Peter Kazunas

On figuring out whether a technical degree is right for you: “Take a single laboratory course in an introductory class like geometric or wave optics. That will give you a general feel for the types of skills you will be expected to develop. Then continually upgrade your skill set to keep up with technology.”

Peter Kazunas’s interest in photonics began in high school. As a participant in his school’s Physics Olympics, he “enjoyed building and improving projects.” Peter explored his interest in physics by enrolling in the applied physics/electro-optics program at Indiana University of Pennsylvania (IUP). Peter chose to study photonics because he believed that the knowledge he would gain would be “more concentrated than a general physics background would provide.”

Before the program began, Peter was expecting to get a general understanding of optics and electronics design. His expectations of the program at IUP were exceeded: “I got more hands-on experience than I expected because many classes had labs.” After Peter’s first year, he began a photonics internship at Pennsylvania State University. Peter recalls that this internship “sparked” him to continue his education in the field. He explains that “many jobs in photonics were hands-on laboratory work” and with that in mind, he purposefully built his skill set around practical applications.

For Peter, the hardest part of completing his degree was managing his time. Because he continued his internship with the electro-optics center at Penn State until graduation, time management was especially important. “I often had a full class load with labs,” he explains, “and I worked three full days a week around them.” Even with his demanding schedule, Peter was able to successfully complete his education. In 2009, Peter earned a bachelor of science degree in applied physics and electro-optics. The following year, he earned a master of science degree in optics from the University of Rochester.

Today, Peter continues his work as a research engineering intern for Penn State’s electro-optics center, where he has been since 2006. Of all his work so far, Peter is most proud of “building, maintaining, and improving a laser system that has been successfully demonstrated in the field for the navy on multiple occasions.” Peter says that he “performed lethality testing on targets; developed software to simulate beam-on-target-based diffraction, turbulence, and overlap quality; and developed Beam Alignment Diagnostic Control hardware and software for this laser weapon system.” Over the course of his many years in the field, his hardware operation and software proficiency have both improved greatly.

Having worked in a university laboratory for over six years, Peter has been involved not only in the laser weapon system, but also in other projects. He has worked on laser survivability testing, laser characterization studies, and CMC laser machining. Also, he works with his organization’s high school outreach programs, which include demonstrations and camps. He regularly works with an intern, so he gets to see “how skills learned in school translate into skills used in industry.”

To Peter, the best parts of working in photonics are performing laser demonstrations and creating his own software for laser-beam analysis. Currently, Peter is working on many government-funded projects, and he admits that a challenging part of his career is that “equipment can be expensive to procure and maintain.”
Peter suggests that students considering a career in photonics begin by taking one single laboratory course in an introductory class such as geometric or wave optics. He believes that this will give students a general feel for the types of skills that they will be expected to develop. He advises that students then continually upgrade their skill sets to keep up with technology. Peter believes that technical coursework is valuable even for students who are not interested in pursuing a technical degree; as he explains, “it is a good way to diversify your skill set,” and a good way to “broaden the opportunities you will be qualified for after school.” He believes, though, that “if you do not enjoy technical work, then it is not for you.”

Peter currently lives in Natrona Heights, Pennsylvania. He enjoys traveling, taking apart and putting together computers and electronics, and hiking.