

On-site Workshop Description

Cleaning, handling, inspection and specification of surface quality on optics.

Description:

Surface imperfections are most commonly introduced as a result of improper cleaning and handling of precision optical components. Surface imperfection specifications (i.e. Scratch-Dig) are among the most misunderstood, misinterpreted, and ambiguous of all optics component specifications. This course provides attendees with the "Best Practice" contamination control techniques, safe handling and cleaning of optics, selecting the right materials, solvents and packaging for the job. In addition, attendees will develop an understanding of the source of ambiguity in surface imperfection specifications, and provides the context needed to properly specify surface imperfections and to evaluate a given optic to a particular level of surface imperfection specification. The course will focus on the differences and application of the MIL-PRF-13830, ISO 10110-7, and ANSI/OEOSC OP1.002. Many practical and useful specification examples are included throughout, as well as an extensive hands-on workshop demonstration of cleaning, handling, and visual inspection.

Learning outcomes:

This course was designed to bring photonics personnel up to an immediate working knowledge on surface imperfections and optics handling and cleaning standards, skills and techniques.

This course will enable you to:

- describe the various surface imperfection specifications that exist today
- compose a meaningful surface imperfection specification for cosmetic imperfections using ISO, ANSI, or Mil standards
- identify the different illumination methods and comparison standards for evaluation
- demonstrate a surface imperfection visual inspection
- identify contaminants and at your workplace
- understand personal contamination control, i.e. gloves, gowns, masks
- identify and use proper cleaning materials and solvents
- safely remove particulates and films
- safely clean optics using air only, drop and drag, and hemostat-lens tissue methods
- understand how to clean special cases like mounted optics, glue removal, etc.

Intended audience:

This course is intended for optics manufacturing, quality control and assurance engineers, managers, inspectors and technicians who need to handle, clean, and evaluate optics or optical assemblies. In addition, optical engineers who are routinely specifying precision optical components will find this course most beneficial. **Maximum of 15 attendees per workshop.**

Course level:

Beginner/Intermediate

Course Length:

Full day (9 hours), with a ½ hour lunch break and two 15 minute coffee breaks.

Instructors:

Dave Aikens and Sarah Diggs have been involved in optics specifications and surface imperfections for more than 20 years and are probably the foremost experts on optics surface quality today.

Dave is President and founder of Savvy Optics Corp., is the head of the American delegation to ISO TC 172 SC1, and is chairman of the American Standards Committee for Optics, ASC/OP.

Sarah is President and CEO of BOLT Systems, Inc. Her business is dedicated to optics training and education, helping photonics companies improve their bottom lines through corporate audits of critical processes and implementing in-house certification programs.

Notes:

The course price includes presentation handouts and plastic comparison paddles for all attendees, three copies of the latest ANSI approved surface imperfection specification standard, and one each of ISO 10110 Part 7 and ISO 14997.