



# Photonics in Berlin

## with the TCNJ-Beuth Grant Program

### Overview

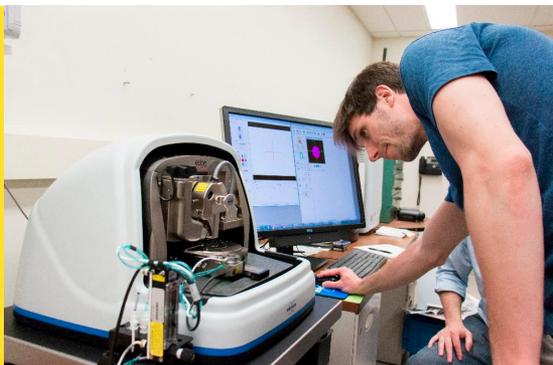
As the birthplace of photonics, Berlin, Germany is home to universities and industries focused on the science of light in fields ranging from astrophysics to telecommunications to virtual reality. In partnership with the Beuth University of Applied Sciences in Berlin (also known as the Berlin Institute of Technology), this Summer 2022 course gives TCNJ students a hands-on survey of selected topics in modern photonics. TCNJ students will first partner with visiting Beuth students for predeparture activities in Spring 2022, rejoining them in Berlin during Summer 2022.

In Berlin, the TCNJ-Beuth teams will be immersed in hands-on lab experiences in laser technology, optical image processing, and materials characterization via atomic force microscopy. Students will also visit local photonics industries such as Jenoptik and Carl Zeiss and research institutes such as the Max Planck Institute. Throughout the course, students will also experience the intertwined history of modern physics with Germany's tragic period between 1933-1945 through visits and guest lectures with local science and technology historians. The course language is English, and students will have the opportunity to participate in basic German language instruction as part of the course. To learn more about the TCNJ-Beuth partnership in photonics, go to <http://projekt.beuth-hochschule.de/elba/about-elba/>

*Week 1:* Lab Physics @ Beuth University of Applied Sciences w/ faculty

*Week 2:* Visits to industrial research institutes

*Week 3:* Workshops, presentations & cultural experiences



### Academics

This is a 0.5 unit course designed for physics, chemistry, computer science, and engineering majors who have completed PHY 321 - Modern Physics as a minimum, and who want an introduction to modern optical and photonic technology. For physics majors, this course will count as 0.5 units of PHY 393 - Independent Research. Students in other majors should contact the instructor, Dr. David McGee ([mcgeed@tcnj.edu](mailto:mcgeed@tcnj.edu)), for questions about receiving equivalent course credit (e.g. ELC 470 or ELC 391) in their major department. Students selected for this study abroad course will complete predeparture laboratory training in lasers and photonics during Spring 2022.

Students participating will receive a partial scholarship from the German Academic Exchange Service (DAAD) for travel and living expenses, and in addition are eligible for a National Science Foundation-sponsored research fellowship to work in Dr. McGee's photonics laboratory for Summer 2022. This research fellowship is similar to an NSF Research Experience for Undergraduates fellowship, and will pay students approximately \$6k for full time research. The research will occur on campus at TCNJ, in collaboration with our German counterparts, and represents an outstanding opportunity for TCNJ students to gain paid experience in photonics research in an international team setting.

**TOTAL COST: \$3,707.92**



To apply, go to [www.studyabroad.tcnj.edu](http://www.studyabroad.tcnj.edu)