

**MICHIGAN CIVIL SERVICE COMMISSION
JOB SPECIFICATION**

ENGINEERING TECHNICIAN

JOB DESCRIPTION

Employees in this job participate in and oversee the performance of a variety of technical engineering support activities, including materials testing and inspection, and the collection, analysis, tabulation, and application of engineering data within specific work situations.

There are five classifications in this job.

Position Code Title – Engineering Technician-E

Engineering Technician 8

This is the entry level. The employee works in a learning capacity performing a range of engineering technician assignments under close supervision.

Engineering Technician 9

This is the intermediate level. The employee works in a developing capacity with increased responsibility for performing a range of engineering technician assignments.

Engineering Technician E10

This is the experienced level. The employee performs a full range of engineering technician assignments, and uses considerable independent judgment in making decisions requiring the interpretation and application of guidelines with considerable latitude to specific situations.

Position Code Title – Engineering Technician-A

Engineering Technician 11

This is the advanced level. The employee at this level serves either as a lead worker overseeing the work activities of other Engineering Technicians or as a senior worker performing the most complex engineering technician assignments. Senior-level employees perform complex assignments beyond those expected at the experienced level which have been approved by Civil Service.

Position Code Title – Engineering Technician-SS

Engineering Technician 12

This is the specialist level. The employee at this level serves as a staff specialist using specialized technical knowledge in performing highly complex engineering technician assignments involving authority for an assigned program. Staff specialist positions have sole and full time responsibility for their assigned program area, and are recognized through approval by Civil Service.

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NOTE: Employees generally progress through this series to the experienced level based on satisfactory performance and possession of the required experience.

JOB DUTIES

NOTE: The job duties listed are typical examples of the work performed by positions in this job classification. Not all duties assigned to every position are included, nor is it expected that all positions will be assigned every duty.

Takes samples and tests and inspects highway construction and maintenance materials to ensure conformance with required specifications.

Evaluates soils for road and foundation investigations and makes recommendations to project engineers for projects under construction.

Monitors asphalt plants to ensure pre-qualification and daily compliance of material with required specifications.

Conducts soil and/or rock borings to define foundation and other subsurface conditions.

Conducts laboratory and field tests to determine the physical properties of soils.

Conducts final materials' inspection reviews of completed projects to ensure that materials used on the project were adequately and properly tested within required frequencies, and that sufficient testing and inspection documentation has been maintained.

Observes and evaluates noise barriers, gathers data, and makes recommendations for improvements or design changes.

Tests and evaluates materials to be used in construction and maintenance work.

Inspects bridges, grade separations, and culverts to determine deterioration or damage that may affect structural integrity.

Checks road construction projects for frost heave and unstable soils in the sub grade and recommends necessary corrective treatment.

Prepares engineering drawings, charts, maps, specifications, legal descriptions, cost estimates, noncompliance notices, and relocation permits.

Performs mathematical calculations and statistical studies, and carries out related data reduction functions such as computing field notes.

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Coordinates details leading to the issuance or denial of construction permits.

Reviews and processes permit applications from state agencies, private businesses, and the general public to dredge, fill, or construct within the waters of the state; including the identifying of adverse effects of proposed construction and preparing written responses to applicants.

Reviews plats, flood plains, and other data and conducts onsite investigations to determine statutory compliance.

May work closely with local, state, and federal government officials, contractors, consultants, and public to provide expertise on permit requirements.

Prepares a variety of routine and specialized reports as required.

Performs related work as assigned.

Additional Job Duties

Engineering Technician 11 (Lead Worker)

Coordinates the work of lower-level Engineering Technicians by scheduling and overseeing work assignments.

Oversees and assures the quantity and quality of the work by requiring strict adherence to established methods and procedures.

Explains work instructions and adapts, if necessary, pertinent general methods and procedures in order to meet required needs.

Trains lower-level Engineering Technicians.

Engineering Technician 11 (Senior Worker)

Performs on a regular basis engineering technician activities which are recognized as the most complex.

Engineering Technician 12

Performs technician assignments involving responsibility for coordinating an assigned program department area.

Serves as recognized expert within program area, and provide technical assistance to other departmental staff.

JOB QUALIFICATIONS

Knowledge, Skills, and Abilities

NOTE: Some knowledge in the area listed is required at the entry level, developing knowledge is required at the intermediate level, considerable

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knowledge is required at the experienced level, thorough knowledge is required at the advanced level, and extensive knowledge is required at the specialist level.

Knowledge of paraprofessional engineering principles and practices as applied in the specific and related areas of specialization.

Knowledge of the application and enforcement of highway standards, specifications, and construction methods.

Knowledge of algebra, trigonometry, and mathematical tables used in the work.

Knowledge of the nomenclature and conventional symbols used in the work.

Knowledge of standard engineering instruments and their use.

Knowledge of practices followed in the preparation of plans.

Knowledge of subsurface investigation techniques.

Knowledge of methods of collecting hydrologic data.

Knowledge of topographic survey methods.

Knowledge of specification requirements for highway materials and construction.

Knowledge of highway advertising act and junkyard control.

Knowledge of highway right-of-way laws, regulations, and attorney general opinions.

Ability to conduct tests to ensure that construction materials conform with specifications.

Ability to read and interpret design and construction plans and specifications.

Ability to apply current standards, policies, and procedures to work projects.

Ability to conduct field investigations and prepare recommendations.

Ability to prepare various technical documents, such as plans, specifications, and cost estimates.

Ability to maintain records and prepare reports.

Ability to communicate effectively.

Ability to maintain favorable public relations.

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Additional Knowledge, Skills, and Abilities

Engineering Technician 11 (Lead Worker)

Ability to organize and coordinate the engineering support activities of a specific work area.

Ability to determine work priorities and assign work to employees.

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Ability to organize and carry out an assigned program.

Ability to adapt new technology and methods to increase program effectiveness.

Working Conditions

Work is performed in field locations and may require movement from one location to another, as well as exposure to working along busy highways and in adverse weather conditions.

Depending on seasonal workloads and/or agency need, employees of the Department of Transportation may be temporarily assigned some duties typical of other construction-related technician classifications. In such instances, credit for examination and employment list qualification purposes will be granted.

Physical Requirements

None.

Education

Possession of an associate's degree in civil technology.

Experience

Engineering Technician 8

No specific type or amount is required.

Engineering Technician 9

One year of experience equivalent to an Engineering Technician 8.

Engineering Technician E10

Two years of experience equivalent to an Engineering Technician, including one year equivalent to an Engineering Technician 9.

Engineering Technician 11

Three years of experience equivalent to an Engineering Technician, including one year equivalent to an Engineering Technician E10.

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Engineering Technician 12

Four years of experience equivalent to an Engineering Technician, including two years equivalent to an Engineering Technician E10 or one year equivalent to an Engineering Technician 11.

Alternate Education and Experience

Completion of 60 semester (90 term) credits including 8 semester (12 term)) credits of mathematics and 24 semester (36 term) credits in any combination of course work in at least three of the following areas: structures, materials, soils, hydrology, surveying, drafting/design, bituminous, concrete, aggregates, chemistry, physics, geology, environmental science, computer science, or thermodynamics may be substituted for the education requirement.

OR

Four years of experience equivalent to an Engineering Technician or Construction Technician may be substituted for the education requirement.

OR

Possession of a bachelor's degree or higher with 16 semester (24 term) credits in job-specific or related course work qualifies for the Engineering Technician E10 level.

Special Requirements, Licenses, and Certifications

Some positions are assigned job duties that may require possession of The Commercial Driver's License (CDL) issued by the Secretary of State as required by Public Act 346 of 1988 to operate a designated state vehicle.

NOTE: Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

JOB CODE, POSITION TITLES AND CODES, AND COMPENSATION INFORMATION

Job Code
ENGINRTCH

Job Code Description
Engineering Technician

Position Title
Engineering Technician-E
Engineering Technician-A
Engineering Technician-S

<u>Position Code</u>	<u>Pay Schedule</u>
ENGRTCHE	L32-006
ENGRTCHA	L32-012
ENGTCHSS	L32-013