Fiona asks:
Q: Hi, I'm a high school student who's been strongly considering engineering as a career path. I've heard for awhile now that there are certain personality characteristics that most engineers have. What would you consider these personality characteristics to be, for engineering in general and for your specific field of engineering? Thank you in advance!

Jim - Cement Industry, Pennsylvania, USA

I asked my non-engineer wife if engineers have certain personality characteristics, and she said “Where do you think the word ‘Nerd’ came from?”

(My wife also pointed out: “What do you call a nerd in twenty years? – Boss!”)

Engineering work trains us to analyze methodically, to work in teams, to stay calm, and to avoid intuitive leaps. This way of thinking comes more naturally to some people than to others.

But if you were to ask “are there certain personality characteristics common to all people who earn engineering degrees and go on to have successful lives?” the answer to THAT question is “definitely not!”

I guess that about half of all engineering grads are doing engineering, ten years after graduation. The other half can be found in a huge variety of jobs, and they have a wide range of personalities.

Conclusion: there’s absolutely no reason to base your decision on what you or anybody else thinks about your personality. If you want to pursue engineering, go ahead and do it.

Scott - Semiconductor Industry - Massachusetts, USA

The first, and probably most important trait is curiosity - wanting to know how and why things work. I think every engineer I know got in
trouble as a kid for taking things apart. If you see a tamper-proof screw as a challenge instead of a warning, that's a good sign.

Engineering requires a healthy dose of creativity. So much so that most of my coworkers have an artistic hobby. Some are musicians, some draw or paint, some sculpt, some write. This creativity is needed at work to come up with new approaches to solving problems.

The flip side of that is that you also have strict methods and processes that need to be followed. I'm sure this is way more important in something like civil engineering where if you mess up a bridge or a building might fall down, but even in computers mistakes can be costly. Remember that divide problem on the original Pentium chip back in 1994?

The most famous personality trait is our sense of humor. I don't know why, but Monty Python and puns seem to be way over appreciated by engineers.

Dan - Diesel Engine Manufacturing - Illinois, USA

Though there as many personality variations as there are engineering majors (it seems like EE’s I know get no sleep), I think there are some personality traits which seem to be common across engineers:

We like math and science. You can't get away from it, so you might as well enjoy it. At my university, Calculus 3 seemed to be the dividing line between those of us who made it as engineers and those of us who didn't. You can probably tell an engineer at a young age by looking at their interest in these things; apparently, my dad knew since I was 8 that I was going to be an aeronautical engineer.

Most of the engineers I know have a great eye for detail.

I can't say I've seen a truly lazy engineer. Some of us procrastinate (disclosure, I forgot to send this by the due date, for instance) but when it comes time to get the project done all of the engineers I know buckle down and turn out a good project.

One last thing: I'm pretty sure you can't get the engineering away from us.

As for the only trait I can think of that is a benefit to mechanical/aerospace engineers: I have completely described parts that I've been working on in completely abstract terms and the engineer I was talking to could have built the part from the description. It seems a great trait to have to be able to spatially visualize anything (especially parts).

Once again, it helps to really, really love math and science.

Thomas - Software Consulting – Singapore

The only unifying trait most engineers and technical people have is their mathematics ability. It is the only really key element to getting into this field and it comes from many backgrounds. You are just as likely to
meet a "refined" hipster type in the office as you would a fratboy bro who secretly studied really hard.

As long as you can handle the work and enjoy it, there really isn't anything else you need personality wise to excel in this field. Engineering and the Sciences are unique because personality means a lot less than for those with humanities degrees. Before I even speak to an HR rep about a new job I usually have several written and practical tests which are used to comb out the useless folks. Once you meet with HR it usually means they are screening to make sure you aren't a lunatic. If you are sane and passed their tests, the job is likely yours.

Johan: Software, Domotics Industry, Netherlands

Most engineers that I know are a curious sort. When an engineer sees a problem, the first instinct is to think of a solution for it. If the problem is particularly annoying and the solution is within their capabilities, it'll take a lot to convince the engineer in question not to implement the solution. It's also worth noting that most engineers I know can get annoyed at things that are not working as smooth/well as they think it could.

So to sum up:
- Curious
- Technically minded
- Stubborn
- Easily annoyed by inefficiency
- Desire to fix perceived problems

A particular trait I encounter in my specific field is nerdiness/geekiness. Being a software engineer, that's sort of a given. In-jokes and quotes run rampant in the office. There's about a 50/50 split between gamers and non-gamers, but I'm guessing that's higher than in most other professions.

Software engineers are:
- Nerds
- Lovers of quotes
- Gamers (but not all of them)

Angela – Sustainability Industry – Vancouver

The main difference between scientists and engineers that I’ve found is that scientists will say “Hm, that’s weird. I want to understand why that happens.” Engineers will say “Hm, that’s a problem. I bet I can make this better.” The thrill you get from making something work is what keeps you going.

Mechanical engineers, specifically, need to know how to be adaptable. The field is very broad, so you can find yourself in very different jobs throughout your career. Even within
a job, the situation can change, and you need to be able to keep moving forward without getting too bent out of shape about it.

Overall, though, there’s a wide range of personalities that I’ve encountered among engineers – same as any other field, I guess!

**Bruno - Polytechnique - Junior Software Engineer - Quebec (OIQ)**

Various people can be engineers without fitting in a specific mold, but here are some qualifications that would surely make your path easier.

First of all, you have to be organized. Some people have it in their blood, others have to work to get there. The work itself makes you organized: you have no choice if you want to pass the classes. Thankfully, you’ll earn a precious skill that will help you make the most out of yourself.

I’d also say that you need to have a very Cartesian mind: engineering is mostly about solving problems and math is a big part of it. If you despise mathematics and complex calculation, I suggest you don’t take the engineering route. If instead you enjoy maths, you might just have found the perfect type of job for you (well, almost, you’ll still need to choose an engineering discipline...)

Speaking of engineering disciplines, I don’t think that any specific personalities are a constraint, except if you really like to have a job in which you move a lot, in which case I would strongly discourage software engineering. And you DON’T need to be a computer geek to be a software engineer: even though most of them are in the first place, a colleague of mine is not and is probably the best guy possible at this job. And I’d be pretty happy if you chose the software engineering path, we really need ladies to freshen up the ideas.

Finally, being a great communicator will greatly help throughout your career. Ok, the stereotype for engineers is that they are bad communicators. That's why being great at it will help: you’ll stand out of the crowd.

Well, I hope it answers your question to the fullest!

**Robert - Oil and Gas Industry - Texas, USA**

Personality characteristics for engineering in general I think are a bit stereotyped, I’ve seen engineers run the entire gambit of personality traits. Asking what personality characteristics most engineers have is like asking what most engineers do; you’re not going to get a single simple answer, because there is none.

I haven’t seen two engineers that are all that similar, other than the fact that they’re engineers. I stereotyped the three main flavors when I was in college: civil being normal, electrical being nerdy, and mechanical being, well, all over the place, but that was mostly because of the people who stood out the most in each category. (Also: since I was in mechanical I got to know those people a lot better than civils or electricals.)
Looking back, those stereotypes don't hold true. There are traits that help engineers in general, especially when it comes to getting through the schooling; like being logical, being able to think on your feet and being good at math. However, not all engineers have or even need these skills in their careers.

So if you don't fit the personality stereotypes of what an engineer is, but still feel interested, then by all means go for it. You shouldn't limit what you want to do because of what people think that an engineer should be or act like.

**Kimberly - Computer Science Undergraduate - United States**

While I definitely see similar personality characteristics which unify many engineers and Computer Scientists, I'd like to preface my response by saying that I don't want to sound like I'm overgeneralizing, because I think there are nearly always exceptions to the rule.

One of my favorite things about people in my field is their varied talents, personalities, and manners of thought. For example, some people assume that engineers are math/science whizzes, extremely left-brained, and/or artistically uninclined. To the contrary, I know some Computer Scientists who are incredible artists, and I'm personally pretty average at math and science (and I don't particularly love either).

That being said, a lot of the individuals in my field are definitely very tenacious and love to solve problems. We tend to observe some mechanism, system, or process, and think, “That's not very optimal. How could this be improved?” A lot of us, sometimes without actively realizing it, find ourselves idly wondering about how to solve or re-engineer everyday problems.

This makes it sound like we are constantly over-analyzing things - maybe that's true! An analytical, curious, and even skeptical frame of mind is definitely great to have. I'd also say we work very hard and tend to be perfectionists, insofar as we want to find the best way to solve a problem. Some people can also be very competitive with each other, particularly in Computer Science; I don't think there's anything wrong with a healthy sense of competitiveness, but some people become very negative toward others. I try to avoid that sort of person. :)

While I think these traits can be generalized to many engineers, definitely don't discount going into an engineering field if you think you don't have the skill sets or traits that "everyone" associates with engineering. Many skills can be learned, even when it comes to thinking in a more structured or logical manner. Unlike many people who had years of programming experience before they started college, I had very little experience when I first entered my Computer Science department, and I love it all the same! Best of luck in your pursuit of engineering!
Have a question for our engineers? Email it to jam@wastedtalent.ca! Register now to join the discussion and comment on this post:
http://www.wastedtalent.ca/user/register

*Ask an Engineer* is a monthly feature of the blog for Wasted Talent: an autobiographical webcomic. Check out the blog for monthly updates of this feature (and more!) at http://www.wastedtalent.ca/blog

Do you need to have certain personality traits to be an engineer? Let us know what you think in the comments!