

LASER-TEC College Profile

Northwestern Michigan College Traverse City, Michigan

LASER-TEC is the Center for Laser and Fiber Optics Education, founded in 2013 by the National Science Foundation (NSF) and headquartered at Indian River State College in Florida. It was established to help meet the goals of educating and sourcing domestic talent in the areas of optics and photonics. As a service to students, recent graduates, and prospective employers, Photonics Spectra runs a profile of one of the 35 LASER-TEC colleges each month.



A Northwestern Michigan College student troubleshoots a wheeled robot that she programmed in Python language.

and measurements, and function effectively as a member of a technical team.

How to recruit from this college
The NMC Engineering Technology program graduates

highly skilled technicians with diverse skill sets. Our students are interested in working throughout the Great Lakes Region and the U.S. "Lunch and learns," either in person or virtual, provide great opportunities to promote your company and interact with our students. Companies will typically showcase their industries, highlight the skill sets that they are seeking, and answer career-related questions. Afterward, a company representative can meet with the students one-on-one to discuss specifics.

Career opportunities can be promoted on the program's LinkedIn job board, on social media accounts, and in class. The college also hosts virtual and in-person career fairs. NMC has a robust internship program that can assist your company in identifying potential candidates for internship opportunities.

Contact information

Jason Slade
+1 231-995-1995
jslade@nmc.edu
1701 E. Front St.
Traverse City, MI 49686

Program website

www.nmc.edu/tech

Northwestern Michigan College (NMC) offers an Associate of Applied Science degree in engineering technology with an electronics specialization, which includes studies on lasers and optics technology. The degree program focuses, in part, on the applied aspects of science and engineering technology to provide students with practice in the technology spectrum, including product improvement, manufacturing, robotics, unmanned systems, and marine technology. The degree offers a core set of engineering technology skills, with a specialization in one of several technical concentrations.

Graduates of NMC's Associate of Applied Science in Engineering Technology degree program have the skills to:

- Solve engineering technology problems using project-based learning.
- Apply the fundamentals of electricity and electronics.
- Follow safe electrical work practices.
- Construct circuits from schematics and diagrams using proper wiring and soldering techniques.
- Perform electrical measurements using multimeters, oscilloscopes, and other test equipment.

- Program microcontroller-based systems.
- Use a systems-level approach to analyze electronics and electrical devices.
- Bench test and integrate devices to meet system requirements.
- Perform design modifications, circuit improvements, and component protection as designs are developed into working prototypes.
- Understand control circuits, electrical schematics, and line diagrams.
- Develop interfaces to programmable logic controllers.
- Understand the elements of a laser and laser systems.
- Understand laser physics, optical cavities, the properties of laser light, and the operation of a helium-neon gas laser.
- Follow safety procedures concerning lasers and related equipment.
- Understand operational characteristics of lasers, specific laser types, optical detectors, and human vision.
- Understand principles of optical fiber communications, photonic devices for imaging, storage and display, and laser welding and surface treatment.
- Communicate effectively, conduct tests

Product News



OPO and Pump Laser

The Peacock 532 optical parametric oscillator (OPO) and pump laser from LUMIBIRD is integrated on a single platform. The device includes a compact and rugged CFR (Code of Federal Regulations)-type Nd:YAG laser pumping an OPO. The unit can be easily inserted into a complex system for users who want a tunable nanosecond-pulsed laser source in the NIR range. With its fully automated wavelength selection, real-time output energy control, and laser beam-shaping capability, the Peacock 532 is suitable for many environments in industrial and R&D applications.

quantel@quantel-laser.com



Femtosecond Laser Sources

The CRONUS-2P and CRONUS-3P microscopy-dedicated femtosecond laser sources from LIGHT CONVERSION cover applications in functional neuroimaging, optogenetics, and deep imaging. The CRONUS-2P provides three simultaneous synchronized outputs with high repetition rate, high output power, short pulse duration, and group delay dispersion control to support nonlinear microscopy. Two outputs are independently tunable in the 680- to 960-nm and 960- to 1300-nm ranges, while the third is fixed at 1025 nm. The CRONUS-3P provides microjoule-level pulses down to 50 fs at repetition rates of up to 2 MHz, and it is tunable in the SWIR range from 1.25 to 1.8 μm , thus covering the biological transparency windows at 1.3 and 1.7 μm for three-photon microscopy.

sales@lightcon.com



Thermal Science Cameras

The X858x and X698x X-Series science cameras from Teledyne FLIR provide high-speed and

high-resolution thermal imaging for scientific research and engineering applications within the MWIR and LWIR spectrums. The X858x MWIR and SLS (strained layer superlattice) LWIR family of cameras features a cooled thermal camera core with high-definition resolution of 1280 $\times$ 1024 and a 180-Hz frame rate for capturing refined data imagery. The X698x MWIR and SLS LWIR cameras feature 640 $\times$ 512 thermal resolution with a >1-kHz frame rate to capture high-speed stop motion in the lab or out in the field. The cameras offer advanced recording, triggering, and synchronization capabilities.

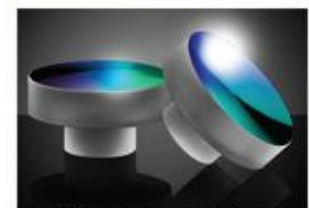
sales@flir.com



Beam Profiler

The Ophir SP932U USB 3.0 High-Resolution Beam Profiler from MKS Instruments Inc. is a compact, CMOS camera-based beam profiler for UV, VIS, NIR, and Nd:YAG wavelengths that delivers accurate laser intensity distribution measurements. The device combines wide dynamic range, high sensitivity, linearity, and high resolution with BeamGage sophisticated beam profiling software. It features a 2048 $\times$ 1536-pixel resolution, a 3.45- μm pixel pitch, and a frame rate of 24 Hz at full resolution. Its compact, square design increases setup versatility. Applications include materials processing and medical, surgical, and cosmetic procedures.

mks@mksinst.com



Metallic-Coated Stemmed Mirrors

TECHSPEC Metallic Coated Stemmed Mirrors from Edmund Optics Inc. reduce surface stress and deformation. The devices are available in enhanced aluminum, protected gold, and

IR Cameras. Pyrometers. Accessories. Software. We measure temperature non-contact from -50°C to $+3000^\circ\text{C}$. Visit: www.opttris.com

Our affordable and fixed installed longwave and shortwave IR cameras with analog/digital outputs are ideal for industrial and R&D applications.

on target.



opttris
when temperature matters