



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

**ELECTRONICS ENGINEER  
TECHNICAL SERVICES DEPARTMENT**

The W. M. Keck Observatory operates the world's two largest optical/infrared telescopes located on the summit of Mauna Kea on the Big Island of Hawaii. The Observatory is seeking an Electronics Engineer to develop new observatory capabilities and for upgrades to existing observatory infrastructure. Ideal candidate should be a motivated self-starter who can manage multiple projects and priorities within a fast paced environment.

Qualifications include a Bachelor of Science degree in Electrical Engineering, sound electronics engineering, design and documentation skills, demonstrated ability to plan and manage electronics and electro-mechanical systems projects, experience in troubleshooting of electronics and electromechanical systems, strong understanding of analog and digital electronics, noise, shielding and grounding principles, techniques for mitigating EMI/RFI and data communications, design capabilities in motion control, computer interface electronics and real-time control systems. Project management, document control, and knowledge of electronics and electrical engineering standards are highly desirable.

This is a regular position with a competitive, comprehensive benefits package including relocation assistance and private school (K-12) tuition support for dependent children. Salary is dependent upon qualifications and experience. The position is opened until filled. Employment is conditional on successful completion of drug tests and background check. Mail or fax resumes, references, and salary history to: Electronics Engineer, WMKO, 65-1120 Mamalahoa Highway, Kamuela, HI 96743; Fax (808) 881-3696 or [employment@keck.hawaii.edu](mailto:employment@keck.hawaii.edu). Additional information about WMKO and this position may be found on our web site at [www.keckobservatory.org](http://www.keckobservatory.org). EEO/M/F/D/V

**POSITION DESCRIPTION**

<b>POSITION TITLE:</b> Electronics Engineer	<b>DEPARTMENT:</b> Technical Services
<b>INCUMBENT:</b>	<b>FLSA STATUS:</b> Exempt
<b>REPORTS TO:</b> TSD Senior Engineer	<b>MEMBER:</b>
<b>SUPERVISES:</b> N/A	

**SUMMARY:**

Under the general supervision of the Technical Services Department (TSD) Senior Engineer this position provides electronics and electrical engineering support to develop new observatory capabilities and for upgrades to our existing observatory infrastructure. Desired competencies include: sound electronics engineering and design skills, documentation skills, troubleshooting of electronics and electromechanical systems, industrial control systems experience, understanding of analog and digital electronics, data communications and computer interface electronics. The ideal candidate should be a motivated self-starter who can manage multiple projects and priorities within a fast paced environment.

**ESSENTIAL FUNCTIONS:**

1. Provide electronics engineering, design, and implementation support to develop new observatory capabilities and for upgrades to existing observatory infrastructure in the areas of electronics and electro-mechanical systems.
2. Develop and adhere to accepted observatory standards for electronics design. Seek operational data and operations-based feedback during the design and implementation phases of projects for effective transition to operations phase and reliable long term operations. Provide comprehensive and useful documentation and assures delivery of adequate spares for efficient long-range operations.

3. Design, plan and implement equipment changes to improve performance or solve problems encountered to optimize available equipment for observatory applications.
4. Investigate and develop solutions to chronic performance and reliability problems within existing equipment or system constraints.
5. Prepare detailed designs including drawings from conceptual designs or problem descriptions and prepare specifications for and locate vendors of appropriate equipment to assure adequate equipment and systems are available when needed.
6. Coordinate the electronic interfacing of new instrumentation to observatory infrastructure to assure the requirements of the instrument and the observatory are met.
7. Generation of test plans to integrate and verify electronic system assemblies and sub-systems in accordance to compliance matrices.
8. Train and mentor operators and technicians in the proper use of equipment or systems and become aware of limitations and implications of inter-system performance to assure systems and equipment perform to expectations.
9. Following accepted observatory standards, provide detailed documentation on new designs and modifications including Engineering Change Notices to assure documentation is available when needed for consultation or training.
10. Provide status reports as required to keep TSD Senior Engineer informed of progress, problems, and concerns.
11. Available for on-call engineering support on nights, weekends and holidays.
12. 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.
13. 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. Provides technical and project management oversight of contractor-performed hardware design, fabrication, installation, troubleshooting, repair and testing of observatory systems to assure results meet WMKO specifications.
2. Drive WMKO vehicles as necessary to transport employees and materials to and from the summit in a safe manner.
3. Perform other duties consistent with the scope of the position.

#### **Minimum Qualifications:**

##### *Education and Experience*

1. Bachelor of Science in Electrical Engineering or equivalent
2. Two years of work experience performing design and documentation, analysis, fabrication, test, and troubleshooting of electronics and electromechanical systems.
3. Experience in problem solving, and using data analysis and reduction utilities (technical computing, spreadsheet, plotting and database software).
4. Engineering process and configuration management experience.
5. Excellent written and oral communication skills.
6. Ability to work independently and as a member of a team.

##### *Skills*

1. Strong understanding of analog and digital electronics, techniques for mitigating EMI/RFI, data communications, electro-mechanical and electro-optical systems.
2. Proficiency in schematic capture and printed circuit board layout.
3. Design capabilities in motion control, analog and digital electronics, computer interface electronics, and real-time control systems.
4. Computer literate, including proficiency in system modeling, data collection and analysis techniques, using software tools such as IDL, MATLAB, SPICE, LABVIEW.
5. Experience with industrial PLC systems.
6. Collaborate effectively across disciplines. This includes working with software, mechanical and optics engineers, operations-based technicians, as well as scientists at the observatory.
7. Take ownership and responsibility for assigned subsystems.
8. Ability to evaluate information and exercise good judgment in making decisions. Engages stakeholders' in arriving at solutions.
9. Problem solving—the individual identifies and resolves problems in a timely manner and gathers and analyzes information skillfully.
10. Interpersonal Skills—the individual maintains confidentiality, remains open to others' ideas and exhibits willingness to try new things.
11. Oral communication—the individual speaks clearly and persuasively in positive or negative situations, demonstrates group presentation skills and conducts meetings when assigned.
12. Written Communication—the individual edits work for spelling and grammar, presents numerical data effectively and is able to read and interpret written information. Ability to generate high-quality written documentation for technical proposals and management reports.
13. Planning/organizing—the individual prioritizes and plans work activities, uses time efficiently and develops realistic action plans. Is effective in communicating plans to stakeholders.
14. Quality control—the individual demonstrates accuracy and thoroughness and monitors own work to ensure quality.
15. 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.
16. Dependability—the individual is consistently at work and on time, follows instructions, responds to management direction and solicits feedback to improve performance.
17. 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. Willingness to stay current with changing technology.
3. Willingness and ability to work some nights and weekends.
4. Valid driver's license.
5. Ability to work effectively at 14,000' altitude.
6. Successful completion of high altitude physical.

**Desirable Qualifications:**

1. Experience in project management and reporting.
2. Master's Degree in Electrical Engineering.
3. Ability to script and program in a UNIX/Linux environment.
4. Understanding of optical, mechanical, and software systems.
5. Experience in design and troubleshooting of power and power distribution systems.
6. Experience in design and troubleshooting of cryogenic control systems
7. Previous experience with instrumentation and control systems in an observatory environment.
8. Experience designing systems for high-reliability, low down-time science-based or industrial operations.
9. Understanding of top level scientific requirements and the ability to flow down requirements to lower levels.
10. Cognizant of industry standards such as ISA, IEC, ANSI, NEMA, NEC, OSHA, DoD, and IEEE.

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 Incumbent

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 Date

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 Supervisor

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 Date