



**W. M. KECK OBSERVATORY**  
On the summit of Mauna Kea, Island of Hawai'i

## **ELECTRONICS ENGINEER**

Would you like to be a valued member of a high-performance can-do engineering team that is responsible for two of the world's largest and most scientifically ground-breaking telescopes while enjoying a comprehensive benefits package and residing in one of the world's most uniquely beautiful and diverse locations?

The W.M. Keck Observatory, which operates two optical/infrared telescopes at the summit of 13,796 foot Mauna Kea, with headquarters in Kamuela on the Big Island of Hawaii, is seeking a highly-motivated and broadly skilled Electronics Engineer who thrives in a challenging fast-paced technical environment where teamwork and communications are essential skills. You will be on a multi-disciplinary engineering team that operates, maintains, optimizes and improves high-technology systems at the observatory including telescope controls, primary mirror controls, astronomical instrumentation, adaptive optics and more. To learn more, please see our website at [www.keckobservatory.org](http://www.keckobservatory.org). EEO/M/F/D/V

## **POSITION DESCRIPTION**

<b>POSITION TITLE:</b> Electronics Engineer	<b>DEPARTMENT:</b> Operations & Infrastructure (OID)
<b>INCUMBENT:</b> Vacant	<b>FLSA STATUS:</b> Exempt
<b>REPORTS TO:</b> Control Systems Lead Engineer	<b>MEMBER:</b>
<b>SUPERVISES:</b> None	

### **SUMMARY:**

Responsible for operations, improvement, maintenance and revision of electronic control systems at the observatory such as telescope control, primary mirror control, instrumentation, adaptive optics and other miscellaneous systems. Perform system upgrades and improvements, including design, project management, fabrication and installation. Participate in the planning, installation and transition into operations of newly developed capabilities. Desired competencies include: sound electronics engineering and design skills, and demonstrated ability to plan and manage electronics and electro-mechanical systems projects. Ideal candidate should have excellent electronics engineering and should be a motivated self-starter who can manage multiple projects and priorities within a fast paced environment.

### **ESSENTIAL FUNCTIONS:**

1. Direct repair efforts on failed or malfunctioning systems. Troubleshoot to determine cause of fault and provide guidance to mitigate future faults.
2. Perform engineering changes to correct and/or improve performance, and ensure documentation is accurate and complete.
3. Specify preventative maintenance procedures to ensure proper telescope system performance.
4. Plan and schedule maintenance and project tasks to ensure timely completion. Maintain prioritized queue of items in work to optimize telescope availability.
5. Assess, formulate a plan for, then mitigate catastrophic risks such as equipment obsolescence and design or procedural flaws that could lead to excessive downtime.
6. Implement improvements to systems or operational procedures that lead to more efficient operations and/or cost savings.
7. Design and implement telescope system upgrades and improvements including conceptual and detailed design, fabrication, integration and testing of telescope systems and subsystems.

Perform project management, subcontract and vendor management. Technical skills required for upgrades and improvements includes, but is not limited to:

- a. Design analysis and testing of analog and discrete servo systems.
  - b. System integration of complex motion control, sense, controller and software systems, including device and computer interconnections and real-time control.
  - c. Knowledge of optical systems including image sensors and controllers.
  - d. Proficiency in schematic capture and printed circuit board layout.
8. Train technicians in the operation of telescope systems and equipment; including motion control, computer interfaces, image detectors, data collection, accepted engineering practices, documentation and configuration control.
  9. Provide status reports as required to keep Control Systems Lead Engineer informed of progress, problems, and concerns.
  10. Available to work flexible hours at headquarters and summit, including weekends and occasional evenings. Available for on-call engineering support on nights, weekends and holidays.
  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.

**OTHER DUTIES:**

1. Drive WMKO vehicles as necessary to transport employees and materials to and from the summit in a safe manner.
2. Perform other duties consistent with the scope of the position.

**Minimum Qualifications:**

*Education and Experience*

1. Bachelor of Science in Electrical Engineering.
2. Five years of work experience performing design and documentation, analysis, testing and troubleshooting of electronics systems.
3. Experience in problem solving, managing and using data analysis independently and a member of a team.

*Skills*

1. Working knowledge of control systems, analog and discrete servo systems, system grounding techniques, communications, electro-mechanical and electro-optical systems.
2. Familiarity with optical, mechanical, and software systems.
3. Design capability in motion control, analog and digital electronics, computer interface electronics, and real-time systems.
4. Computer literacy, including experience in system modeling, data collection and analysis techniques, using software tools such as IDL, MATLAB, SPICE, LABVIEW.
5. Ability to script in a UNIX environment.
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 a willingness to try new things.
8. Oral communication – the individual speaks clearly and persuasively in a variety of situations.
9. Written communication – the individual edits work for spelling and grammar, present 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.

*Other Requirements*

1. Willingness to commit to WMKO core and cultural values. Core Values: Safety, Integrity, Respect, Discovery and Service. Cultural Values: Education, Learning, Communication, Teamwork, Rewarding Work Environment, Excellence and Community Involvement.
2. Successful completion of a high altitude physical.
3. Valid driver's license.
4. Ability to work effectively at 14,000' altitude.

**Desirable Qualifications:**

1. Previous experience in observatory environment.
2. Previous experience working in an operations environment.
3. Strong control theory background.
4. Experience with astronomical instrumentation and/or adaptive optics.
5. Project management experience running mid-sized projects.
6. Previous supervisory, management or leadership experience.

---

**Incumbent**

---

**Date**

---

**Supervisor**

---

**Date**