



OPEN Optics and Photonics Education News

Newsletter of the Optics and Photonics College Network

May 2017

From the Executive Director



This issue of the OPEN newsletter highlights useful events created by LASER-TEC and MPEC, as well as several OP-TEC resources, including the Photonics Systems Technician Curriculum Guide, two recently-developed monographs and an introduction to a one-credit course for new and potential students, entitled [Introduction to Lasers and Optics](#).

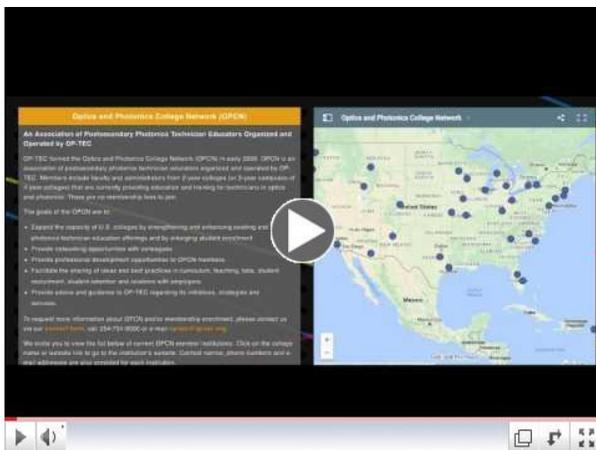
Also featured is an interview with Ian Anderson on creating next generation websites. Ian has recently completed the development of OP-TEC's new website.

The notices in the right column contain information about the National Photonics Initiative (NPI), a collaboration of the photonics community that is providing information and breakthroughs on new photonics applications and markets to create public interest and advocate increased support at the national and local levels.

Dan Hull

A Conversation with OP-TEC Webmaster Ian Anderson

In this short 4.5 minute interview, www.op-tec.org webmaster Ian Anderson discusses how websites can be designed to be more useful, navigable and interesting. Topics include a description of the old OP-TEC website, an overview of the new site, Flash and why it is being phased out, Responsive Web Design (RWD), and Ian's favorite sections of the site. In future interviews, we'll go a little deeper into site content, features, and functionality.



Student Retention Monograph

OP-TEC's newest monograph on improving student retention has been completed and is being released this week. It identifies the major causes

In This Issue

[From the Executive Director](#)

[Conversation with a Webmaster](#)

[Student Retention Monograph](#)

[Intro to Lasers & Optics](#)

[Tech Like a Girl](#)

[IHCC Biophotonics Visit](#)

[Instructor Resource-May](#)

[Career Video-May](#)

[Upcoming Events](#)

[PRPI Faculty Consultant](#)

[National Photonics Initiative](#)

[PACT Alumni Spotlight](#)

[Join the Conversation](#)

Upcoming Events

6/19/17 - 6/21/17
Course 1 Faculty Capstone
Indian Hills Community College

6/21/17 - 6/23/17
Course 2 Faculty Capstone
Indian Hills Community College

06/25/17 - 06/28/17
ASEE Annual
Conference 2017
Columbus, OH

7/17/17 - 7/20/17
HI-TEC 2017
Salt Lake City, UT

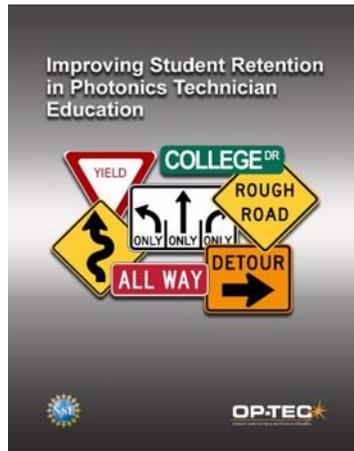
10/19/17 - 10/20/17
National Coalition of Advanced
Technology Centers (NCATC)
Fall Conference 2017
Portland, OR

10/23/17 - 10/25/17
ATE PI Conference
Washington DC

10/26/17 - 10/25/17

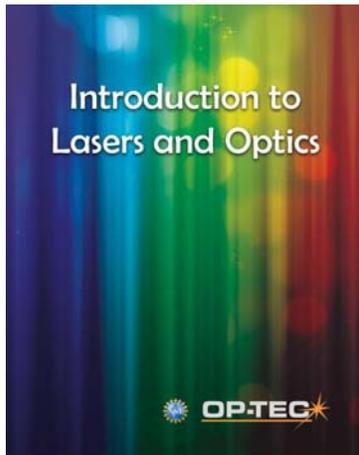
of dropout among first-year photonics students and describes strategies to address these issues. These strategies are proven solutions that have been developed and tested by seven college faculty members from long term photonics programs. They include:

1. Creation of a social network (student club) where first year and second year students meet frequently to experience new photonics applications and to work on projects, and
2. Requiring a one credit course on *Introduction to Photonics* which be assigned in the first semester.



Upon request, OP-TEC will send printed copies of this monograph, as well as the one developed earlier this year, entitled *Using Current Photonics Students to Recruit New Students*. These monographs (and other resources) can also be downloaded from OP-TEC's web site www.op-tec.org.

Introduce, Enthuse and Prepare Students to Study Photonics



OP-TEC has created a new course, Introduction to Lasers and Optics. This modular course is designed to have no prerequisites, and can be taught for one or two-credits.

There are 15 modules that cover topics such as the spectrum of light, laboratory safety, polarization, mirrors and lenses, and more. These modules can be used all-together or faculty can select the appropriate number of modules to fit the desired breadth and depth of study for the course. Seven laboratory demonstrations are

included, complete with instructions, an equipment list, and diagrams.

For more information about this new resource, please contact Taylor Jeffrey at tjeffrey@op-tec.org or call the OP-TEC office at 254-751-9000.

Tech Like a Girl



Tech Like a Girl!

Since its inception, the Southeast Regional Center for Laser and Fiber Optics Education (LASER-TEC) has been addressing the challenges of enrollment and retention of underrepresented populations in college

National Career Pathways Network (NCPN) Annual Conference
Saint Louis, MO

[View Events Webpage](#)

PRPI Seeks Subject Matter Expert

Puerto Rico Photonics Institute is seeking proposals to provide services for subject matter expertise under its Round 4 TAACCCT Grant, # TC-26472-14-60-A-72, New Horizons: Puerto Rico Lasers and Photonics Career Pathways.

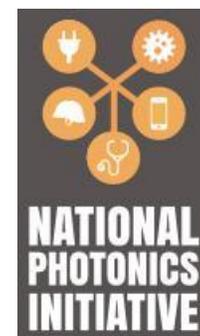
Click [here](#) for more information.



National Photonics Initiative

The National Photonics Initiative (NPI) is an alliance of the technical societies (OSA, SPIE, LIA, APS and IEEE Photonics Society) that have united industries and academia to raise the awareness of photonics and it's emerging applications in advanced manufacturing, communications & IT, defense & national security, energy and health & medicine.

Visit the NPI website and enlist to receive announcements and updates on recent photonics innovations at www.lightourfuture.org



photonics courses. . This year, LASER-TEC began a new initiative that focuses on early exposure of middle school girls to a variety of light-based technologies through rich, hands-on activities.

LASER-TEC recently kicked off the new initiative with two extremely successful Tech Like a Girl camps hosted at Indian River State College and Central Carolina Community College. The camps were made possible through support and contributions from the colleges' administration and faculty, members of the American Association of University of Women, photonics companies, scientists, students, alumni, teachers, and the general public.



Through the camps, 23 middle school girls discussed opportunities and challenges of being a woman in STEM with a diverse group of female role models with very unique perspectives. Most importantly, the girls had a chance to participate in activities that are not typically available in schools including spectroscopy analysis using Ocean Optics Educational Kits; assembling

laser diode modules and a module with photo sensor and speakers; operating soldering irons, heat guns, and multiple hand tools; designing a laser-enabled security system; building a website as an electronic portfolio; and, finally, presenting their camp experience to their peers and guests.

Post event evaluations show a positive impact on the girls' perception of STEM. "We hope the Tech Like a Girl camps will ignite a genuine and continuous interest in the field and successfully prepare girls academically to pursue a career in a STEM profession," says LASER-TEC Program Director, Natalia Checkhovskaya Kearney.



LASER-TEC welcomes all members of the Optics and Photonics College Network to participate in the fast growing #TechLikeAGirl initiative. LASER-TEC staff members will be happy to share what is involved in the program and the lessons they have learned so far. Interested faculty can learn more about the camps at www.laser-tec.org or by attending LASER-TEC's presentation at the HI-TEC Conference in Salt Lake City on July 20, 2017. Please address comments or questions to Dr. Chrys Panayiotou at cpanayio@irsc.edu or 772-462-7621.

University of Wisconsin Visit



Indian Hills Community College Laser students learn about biophotonics at the University of Wisconsin

Six IHCC Laser & Optics Technology students accompanied by Instructor Michael Shay and MPEC Director Greg Kepner visited the University of Wisconsin-Madison in April to learn about a variety of biophotonics research projects. Biophotonics is the combination of biology and photonics. The IHCC group was invited to UW after a meeting at the Photonics West conference in February of this year. The goal of the trip was to provide a field experience for students using lasers and optics applications in a university research environment.

Matthew Darden



Matthew Darden was skeptical about pursuing an education in photonics because he thought it would be a very difficult program of study. Once he began to learn about the field at Indian Hills Community College, he was surprised to discover how much it interested him. Through the guidance of Professor Frank Reed, Matthew realized that hard work and determination would be the keys to his success in the program. What made the difference for Matthew was "understanding how big the field is and how many different jobs I could actually go into."

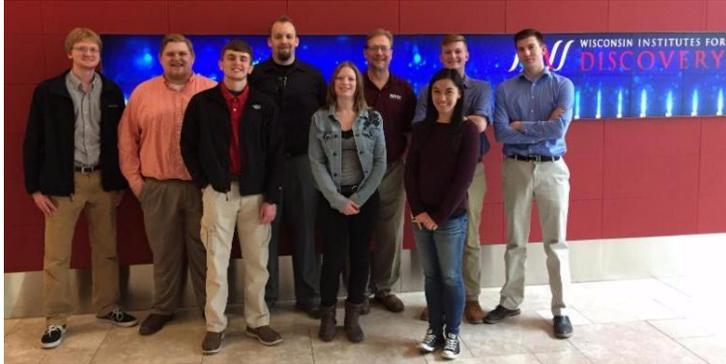
After graduating from Indian Hills in 2015, he received multiple job offers. Deciding to work in the medical field, Matthew accepted an offer from Lumenis, a medical laser company, as a customer service engineer.

Today, Matthew knows that his work makes a real difference in medical care. He explains, "Laser equipment is very important in the medical field today and requires preventative maintenance, as well as corrective maintenance, to keep the systems safe for patients, doctors and staff." Matthew's advice to prospective students is not to take the "safe route" but to consider their best options. He believes that anyone can succeed in a technical program, with enough effort and commitment.

Read more about Matthew and other successful technicians in [Success Stories in Photonics Careers](#).

The IHCC group began their journey at the Morgridge Institute for Research and the Wisconsin Institute for Discovery. After meeting with a group of doctoral students and postdoc researchers from the University of Wisconsin and Villanova University, the students toured the Skala Laboratory and the Huisken Laboratory to learn about multiple biophotonics applications. They next visited the Engineering Centers building and toured the Campagnola Laboratory where biomedical engineering research is taking place on a spectrum of topics such as orthopedics, neurology, and regenerative medicine. Their final visit was to the Laboratory for Optical and Computational Instrumentation with Dr. Kevin Eliceiri, where they learned about 3D second harmonic generation microscopy for computer based cancer diagnosis.

For more information go to <https://loci.wisc.edu/>. The trip was sponsored by the Midwest Photonics Education Center and funded by the National Science Foundation.

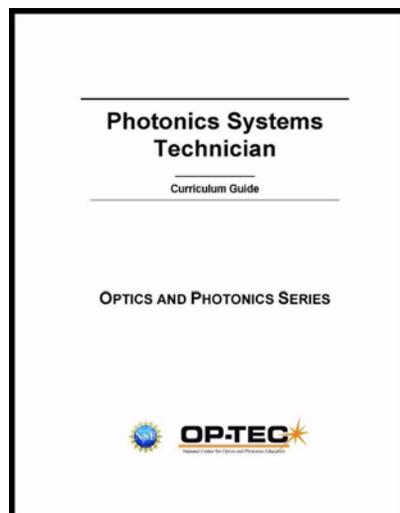


Pictured: Left to right - Logan Patten, Joey Lee, Joseph Last, Michael Shay, Katelyn Myers, Tiffany Easter (UW host), Jacob Long, and William Morris.

Instructor Resource of the Month

Photonics Systems Technician Curriculum Guide

Curriculum guide designed to support implementation and successful teaching of Photonics Systems Technicians program and courses. Contains some information to help colleges plan new PST programs. Provides assistance to faculty who will be developing laboratories and teaching courses in the PST curriculum. Information included to assist faculty in acquiring lab equipment, designing efficient (laser-safe) lab facilities, teaching maintenance/troubleshooting, lab book preparation, and systems integration.



Photonics Career Video of the Month

OPCN Working Groups

The Working Groups of the Optics and Photonics College Network are dedicated to sharing expertise, best practices, resources, and advice on issues of importance to photonics technician educators at colleges throughout the United States.

Professional Development Working Group
Anca Sala, Chair
anca.sala@baker.edu

Student Recruiting Working Group
Taylor Jeffrey
tjeffrey@op-tec.org

Program Assistance Working Group
Gary Beasley, Chair
gbeasley@cccc.edu

Equipment Working Group
Frank Reed, Chair
frank.reed@indianhills.edu

Students searching for careers need to understand what they may be doing in the workforce. Students are also motivated and focused when they can identify with a role model and understand why they have to learn certain areas of mathematics, science and technology.

Derrick Thomman is a Lasers Optics Technician for CVI Melles Griot.



Join the Conversation

We hope you enjoyed this edition of the OPEN newsletter. We would really like to hear from you. If there is some subject that you would like us to discuss or look into, please let us know at prmanager@op-tec.org.

OPEN is published by the National and Regional NSF Advanced Technological Education Centers for Optics and Photonics Education.

This material is based upon work supported by the National Science Foundation under Grant No. DUE-1303732. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

