Electronic Engineering

- History of field
 - Everything had to be done in hardware using individual components, now more building-block oriented
 - Design software price has dropped from thousands to... free?
 - Huge maker community has emerged; module interoperability is important to them.
- What do they do?
 - Design electronic circuits such as:
 - Creating your own computer - (Microcontrollers, etc.)
 - Making a radio transmitter
 - Design a drivetrain controller for an electric vehicle
 - ... only limited by your imagination!
- Job skills / personal characteristics needed
 - General engineering-centric characteristics:
 - Attention to detail
 - Perseverance
 - Curiosity
 - Methodical mind
 - Aptitude for math
- Education / training required
 - Bachelor's degree + PE required for offering public "engineering" work in Oregon
 - Associates (PCC, Clackamas CC) will get you an Engineering Tech position, then can sometimes get into design work
 - Many online courses are available to gain a good working knowledge, but it would be hard to turn that into a career in short order.
- Salary range
 - Avg is 80K for engineers, or 42K for technicians
- Career outlook
 - This is a career that will always be around, but there isn't much growth in this field.
- Tips for entering the career
 - Decide where you want to be: Big company vs small company?
 - Develop a portfolio to show your self-motivated work.
- Likes / dislikes about the job
 - Likes:
 - Fun to create solutions to real-world problems
 - Electronics are more predictable than people!
 - Dislikes:
 - Trying to estimate project timelines... when you've never designed this before.
 - It usually takes a couple weeks to see the next version of your design.

Career field #2: Software Development

- History of field
 - Internet collaboration has led to an explosion of open-source software
 - The web software scene is changing extremely quickly
- What do they do?
 - Firmware - Make software that is permanently “burned” into chips
 - PC - Create user-facing programs for desktop computers
 - Mobile - Design a phone or tablet app to be published in the app store
 - Web - Create web-based services for running on servers or in the cloud.
- Job skills / personal characteristics needed
 - Same as above
- Education / training required
 - Much more flexible than other forms of engineering
 - Most software development positions list Bachelor’s Degree or equivalent work experience as requirements. This is not strictly necessary - for example, 38% of all currently employed web developers have less than a bachelor’s degree.
 - 2-year degrees are available and are an effective way to get educated.
 - Coding bootcamps and online courses are also a very economical option. (codecademy.com or udemy.com)
- Salary - Average is 80K, but can range up to 120K
- Career outlook
 - Within the top 10 fastest growing careers.
 - Companies are competing to hire and keep their developers.
- Tips for entering the career
 - Start learning programming right now! Recommendations: Python and JavaScript
 - What you lack in formally recognizable education, make up for with your portfolio.
 - Participate in local hackathons, both to learn and to network
 - Browse through job postings and educate yourself on what people are looking for.
 - Remember, your job is to get your foot in the door, not to land the perfect job right away.
- Likes / dislikes about the job
 - Likes:
 - It is a fast-moving field!
 - Easy to work from home
 - Fun to solve problems
 - Dislikes:
 - It is a fast-moving field!
 - There are parts of the job that can be stressful, such as trying to find a bug as a deadline approaches.