

## MNT-EC Photonics Handout

**Photonics** - The science and technology of generating, manipulating, and detecting particles of light.

**Photonics Technician** – Build, install, test, or maintain optical or fiber optic equipment such as lasers, lenses, or mirrors using spectrometers, interferometers, or related equipment.  
(O\*NET 17.3029.08 - Bureau of Labor Statistics)

### MNT-EC Photonics Workshops - Summer 2021 (Dates TBD):

#### Fundamentals of Photonics Workshop

- Laser and Light Concepts
- Laser Safety
- Laser Based Laboratory Activities

#### Laser Material Processing Workshop

- Laser Material Processing Theory
- Expert Practitioner Presentations
- Laboratory Activities:
  - Welding, Cutting, Marking, Engraving, Forming, Cleaning
- Company Tours

### Photonics Videos of Interest

How NIF Works: <https://lasers.llnl.gov/about/how-nif-works>  
Laser Peening: [https://www.youtube.com/watch?v=q\\_3jvMn5bPU](https://www.youtube.com/watch?v=q_3jvMn5bPU)  
Laser Cutting: <https://www.youtube.com/watch?v=NQsDGi9s-LU>  
Laser Welding: <https://www.youtube.com/watch?v=NW4dCx-27JU>  
Laser Drilling: <https://www.youtube.com/watch?v=LpHckO5u7NI>  
Laser Micromachining: <https://www.youtube.com/watch?v=ZGmuVWuscGs>  
A Day Without Photonics: <https://www.youtube.com/watch?v=ybiobv1xaFI>  
Photonics Technologies are Everywhere: <https://www.youtube.com/watch?v=DZHgedyYWY>  
Laser Additive Manufacturing (3 examples):

1. Direct Metal Laser Sintering(DMLS): <https://www.youtube.com/watch?v=yiUUZxp7bLQ>
2. Laser Metal Deposition: <https://www.youtube.com/watch?v=yKnImfuMSgo>
3. GE Aviation's Additive Technology Center: <https://www.youtube.com/watch?v=cGGLSN6CTwI>

### Photonics Websites of Interest

[www.spie.org](http://www.spie.org) The International Society for Optics and Photonics  
[www.photonicsociety.org](http://www.photonicsociety.org) IEEE Photonics Society  
[www.osa.org](http://www.osa.org) The Optical Society  
[www.lia.org](http://www.lia.org) The Laser Institute of America  
[www.laser-tec.org](http://www.laser-tec.org) Center for Laser and Fiber Optics Education (NSF-ATE)  
[www.lightourfuture.org](http://www.lightourfuture.org) National Photonics Initiative