The Pacific Northwest Photonics Technology Project (PNW Photonics)

PROJECT SUMMARY

The Pacific Northwest Photonics Technology Project (PNW Photonics) at Lake Washington Institute of Technology (LWTech) is a Small Grant for Institutions New to the Advanced Technical Education (ATE) Program project. Photonics technology is the practical application of light, including lasers. Located in the Greater Puget Sound region, LWTech serves both King and Snohomish counties. With many high-tech companies calling this region home, photonics plays a diverse role in our regional economy.

LWTech will partner with The National Center for Optics and Photonics Education (OP-TEC), Fluke Corporation, The Center of Excellence for Aerospace and Advanced Manufacturing (COE), and the International Society for Optics and Photonics (SPIE) to produce associate degree photonics technicians for employment in the Pacific Northwest. Through industry collaboration, we will develop a unique two-course photonics technology certificate in the advanced manufacturing AAS degree programs. This pipeline will create the only employer-validated, NSF-affiliated photonics program in Washington and the neighboring states of Oregon and Idaho.

To support our goal of improving and diversifying our regional technical workforce, LWTech will complete the following objectives: 1) In collaboration with OP-TEC and industry partners, develop a regionally-specific, application-based sequence culminating in a photonics certificate aligned with 21st Century Skill standards to meet specialty needs of employers in the Pacific Northwest. 2) Utilize multiple recruiting efforts, including social media, to attract students and increase enrollment of previously underrepresented populations in photonics and advanced manufacturing. 3) Optimize and accelerate learning environments and career pathways to high-wage, in-demand jobs for traditional and non-traditional students such as Veterans, females, and older learners.

Intellectual Merit

Labor market data and OP-TEC reports show a growing gap between industry needs and photonics technology graduates. Photonics curriculum created by OP-TEC will be adapted by LWTech to meet the specific needs of employers in the Pacific Northwest. PNW Photonics will increase enrollments in photonics and advanced manufacturing at LWTech by engaging both traditional and non-traditional students. Populations we will seek to enroll include Veterans, females, and older learners. PNW Photonics will support employer needs while creating a more diverse workforce to meet 21st Century skill standards.

Broader Impact

By building upon OP-TEC's highly-regarded curriculum and adapting it to regional needs, LWTech will disseminate the revision model and teaching strategies to other colleges in the Pacific Northwest using OP-TEC and SPIE networks as well as the Washington State Board for Community and Technical Colleges (SBCTC). Recruitment efforts will implement promising practices published by the Institute for Women in Trades, Technology and Science (IWITTS) and contribute to the body of knowledge around underrepresented populations in two-year institutions.

Investigators will be available to present this work at the NSF ATE PI conferences as well as the HI-TEC conference. The investigators leading this project have strong ties with ATE partners through the ATE Mentor Connect program and, as an ATE Mentor Connect partner, any materials and coursework will be disseminated by our two NSF-funded centers: SC ATE Center (www.TeachingTechnicians.org) and the OP-TEC center (www.op-tec.org). In addition, the SBCTC will disseminate this work to 34 community and technical colleges through the Open Educational Resources Library, and will provide opportunities to present at state-wide conferences.