



# Optical Engineer - Laser Systems

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## 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.

Vescent  
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## 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.
- In compliance with federal law, all persons hired will be required to verify identity and eligibility to work in the United States and to complete the required employment eligibility verification form upon hire.

## 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

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### **How to Apply:**

Please send your resume with a cover letter to [jobs@vescent.com](mailto: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.