ASME membership Exclusives

Skills Workbook

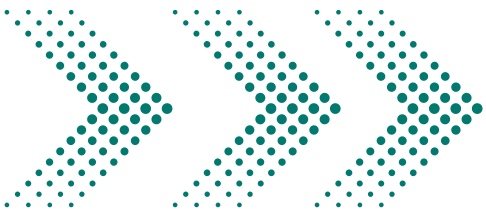
5 Exercises to Strengthen Your CAD Knowhow



CAD IN 2030

Surely by now you've gotten the memo: **Computer-aided design (CAD) skills will only grow more important** as an array of technologies digitalize design, engineering, and manufacturing processes, redefining how ideas become reality. It's time to take the plunge, whether that means gaining foundational skills or tuning up old knowledge to grow in new directions.

But it can be hard to know where to start, given all the CAD programs out there and a multiplying landscape of sub-specialties—e.g., additive manufacturing (AM), generative design, or digital twinning. The key, then, to sidestepping overwhelm is to **zero in on the in-demand CAD skills at your organization, or the specific skills that will take your career in the desired direction.** And remember: Core CAD competencies—such as mechanical and structural design skills, technical coding skills, adaptability, and collaboration—will remain in fashion no matter where the industry's digital transformation ends up. **Try these five exercises to boost your CAD skills—and your long-term prospects.**



1

Go beyond your go-to CAD program

Most firms lean heavily on one software product for their CAD needs, so most engineers end up with proficiency in just one program. That makes sense—but it limits your CAD potential. Knowledge of multiple programs can better position you in a few ways. First, it will likely broaden technical skills since different programs focus on different capabilities. Second, exploring the CAD software landscape will familiarize you with what's cutting-edge in the space. That could catalyze new interests and goals, ultimately helping you connect to more diverse project and job opportunities.

Don't let money pose a learning obstacle as you consider diving into a new CAD program. There are tons of free courses, tutorials and other learning resources available online, keyed to Autodesk and other CAD programs.

2

Venture into new territory while on the job

No matter how high-quality, online tutorial videos and courses can only take you so far. The place to hone and upgrade CAD skills is the same place they'll prove valuable: at work. Raise your hand (and even volunteer a few unpaid hours, if you're willing and able) to participate in projects that put new knowledge and skills into practice, or that let you shadow someone putting those skills into action. Exposing yourself to new and challenging real-world CAD applications will connect you to more experienced and skilled colleagues, who can help flag highly valuable skills to master and support your development. That's how theoretical knowledge becomes practical—and how confidence grows.

Lastly, be sure to let your manager know about your appetite for learning. Tangible support for CAD training might just be a byproduct of the conversation.

3

Join open-source CAD projects or forums

Work at a small firm with few CAD ninjas, or don't want to expend self-improvement energy at a current employer you're hoping to leave? Joining open-source CAD projects is another option for real-world skills strengthening. Use newly budding skills to improve an existing design, or just weigh in with comments. Many of these projects feature forums offering CAD discussions among participants about design elements and techniques. Consider them CAD peers who can offer constructive feedback that powers your professional development.

4

Repeat the mantra: Soft skills are CAD skills

Soft skills such as communication, collaboration, and critical thinking aren't nice-to-have tack-ons: They are CAD skills, full stop. As the lines between design, testing and production phases continue to blur as digital tech matures, more and more stakeholders will be accessing CAD programs to weigh in on requirements, designs, and prototypes. That makes soft skills even more essential.

For engineers, fluency in specific CAD-related technical skills is necessary but insufficient. An inability to communicate with clarity and collaborate well with designers and machinists diminishes the effectiveness of that technical prowess. Strong soft skills, including the ability to solve problems creatively and collaboratively across disciplines, are needed to get the job done.

5

Seek out honest feedback

This might be the hardest one of all. No one ever masters new skills in isolation, and CAD is no exception. Honest feedback on weak spots (or oversights) in a CAD skill set is crucial to advancing. Ask a colleague or open-source project peer: "Where should I focus my upskilling energy? What do I not know that I need to know?" The answers may surprise and challenge you—which is exactly the point.

CULTIVATE A FLEXIBLE MINDSET

Strengthening CAD skills is like many other learning endeavors: The more you use the skills, the stronger they become. Consistent practice on your own is a good idea—and as noted, the good news is that there are plenty of resources online that will help you do just that within the CAD program of your choosing.

LEARN MORE

Learn the skills needed to interpret engineering designs and avoid mistakes that occur during the manufacturing process with ASME's official GD&T online courses. **View course collection.**

But CAD isn't a solo activity—it takes a team to design, review, prototype and manufacture a part or product. Any designer who thinks they can just throw a CAD file over to production to figure out and then head home won't be employed for long. The ultimate takeaway is that soft skills come with the CAD territory, so seek out real-life projects to cut your teeth on. Remain flexible and open to change, with respect to both CAD-based projects and your own evolving skill set, and success is likely to follow.

ASME membership

