INSTRUMENT TECHNICIAN

POSITION TITLE: Instrument Technician
DEPARTMENT: Operations and Infrastructure
REPORTS TO: Instrument & Optics Supervisor
FLSA STATUS: Non-Exempt

POSITION DESCRIPTION

SUMMARY:
Under the general supervision of the Instruments and Optics Support Supervisor, and working in close collaboration with instrument engineers and support astronomers, this position is responsible for technical support of facility astronomical instrumentation on the summit. This position includes an assignment of primary responsibility to all facility Instruments. In addition this position may include working in the general areas of adaptive optics, interferometer, laser, telescope, and other optical systems as needed. The ideal candidate is committed to WMKO’s core values, adheres to company policy, works well with others and is a motivated, self-starter who can handle multiple tasks and priorities within a fast paced environment.

ESSENTIAL FUNCTIONS:

1. Participate in the technical support of facility instrument electronic, mechanical, and optical systems. This includes but is not limited to activities such as fabrication, installation, optical alignment, calibration, maintenance, troubleshooting and repair, so that they are in good operating condition, available for observing, and safe. The Instrument Technician will primarily be assigned (as required) to some or all of the following:
   a. Facility Instruments:
      i. DEIMOS
      ii. ESI
      iii. HIRES
      iv. LRIS
      v. MOSFIRE
      vi. NIRC2
      vii. NIRSPEC
      viii. OSIRIS
      ix. Any future instruments
   b. Engineering Instruments
      i. Phasing Cameras
      ii. Star-Stacking Cameras
   c. Instrument support and maintenance equipment
      i. CCR systems
      ii. Liquid Cryogens
      iii. Cryogen lines
      iv. Vacuum pump stations
      v. Leak checker
      vi. Slit mask mill
   d. Optical Systems/Instrumentation
      i. Adaptive Optics
      ii. Dye laser
      iii. Solid state laser

2. Perform and/or oversee troubleshooting and maintenance necessary to keep observing instruments operating at their peak efficiency on a daily basis.
3. Perform and/or oversee modifications to improve performance or operating efficiency of observatory instruments.

4. Fabricate and modify electronic/electrical assemblies as required, using industry standard practices, according to schematic drawings or other documentation generated by engineers to make assemblies available when needed.

5. Perform shop maintenance, which includes repair, maintenance and calibration of test equipment, procurement of supplies and spare parts, maintenance of catalog and instruction manual files, etc., to assure parts, supplies, and literature are available when needed. Perform design changes to equipment according to schematic drawings or other documentation generated by engineers.

6. Update documentation of all types: schematic diagrams, wiring diagrams, maintenance logs, instruction manuals, etc., to keep documentation ready for use as needed.

7. Participate, as required, in nightly laser guide star operations, including but not limited to:
   a. Preparing the laser(s) for nightly observing
   b. Monitoring and trouble-shooting laser performance through afternoons and into commencement of observing
   c. Providing on-call support for laser during nightly operations.

8. Participate, as backup, in daily telescope operations support activities on the summit including, but not limited to:
   a. Telescope configuration
   b. Instrument configuration
   c. Dome configuration
   d. Slit mask milling
   e. Cryogenic servicing
   f. Telescope and instrument checkout and startup
   g. Other duties consistent with preparing the facility for that night’s observing.

9. Keep supervisor informed of progress, problems and concerns related to the observatory; provide status reports as required and accept priorities as assigned.

10. Under the guidance of the supervisor and the Summit Lead, collaborate with other summit technicians to create an efficient, effective and unified work environment based on the principles of teamwork and mutual responsibility for shared objectives.

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

12. Remove snow and ice as required to make the facility accessible, operational and safe.

13. 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.

14. 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.

15. Provide deputy support for the Instruments and Optics Support Supervisor when required and perform any other duties consistent with the scope of the position as specified by supervisor.

**Minimum Qualifications:**

**Education and Experience**
1. AS Degree in Electronics or Engineering degree or equivalent.
2. 3 years experience in highly-technical or science operations environment
3. Experience and ability working around complex and sensitive optics and instrumentation
4. Experience in at least one of the following three areas:
   a. Operation and maintenance of vacuum dewars.
   b. Cryogen systems (liquid and/or closed cycle).
   c. Handling, alignment, and maintenance of optics

Skills
1. Knowledge of modern electronics technology including analog and digital integrated circuits, computer electronics, and computer communications.
2. Knowledge of the methods, materials, and tools used in the fabrication, construction, maintenance, and repair of electrical and electronic equipment.
3. Knowledge of the operation and uses of electronic test equipment, including oscilloscopes, analyzers, pulse and function generators, power supplies, etc.
4. Ability to read complex electronic schematics and analyze and design general purpose analog and digital circuits.
5. Basic computer skills with office productivity software for e-mail, word processing and spreadsheets.
6. Problem solving—the individual identifies and resolves problems in a timely manner and gathers and analyzes information skillfully.
7. Interpersonal Skills—the individual maintains confidentiality, remains open to others’ ideas and exhibits willingness to try new things.
8. Oral communication—the individual speaks clearly and persuasively in positive or negative situations, demonstrates group presentation skills and conducts meetings.
9. Written Communication—the individual edits work for spelling and grammar, presents numerical data effectively and is able to read and interpret written information.
10. Planning/organizing—the individual prioritizes and plans work activities, uses time efficiently and develops realistic action plans.
11. Quality control—the individual demonstrates accuracy and thoroughness and monitors own work to ensure quality.
12. 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.
13. Dependability—the individual is consistently at work and on time, follows instructions, responds to management direction and solicits feedback to improve performance.
14. Safety and security—the individual actively promotes and personally observes safety and security procedures, and uses equipment and materials properly.

Desirable Qualifications
1. Experience working at an astronomical observatory
2. Instrumentation experience at an astronomical observatory.
3. Electronics design experience
4. Experience using Unix.
5. Experience working with lasers.

Other Requirements
1. Valid Hawaii’s driver’s license.
2. Successful completion of high altitude physical and continuing ability to work effectively at 14,000 foot altitude.
3. Willingness to commit to CARA core and cultural values.
4. Ability to work varying schedules including weekdays, weekends, holidays and occasional evening hours.

Working Conditions:
1. Work at the Observatory (14,000 feet elevation) on a frequent basis.
2. Must be able to see, hear, touch, feel, sit and stand, and lift (up to 40 lbs.) for short periods of time.
3. May sit for extended periods at a computer workstation.

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 20 pounds and occasionally lift and/or move up to 40 pounds. Specific vision abilities required by this job include close vision, color vision, depth perception and the ability to adjust focus. Must be able to work at high altitude.

**SPECIAL REQUIREMENTS:**

Employment is contingent upon successfully passing an employee reference check, criminal background check, a five year motor vehicle history check and high altitude physical. This is a non-exempt position under FSLA regulations.

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.