

Spring 2012

PHO 252- Laboratory (1 credit)

The lab experiments are chosen to complement the course material, and to introduce you to fiber optic termination and testing. Several of these labs require two weeks to complete. A partial list of experiments includes:

- Terminating plastic fiber with ST connectors
- Attenuation in plastic fiber
- Terminating MM glass fiber with ST (or other) connectors
- Numerical Aperture of glass and plastic fibers
- Connector mismatch losses
- Mechanical and Fusion Splicing
- OTDR measurements
- Terminating SM glass fiber with ST connectors
- Fiber lighting and/or sensors

You will also be required to attend field trips to CT companies that produce or use optical fiber (e.g., RSL Fibersystems, Nufern, IPG Photonics, OFS). These companies hire TRCC graduates and knowing about their technology and work requirements is a vital part of the LFOT degree program. These visits will result in reports on the technology that you observed.

When you successfully complete this lab course you will be able to

1. Work safely with optical fiber, sources and detectors.
2. Identify common fiber optics connectors (ST, FC, SC, and the small form connectors)
3. Apply ST connectors to plastic and to glass MM and SM fibers, polish and test for connector loss with a source/meter test set
4. Splice fibers using both fusion splicing and mechanical splicing
5. Explain how an Optical Time Domain Reflectometer (OTDR) works and identify the "events" on an OTDR trace
6. Use an OTDR to measure the attenuation of a length of single mode fiber, location of fiber breaks and the loss at a fusion or mechanical splice and connectors
7. Build and test a simple system to demonstrate wavelength division multiplexing (WDM) at two wavelengths
8. Explain the importance of fiber optic technology in southern CT for telecommunication, lighting, sensors and laser technology
- 9.

Students with Disabilities

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the Disabilities Counseling Services at 383-5240. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. Please note that I cannot provide accommodations based upon disability until I have received an accommodation letter from the Disabilities Counselor.