

Optical Engineer - Laser Systems

Description:

Vescent Photonics seeks a driven and creative Optical Engineer to join our engineering team. The right candidate will develop a variety of frequency-stabilized laser systems for use in quantum technologies. They will be highly self-motivated, take utmost pride in their work, enjoy learning new skills, be an innovative problem solver, and communicate effectively as a team player. This position offers opportunities to grow as a technical leader within the company. Vescent Photonics is a recognized leader in the development and manufacture of laser frequency control systems, including optical frequency combs, tunable lasers, electro-optical modules, and feedback control electronics. The candidate will be a part of cross-functional teams involved with both new product development and cutting-edge research projects in support of contract R&D. The work environment is fun, fast-paced, challenging, and interdisciplinary, involving a high degree of coordination between electrical, software, mechanical, and optical systems. The Vescent team takes pride in its work, is energetic and agile, and enjoys celebrating team successes.

Travel requirements: Seldom
Location: Golden, Colorado, USA

Duties:

- Work closely and collaboratively with members of the engineering, R&D, production, and marketing teams to support new product development and contract R&D programs.
- Analyze, design, assemble, and test laser systems, sensor systems, and other electro-optical systems.
 - Model and characterize beam propagation in optical systems, including ray tracing.
 - Design CW and pulsed laser systems, including performing calculations and simulations to predict performance.
 - Incorporate best practices for Design for Manufacture and Assembly.
 - Oversee parts acquisition, parts inspection, fabrication, and assembly of development prototypes.
 - Perform measurements to test and characterize laser systems.
 - Analyze experimental data to assess performance.
 - Effectively communicate work progress and plans. Prepare and present technical briefings.
 - Thoroughly document technical designs, procedures, and performance.
- Transition assembly and testing of optical/laser systems to the production team.
 - Develop assembly and test processes, including tooling/fixtures for beam alignment and parameter characterization.
 - Assist with generating assembly and test documentation.
 - Train production team members in processes.
- Perform systems engineering and design control tasks.
 - Closely work with product development teams to generate requirements and system architectures
 - Actively participate in design reviews.
 - Perform design verification testing of new product prototypes.
 - Assist multi-disciplinary development teams with systems integration and field testing.



Required Qualifications:

- Minimum education: B.S. or equivalent in engineering, science, or related field.
- Work experience: >5 years developing laser systems.
- Demonstrated capability in hardware build and test.
- Proficient theoretical understanding of laser physics and design approaches.
- Proficient with operating standard electrical and optical test equipment, including oscilloscopes, spectrum analyzers, spectrometers, beam profiling, and photodetectors.
- US citizen or permanent resident

Desirable Additional Skills:

- Modeling/simulating laser dynamics of CW and pulsed laser systems
- Finite element analysis to characterize thermal and structural performance
- Opto-mechanical design to mitigate operational failures due to shock, vibration, and temperature
- Product development experience
- Project management and technical leadership
- Design of single frequency laser systems, including external cavity diode lasers, fiber lasers, diode-pumped lasers, and PIC-based lasers.
- Design of ultrafast, mode-locked laser systems, including optical frequency comb systems
- Design and fabrication of semiconductor lasers and amplifiers
- Photonic integrated circuit design and fabrication
- Micro-optic alignment, assembly, and packaging
- Nonlinear optics, particularly for wavelength conversion
- Fiber optics, including splicing and fiber management
- Laser stabilization techniques, including locking to optical resonators and atomic/molecular transitions, phase-sensitive detection, FM detection methods, intensity stabilization, and polarization control
- Computer aided design
- Low-noise and RF electronics design

Salary Range & Benefits:

- \$100,000-\$160,000, dependent upon candidate's education, work experience, and skill set.
- 4 weeks PTO
- Flexible work schedule
- Health/dental insurance
- Short-term and long-term disability insurance
- Retirement plan
- Stock option plan

How to Apply:

Please send your resume with a cover letter to jobs@vescent.com. Your cover letter should express how your skills, qualifications, and interests address the job description, and why you want to work at Vescent. Resumes without a cover letter will not be considered. Vescent Photonics is an equal opportunity employer.