

Optics 513

Optical Testing and Testing Instrumentation

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Introduction

- **Optical Testing – measurement of optical components and systems to determine properties.**
- **Optical testing techniques are often used to measure surfaces other than optical surfaces.**
- **For this course the majority of our time will be spent looking at the testing of optical surfaces, however many of the techniques apply to the testing of other surfaces.**



Challenging Field

- Optical testing is one of the most challenging fields within optics.
- One reason is that we generally use light that has roughly the same wavelength as the light that goes through the parts we use.
- Therefore, the length scale used is relatively coarse, in spite of the short wavelength of light, and it is often not possible to test optics to an accuracy much better than needed.



Learning Outcomes

- Better specify optical components and systems
- Produce higher-quality optical systems
- Determine if an optics supplier can actually supply the optics you are ordering
- Test optical components and systems
- Evaluate optical system performance
- Explain basic interferometry and interferometers for optical testing



Remember

- If you make optics you have to be able to test the optics because you cannot make optics any better than you can test.
- If you purchase optics you need to test the optics you buy to make sure the optics meet the specs.
- If you let the supplier know you are going to test the optics when you receive them you will get better optics.