



Transportation Engineer (Electrical)

Agency Code: 4499 - Exam Code: OTR42 - Class Code: 3609

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| Department(s): | Department of Transportation |
| Opening Date: | 9/21/2009 12:50:00 PM |
| Final File Date: | Continuous |
| Type of Examination: | Departmental Open |
| Salary: | MONTHLY-RANGED-SALARY - \$4,998-\$9,361 |
| Tenure/Time-base: | Permanent Full-time Permanent Part-time Permanent Intermittent Limited Term Full-time Limited Term Part-Time Limited Term Intermittent |
| Exam Type: | State-wide |

EQUAL EMPLOYMENT OPPORTUNITY

The State of California is an equal opportunity employer to all, regardless of age, ancestry, color, disability (mental and physical), exercising the right of family care and medical leave, gender, gender expression, gender identity, genetic information, marital status, medical condition, military or veteran status, national origin, political affiliation, race, religious creed, sex (includes pregnancy, childbirth, breastfeeding and related medical conditions), and sexual orientation.

DRUG-FREE STATEMENT

It is an objective of the state of California to achieve a drug-free state work place. Any applicant for state employment will be expected to behave in accordance with this objective because the use of illegal drugs is inconsistent with the law of the state, the rules governing civil service and the special trust placed in public servants.

WHO SHOULD APPLY?

Applicants who meet the Minimum Qualifications as stated on this bulletin may apply for and take this Training and Experience Questionnaire at any time.

Once you have taken the Training and Experience Questionnaire, you may not retake it for 6 months.

SPECIAL TESTING ARRANGEMENTS

If you have a disability and/or need special testing arrangements you will be able to request a reasonable accommodation during the filing and self-scheduling process.

If you have questions, please contact:

California Department of Human Resources Selection Division
1-866-844-8671

California Relay Service (7-1-1)

Telecommunications Device for the Deaf (TTY) (916) 654-6336

TTY is a telecommunications device that is reachable only from phones equipped with a TTY device.

ELIGIBLE LIST INFORMATION

An open merged eligible list will be established for the California Department of Transportation. The names of successful competitors will be merged onto the eligible list in order of final score regardless of test date. Eligibility expires twelve (12) months after it is established. Competitors must then test again to reestablish eligibility. Competitors may also retest after six (6) months of the date that established their list eligibility.

REQUIREMENTS FOR ADMITTANCE TO THE EXAMINATION

It is your responsibility to make sure you meet the education and/or experience requirements stated below.

Graduates in electrical, electronic, or computer engineering from a non-ABET accredited college or university will be required to pass a written test prior to taking the examination.

If you have any questions concerning how to take the written test, please contact Department of Transportation at 916-227-7858.

MINIMUM QUALIFICATIONS

EITHER I

Graduation from a four-year curriculum in electrical, electronic or computer engineering accredited by the Accreditation Board for Engineering Technology (ABET). (Registration as a Senior in such a curriculum will admit an application to the competition, but he/she must produce evidence of graduation before he/she will be considered eligible for appointment.) (Possession of a valid certificate as an Engineer-in-Training issued by the California State Board of Registration for Professional Engineers and Land Surveyors, or issued by another jurisdiction and accepted by the California Board in lieu of the first division of the examination as an electrical engineer may be substituted for the required education.)

OR II

Possession of equivalent qualifications may be demonstrated by graduation from an engineering curriculum which includes the basic electrical, electronic and computer engineering courses normally covered in a standard four-year engineering curriculum, and by qualifying in a written examination covering basic electrical and electronic engineering. (Registration as a Senior in such a curriculum will admit an applicant to the qualifying examination, but he/she must

produce evidence of graduation before he/she will be considered eligible for appointment.)

OR III

A master's or doctorate degree in an electrical, electronic or computer engineering curriculum from a college or university that has a baccalaureate degree program in an electrical, electronic or computer engineering curriculum which is accredited by Accreditation Board of Engineering Technology (ABET). (Registration as a candidate in such a curriculum will admit an applicant to the competition but he/she must produce evidence of graduation before he/she will be considered eligible for appointment.)

POSITION DESCRIPTION

A Transportation Engineer (Electrical) performs, or assists in performing electrical or electronic design, and electrical and electronic construction and maintenance inspections, specification preparation and estimating for highway systems, such as traffic management, signal and lighting and transportation-related facilities (such as moveable bridges, drainage pumping plants, vehicular tunnels, safety roadside rest areas, maintenance stations, truck weigh and inspection stations, and toll plazas), and associated electrical and electronic systems (such as cathodic and stray current protection, power and power distribution, indoor and outdoor lighting, aids to navigation, and other traffic management and facilities-related electrical and electronic systems) using state-of-the-art technology, i.e., Computer-Aided Drafting/Design (CADD) and personal computers. Some positions may require incumbents to work at considerable heights above the ground.

The Transportation Engineer's (Electrical) assignment within the Department of Transportation will be in one of three major program areas:

TRAFFIC OPERATIONS: Incumbents review traffic and project reports; prepare plans, specifications and estimates of traffic control and highway lighting systems; prepare studies of the physical characteristics of traffic intersections, including channelization, obstructions and potential conflict areas; analyze traffic flow and accident data; prepare timing for new traffic control systems; adjust timing and review the operation of existing traffic control systems; develop strategies and software for traffic control equipment using mini-computers and microprocessors; investigate problems in transportation electrical systems and recommend solutions; inspect and review electrical installations during and after construction; assist in the evaluation and development of new electrical and electronic traffic control and lighting equipment; review and consolidate field reports; prepare contract documents; and assist district offices in the preparation of plans, specifications, and estimates; and prepare correspondence and reports.

STRUCTURES: Incumbents review plans and prepare plans, specifications and cost estimates of electrical systems; prepare material lists for electrical layouts and requisitions for the purchase of electrical materials and components; inspect construction, maintenance, and repairs; check electrical shop plans and details and contractors' lists of equipment and construction details; test completed work for compliance with contract specifications; as required, may act as a lead worker and review the reports of other Transportation Engineers' (Electrical); and prepare correspondence and reports.

NEW TECHNOLOGY: Incumbents prepare research proposals; investigate applications of new technology; conduct research; perform statistical analysis on research data and make recommendations on implementation and monitor research projects; make engineering studies of current methods of materials testing (including operational requirements and procedures, service demands, equipment needs, and cost analysis); perform the design and development of automated data acquisition systems; perform field tests and collect data; perform design, development, and testing of new electronic equipment; may act in a lead capacity for specification compliance testing, research, or instrumentation; analyze and evaluate test data and correlate individual test results; make presentations; and prepare correspondence and reports.

EXAMINATION INFORMATION

Training and Experience Questionnaire - 100%

All candidates will be required to complete a Training and Experience Questionnaire. The Questionnaire is designed to elicit specific information regarding each candidate's training and experience relevant to the Transportation Engineer (Electrical) classification. The information on the Training and Experience Questionnaire will be competitively assessed based on pre-determined rating criteria.

The Training and Experience Questionnaire measures the following areas determined to be important for success on the job.

- Computer Skills
- Written Skills
- Engineering Skills
- Technical Skills
- Interpersonal Skills
- Speaking Skills

In addition, there are questions regarding work experience in jobs similar to Transportation Engineer (Electrical), personal characteristics, and work performance.

KNOWLEDGE AND ABILITIES

Knowledge of: Computer theory and operation, including state-of-the-art technology, e.g., CADD, personal computers, stand-alone interactive systems and various technical aids; mathematics related to electrical engineering; theory principles, standard practices, techniques and methods used in electrical, electronic and computer engineering; modern electrical apparatus, communications, instrumentation; direct and alternating current circuits; methods, materials, tools and equipment used in electrical, electronic or computer work; various codes; basic occupational safety and health regulations governing the design and installation of electrical and electronic equipment, including the National Electric Code and Title 8 Industrial Relations, Electrical Safety Orders of the Division of Occupational Safety and Health.

Ability to: Do electrical or electronic design work; make neat and accurate drawings and technical sketches; use state-of-the-art technology, i.e., CADD, personal computers, stand-alone interactive systems and various technical aids; make electrical calculations; inspect electrical installations; specify necessary equipment and materials; accurately interpret drawings, circuit diagrams and specifications; read and understand highway plans, drawings and field data which relate to transportation and traffic management-related electrical and electronic systems and installations; establish and maintain friendly and cooperative relations with those contacted during the course of inspections and other work; analyze situations accurately and take effective action; communicate effectively; originate correspondence and prepare effective reports.

VETERANS' PREFERENCE

Veterans' Preference will be granted for this examination. Effective January 1, 2014, in accordance with Government Codes 18973.1 and 18973.5, whenever any veteran, widow or widower of a veteran, or spouse of a 100 percent-disabled veteran achieves a passing score on an open examination, he or she shall be ranked in the top rank of the resulting eligibility list. This section shall not apply to any veteran who has been dishonorably discharged or released.

CAREER CREDITS

Career Credits will not be added to the final score of this examination, because it does not meet the requirements to qualify for Career Credits.

CONTACT INFORMATION

If you have any questions concerning this announcement, please contact:

The California Department of Human Resources Selection Division

1515 S Street, North Building, Suite 400

Sacramento, CA 95811-7258

1-866 844-8671

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GENERAL INFORMATION

Applications are available at www.jobs.ca.gov, CalHr offices, and local offices of the Employment Development Department.

If you meet the requirements stated on this examination bulletin, you may take this examination, which is competitive. Possession of the entrance requirements does not assure a place on the eligible list. Your performance in the examination described on this bulletin will be rated against a predetermined job-related rating, and all candidates who pass will be ranked according to their scores.

The California Department of Human Resources reserves the right to revise the examination plan to better meet the needs of the service, should the circumstances under which this examination was planned change. Such revision will be in accordance with civil service laws and rules, and all competitors will be notified.

Candidates needing special testing arrangements due to a disability must mark the appropriate box on the application and contact the testing department.

Hiring Interview Scope: In a hiring interview, in addition to the scope described in this bulletin, the panel will consider education, experience, personal development, personal traits, and fitness. In appraising experience, more weight may be given to the breadth and recency of pertinent experience, and evidence of the candidate's ability to accept and fulfill increasing responsibilities than to the length of his/her experience. Evaluation of a candidate's personal development will include consideration of his/her recognition of his/her own training needs; his/her plans for self-development; and the progress he/she has made in his/her efforts toward self-development. For more information, you may refer to the classification specification.

General Qualifications: Candidates must possess essential personal qualifications including integrity, initiative, dependability, good judgment, the ability to work cooperatively with others, and a state of health consistent with the ability to perform the assigned duties of the class. A medical examination may be required. In open examinations, investigation may be made of employment records and personal history, and fingerprinting may be required.

Eligible Lists: Eligible lists established by competitive examination, regardless of date, must be used in the following

order: 1) sub-divisional promotional, 2) departmental promotional, 3) multi-departmental promotional, 4) service-wide promotional, 5) departmental open, and 6) open. When there are two lists of the same kind, the older must be used first. Eligible lists will expire in one to four years unless otherwise stated on the bulletin.

Veterans' Preference: Effective January 1, 2014, in accordance with Government Codes 18973.1 and 18973.5, Veterans' Preference will be awarded as follows: 1) Any veteran, widow or widower of a veteran, or spouse of a 100 percent disabled veteran, who achieves a passing score in an entrance examination, shall be ranked in the top rank of the resulting eligibility list. Any veteran who has been dishonorably discharged or released is not eligible for Veterans' Preference. 2) An entrance examination is defined, under the law, as any open competitive examination. And 3) Veterans' Preference is not granted once a person achieves permanent civil service status.

Veteran status is verified by the California Department of Human Resources (CalHR). Directions to apply for Veterans' Preference are on the Veterans' Preference Application (Std. Form 1093), which is available at <http://jobs.ca.gov/Job/VeteransInformation>, and the Department of Veterans Affairs.

Bulletin Revision Date: 01/13/17

TAKING THE EXAM

When you click the link below, you will be directed to the Training and Experience Questionnaire. At the end of the Training and Experience Questionnaire, it will be instantly scored.

[Click here to go to the Training and Experience Questionnaire for Transportation Engineer \(Electrical\).](#)

FILING INSTRUCTIONS

Final Filing Date: Continuous