THE 4TH INDUSTRIAL REVOLUTION:
CYBER PHYSICAL SYSTEMS AND THE NEW WORKFORCE SKILL SETS
PROFESSIONAL DEVELOPMENT WORKSHOP FOR CTE TEACHERS

DESCRIPTION

If you think everything is happening very fast today, it is because we are going through the Cyber Physical Industrial Revolution, that is changing the way we live, work, communicate and travel. Automation is happening everywhere: in manufacturing, banking, service and distribution, healthcare, entertainment and more. Internet high-speed fiber optic connectivity, cloud computing, 5G cellular communications, WI-FI and smart devices with embedded computing systems, have fueled this revolution. In the first part of this workshop we will provide an overview of the technical workforce skills needed for Industry 4.0 and provide suggestions on how to embed them in your existing programs. In the second part, which is hands-on, LASER-TEC will provide a free Light and Optics Exploration Kit (valued at $100) to each participant. Using this kit, you will have the opportunity to perform demonstrations and conduct lab experiments. Unique in its versatility, this kit includes a book with 24 lesson plans for demonstrations that you can easily and instantly infuse into your class or lab. All lesson plans include a list of the Next Generation Standards covered.

COURSE FEE

- $500
- Free for the first 15 Gaston CTE teachers

WHO SHOULD ATTEND

- CTE Instructors
- Physical Science Instructors
- Counselors

LEARNING OUTCOMES:

- Describe how laser light is generated & used in manufacturing applications
- Identify safety equipment & accessories required to protect personnel from laser radiation
- List & describe the applications of lasers in welding, drilling, brazing, cladding, marking, etching & additive manufacturing
- Identify applications of optical sensors in integrated industrial manufacturing systems
- Identify areas of current curriculum where the infusion of laser & fiber optics technologies would be beneficial
- Add a new module or course in lasers & their applications in manufacturing

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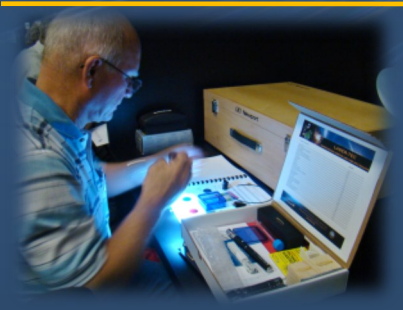
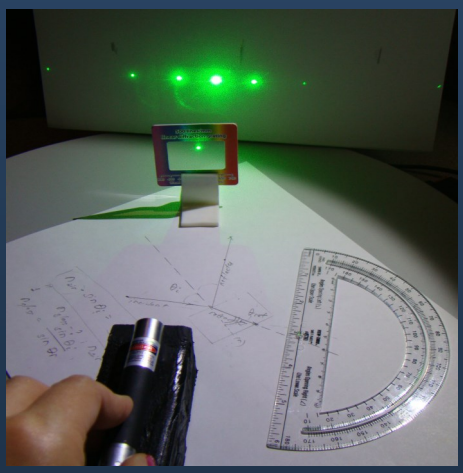
DEMONSTRATIONS AND EXPERIMENTS INCLUDED IN THE WORKSHOP

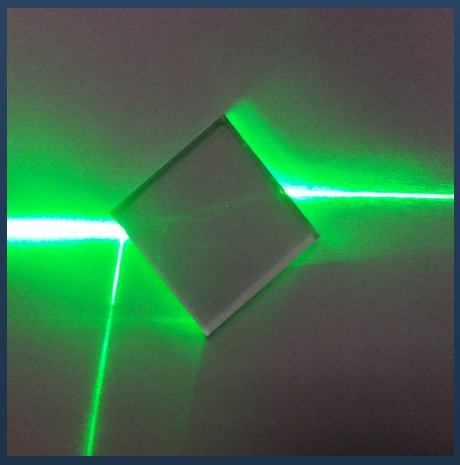
- Laser Safety
- Law of Reflection
- Law of Refraction
- Finding the Speed of Light in Acrylic Block
- Optical Filters
- Primary and Secondary Reflections
- Care and Cleaning of High Grade Optical Components
- Measuring Laser Beam Diameter & Divergence
- Prisms and Lenses
- Measuring Focal Length of Bi-Convex Lens
- Measuring Focal Length of Bi-Concave Lens
- Measuring Focal Length of Fresnel Lens
- Total Internal Reflection
- Beam Expanding Collimators
- Determining Laser Wavelength using Grating
- Spectrum of White Light
- Measuring Diameter of Human Hair Using Diffraction
- Laser Basics



At the workshop, educators explore fundamentals of light, lasers, & fiber optics using the LASER-TEC Light & Optics Exploration Kit

TO LEARN MORE ABOUT LASER-TEC PROFESSIONAL DEVELOPMENT WORKSHOPS, VISIT WWW.LASER-TEC.ORG OR CALL 772.462.7179





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