

POSITION: Optical Engineer

LAST REVIEW: September 26, 2019

GRADE LEVEL: I, II or III

REPORTS TO: Mfg. Engineering Manager

SUPERVISES: None

PRIMARY TASKS: Optical design of products, custom jobs, internal metrology tools and fixtures. Process design and improvement. Customer support. Verification and validation of new products. All aspects of design and manufacturing documentation.

ESSENTIAL FUNCTIONS:

- Demonstrate expertise in the theory of operation of all the company's optical product: crystalline optics, polymer retarder optics, and liquid crystal optics.
- Understand the manufacturing processes for those products.
- Identify key areas for process improvements.
- Improve yield, capacity, efficiency, profitability, and product performance. Reduce cost. Increase competitiveness.
- Participate in continuous education in polarization optics and its applications.
- Lead projects, develop and implement project plans, supervise technicians or other engineers in new product development, design verification, manufacturing validation, pilot testing, or process improvement.
- Keep apprised of technology to enable any of these improvements.

SKILLS NEEDED:

- Understanding of polarization optics and its applications.
- Numerical and analytical modeling of polarization optics, Jones matrix or Mueller matrix formalism.
- Facility with laboratory optics and metrology equipment including photodetectors, spectrophotometers, ellipsometers, laser stabilization, lock-in detection, extinction ratio measurement, reflectometry and polarimetry.
- "Hands-on" abilities to build test equipment, machine (lathe, mill) prototypes or fixtures, design electronic control or amplifier circuits, etc.
- Understanding of metrology, noise analysis, experimental error and uncertainty.
- Interpersonal skills for communicating with people of varied educational backgrounds.
- Writing skills *absolutely necessary* for customer contact, internal communications, and manufacturing documentation.
- Ability to make sound engineering decisions tempered by good business judgment.

EDUCATION: B.S. or B.A. degree in Optical Engineering, Physics, Opto-Mechanical Engineering or related technical field, and 3 years experience as an optical engineer, preferably in polarization optics. Additional consideration or advancement (assignment to



grade II or III) given to individuals with advanced degrees (M.S. and Ph.D.), project management experience, additional polarization optics experience.

PERSONAL CHARACTERISTICS: Must have the ability to effectively communicate, train, and build consensus with people of varied backgrounds including technicians, assemblers, researchers, customers, salespeople, and business managers. Must be able to multi-task, and keep attention on detail in a high-pressure manufacturing environment. Must have initiative to keep apprised of latest technologies, scientific curiosity to keep up with latest developments in polarization optics applications, and work ethic to seek out projects for company improvement without directive from supervisor. Must be able to maintain positive attitude through challenging conditions.