INSTRUMENTS LEAD ENGINEER

This position requires you to submit your resume on-line with your cover letter that states why you are uniquely qualified for the position.

This is a regular position with a competitive, comprehensive benefits package. The position is opened until filled. Employment is conditional on successful completion of drug tests. This position requires you to submit your resume on-line with your cover letter that states why you are uniquely qualified for the position. Additional information about WMKO and this position may be found on our web site at www.keckobservatory.org. EEO/M/F/D/V

POSITION DESCRIPTION

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SUMMARY:

Under the general supervision of the Operations Engineering Manager, this position is responsible for providing hands-on engineering leadership for all facility class instruments. Desired competencies include: good supervisory skills, sound instrumentation engineering skills; demonstrated ability to plan and manage instrumentation work such as troubleshooting, repairs, maintenance, minor upgrades, major refurbishment, and supporting the commissioning and integrating of new instruments into observatory systems.

This position directly supervises an Instrument Engineer and collaborates closely with summit day crew, particularly instrument technicians. In addition, the Instruments Lead Engineer collaborates with Support Astronomers to provide them engineering support and collaborates with instrument development teams to help integrate new instruments at the observatory.

The Instruments Lead Engineer is a member of the operations engineering leadership team. As such, this position collaborates with peers to provide broader support to facility instrumentation in the areas of infrastructure, control systems, optical systems, and software systems.

The successful candidate is a motivated, self-starter who can manage multiple tasks and priorities within a fast paced environment.

ESSENTIAL FUNCTIONS:

1. Be the technical/engineering team leader for all summit instrumentation activities, in conjunction with Support Astronomers and other Observatory staff. This includes stewardship of approximately one-dozen facility- and engineering-level instruments, the summit instrument laboratory, and all related instrumentation tools, equipment, and spare parts.
2. Specify and direct the processes for installation, preparation, configuration, and checkout of scientific instruments prior to use for observing, including daytime servicing tasks such as filling cryogens and necessary configuration changes to assure instruments are functioning properly and ready for observing.

3. Lead and/or coordinate, in conjunction with Support Astronomers and other Observatory staff, troubleshooting, preventative maintenance, and modifications necessary to keep scientific instruments operating at peak efficiency on a daily basis.

4. Collaborate with summit day crew technicians:
   a. Assist technicians, as needed, in troubleshooting deficiencies with facility class instruments.
   b. Train technicians in the operation and maintenance of facility class instruments and related equipment. This may include areas such as vacuum and cryogenic procedures, instrument configuration changes and checkout, instrument troubleshooting procedures, and instrument preventative maintenance procedures to assure those working with instruments on a daily basis receive training necessary to do their tasks.
   c. Actively communicate instrumentation plans with summit technicians, incorporating their input.

5. Supervise Instrument Engineer:
   a. Prioritize and assign work to the Instrument Engineer.
   b. Regularly assess performance and provide coaching and mentoring to Instrument Engineer.
   c. Handle all aspects of administrative supervision (time and pay matters, HR policy implementation, recruitment, etc.)

6. Coordinate, maintain, improve and develop documentation and procedures for items such as instrument cryogenic procedures, instrument configuration changes and checkout, common instrument troubleshooting procedures, instrument preventative maintenance procedures, and instrument spare parts inventory to assure appropriate documentation is maintained and available when needed.

7. Coordinate maintenance and improvement of instrument support facilities at the summit, including summit instrument laboratory, instrument spare parts stores, slit mask milling machine, vacuum pumping equipment, and cryogenic storage dewars and related transfer lines to assure these facilities properly support instrumentation needs.

8. For new instruments, review support needs imposed in terms of standard re-configurations, preventive maintenance schedules, required interfaces, and troubleshooting; review existing and planned documentation and engineering drawings, especially from a support and maintenance perspective; and assist with commissioning activities and integration of new instruments into observatory systems to support operation of facility and visiting instruments.

9. Lead the utilization of maintenance management system to institute routine maintenance tasks to enhance instrumentation reliability. Assist the technicians, as they need, with questions/concerns regarding these maintenance tasks.

10. Drive WMKO vehicles as necessary to transport employees and materials to and from the summit in a safe manner.

11. Work effectively with coworkers and others by sharing ideas in a constructive, positive manner; listening to and objectively considering ideas and suggestions from others; keeping commitments; keeping others informed of work progress and issues; addressing problems and issues constructively to find mutually acceptable and practical solutions; and respecting the diversity of the WMKO workforce in actions, words, and deeds.

12. Maintain commitment to a high standard of safety, comply with all safety laws and WMKO safety policies/rules, and report actual and potential safety violations to appropriate supervisory or management personnel to further WMKO’s core value of safety.
13. Participate in engineering team meetings. Collaborate with engineering peers from across all
disciplines to work collaboratively to investigate and correct chronic deficiencies. Assess
performance relative to specifications for all facility class instruments.


15. Participate in the development of new capabilities by providing operations-based feedback during the
design, development, installation, and commissioning stages.

16. Participate in the long range planning process for the Observatory:
   a. Maintain a conceptual list of projects for the next 5 years important to enhance the
      performance and reliability of facility instrumentation.
   b. Collaborate in the development of annual budget and plans. In accordance with the long
      range plan, recommend annual plan projects necessary to enhance the performance and
      reliability of instrumentation. Create budget and schedule estimates for these projects for
      leadership review. Collaborate with peers and OID management to review all proposed
      projects with a department-wide perspective to select projects which provide the greatest
cost/benefit ratio for the department as a whole.

17. Support night-time staff by providing telephone support and assistance, as necessary.

18. Perform other duties consistent with the scope of the position as specified by his/her Supervisor.

Minimum Qualifications:

Education and Experience

1. Education -- Bachelor of Science degree in engineering or physics.
2. Experience -- Five years' relevant work experience.

Skills

1. Good supervisory skills.
2. “Hands-on” expertise and general safe-handling practices with scientific instrumentation.
3. Experience with analog and digital electronics, particularly motor control electronics, fiber
   optics communications, opto-mechanical assemblies, and associated software.
4. Experience with cryogenic dewars, open and closed-cycle cryogenic assemblies and
   procedures.
5. Experience with high vacuum pumping equipment and procedures.
6. Experience in problem solving, documentation, testing and troubleshooting of complex
   electronic and mechanical systems.
7. Ability to use hand and power tools effectively.
8. Familiarity with use of computer systems and software, preferably with some formal training.
9. Ability to work independently and as part of a team.
10. Strong organizational and communication skills.
11. Ability to write effective documentation.
12. Ability to create assembly and schematic drawings.
13. Problem solving—the individual identifies and resolves problems in a timely manner and
    gathers and analyzes information skillfully.
14. Interpersonal Skills—the individual maintains confidentiality, remains open to others’ ideas and
    exhibits willingness to try new things.
15. Oral communication—the individual speaks clearly and persuasively in positive or negative
    situations, demonstrates group presentation skills and conducts meetings.
16. Written Communication—the individual edits work for spelling and grammar, presents
    numerical data effectively and is able to read and interpret written information.
17. Planning/organizing—the individual prioritizes and plans work activities, uses time efficiently
    and develops realistic action plans.
18. Quality control—the individual demonstrates accuracy and thoroughness and monitors own
    work to ensure quality.
19. Adaptability—the individual adapts to changes in the work environment, manages competing
    demands and is able to deal with frequent change, delays or unexpected events.
20. Dependability—the individual is consistently at work and on time, follows instructions, responds to management direction and solicits feedback to improve performance.

21. Safety and security—the individual actively promotes and personally observes safety and security procedures, and uses equipment and materials properly.

Other Requirements
2. Willingness to stay current with changing technology.
3. Flexibility to work varying schedules, including nights, weekends, holidays, and may work over 40 hours per week.
4. Successful completion of high-altitude physical.
5. Ability to work effectively at 14,000 feet altitude.
6. Ability to maintain a supervisor’s demeanor at all times, and particularly when under pressure.
7. Valid Hawaii driver’s license.

Desirable Qualifications:
1. Master of Science Degree in engineering or physics
2. Previous experience in an astronomical observatory environment
3. Experience maintaining and operating scientific instrumentation at an astronomical observatory
4. Experience designing or developing scientific instrumentation utilizing delicate optomechanical devices and sensitive detectors operating under high-vacuum at cryogenic temperatures
5. Experience using Unix and C
6. Experience with electronic-based design and development software, such as AutoCAD, Solid Works, Inventor, Visio, schematic capture software, and PCB design
7. Experience with image analysis tools and web-based documentation tools
8. Handling and cleaning of optics up to 1 meter
9. Experience with machine tools, such as lathes and mills, preferably with CNC capabilities

Working Conditions:
1. Typically sits for extended periods at a computer workstation.
2. Must be able to see, hear, touch, feel, lift (up to 20 lbs.) and stand for short periods of time.
3. Will work at the Observatory (14,000 feet elevations) in cold conditions on a frequent basis.

PAY AND BENEFITS:
WMKO offers a competitive salary and benefits package commensurate with qualifications and experience.

PHYSICAL DEMANDS:
The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly required to sit. The employee frequently is required to use hands, hands to finger, handle, or feel objects, tools or controls and talk or hear. The employee is occasionally required to stand; walk; reach with hands and arms; and stoop, kneel, crouch or crawl. The employee must frequently lift and/or move up to 30 pounds and occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, color vision, depth perception and the ability to adjust focus.

SPECIAL REQUIREMENTS:
Employment is contingent upon successfully passing an employee reference check, criminal background check and a five year motor vehicle history check. This is an exempt position under FSLA regulations.
AT WILL EMPLOYMENT:

I understand that if employed, I am employed AT WILL and that no contract between myself and this employer is created by my completion of this application, my receiving employment, my continued employment or my receiving benefit of employment of any type. No promises of any form or nature have been made to me, no guarantee of any length of employment is or shall be binding on this Employer, unless in writing. I reserve the right to terminate my employment at any time and the Employer has the same right at any time.

I agree to physical or other testing when such testing is reasonably necessary in determining job related abilities or reasonable expectation of successfully performing the job to the Employer’s standards.

This job description does not constitute an employment agreement between the Employer and employee, and is subject to change as the needs of the Employer and requirements of the job change.

The statements contained herein reflect general details as necessary to describe the principal functions of this job, the level of knowledge, and skill typically required and the scope of responsibility but should not be considered an all inclusive listing of work requirements. Individuals may perform other duties as assigned including work in other functions areas to cover absences or relief, to equalize peak work periods or otherwise to balance the work load.

Incumbent ________________  Date ________________  Supervisor ________________  Date ________________