O.11
WORK PROCESS SCHEDULE
OPERATING ENGINEER
O*NET-SOC CODE: 47-2073.00 RAPIDS CODE: 0872
ALTERNATE TITLES: UNIVERSAL EQUIPMENT;
ASPHALT-PAVING MACHINE OPERATOR

This trade schedule is attached to and a part of the Apprenticeship Standards for the above identified occupation. This sequence of Related Classroom Instruction is competency based and will be offered as traditional classroom training or independent study, which may include electronic media.

1. TERM OF APPRENTICESHIP

The term of the occupation shall be four (4) years with an OJL attainment of 8,000 hours supplemented by the required hours of related technical instruction.

2. RATIO OF APPRENTICES TO JOURNEYPERSONS

One (1) Apprentice to six (6) Journeypersons: one apprentice for the first skilled journeyperson employed, and one additional apprentice for each six (6) additional skilled journeypersons employed thereafter. A fraction-there-of will be adhered to.

3. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on a percentage of the current journeyperson wage rate.

Term: 8,000 Hours

East	**West**
1st 1000 hours = 55 % of journeyperson's rate	1st 2000 hours = 60 % of journeyperson's rate
2nd 1000 hours = 60 % of journeyperson's rate	2nd 2000 hours = 70 % of journeyperson's rate
3rd 1000 hours = 65 % of journeyperson's rate	3rd 2000 hours = 80 % of journeyperson's rate
4th 1000 hours = 70 % of journeyperson's rate	4th 2000 hours = 90 % of journeyperson's rate
5th 1000 hours = 75 % of journeyperson's rate	
6th 1000 hours = 80 % of journeyperson's rate	
7th 1000 hours = 85 % of journeyperson's rate	
8th 1000 hours = 90 % of journeyperson's rate	

4. SCHEDULE OF WORK EXPERIENCE (See attached Work Process Schedule)

Apprenticeship Oversight Committee may add to the work processes prior to submitting these Standards to the Division of Apprentice Training for approval.

5. SCHEDULE OF RELATED TECHNICAL INSTRUCTION (See attached Related Classroom Instruction Outline)

Instruction can incorporate elements of both electronic media and traditional classroom including online training, distance learning, or independent study of established curriculum.

Curricula modules are based on industry standardized applications of current construction practices. Modules are knowledge and skill based including a system for assessment. The assessment will include task objectives, procedures, review materials, and competency-based performance tests.

O.11 - WORK PROCESS SCHEDULE **HOURS**

This instruction and experience shall include the following operations, but not necessarily in the listed sequence. Time spent on specific operations need not be continuous.

1. Graders 800
   a. Learn to check, read, and set grade stakes and read plans
   b. Learn to service, maintain, and adjust the machine
   c. Learn the different types of work the machine does, such as find grading, black sloping, mixing and laying oil, etc.
   d. Learn to operate and maintain elevating graders
   e. Learn to make adjustments and minor repairs with the heavy-duty repairer and welder
2. Scrapers, self-propelled 800
   a. Learn to operate the various types of motor and motor-electric driven machines
   b. Learn to make proper cuts and fills to the grade stakes
   c. Learn to service, maintain, and repair the different makes of machines
3. Rollers, flat wheel, sheep foot, and pneumatic, and other type compacting machines 650
   Learn the purpose of the different machines, the different procedures for compaction for various materials, and the operation and care of different types of rollers and other compaction equipment
4. Tractor-type skin loaders and hi-lift 325
   Learn to operate the various types and to service and make minor repairs and adjustments
5. Wheel-type tractors, including forklifts, lumber carriers, etc. 325
   Learn service, maintain, and make minor repairs and adjustments
6. Trenching machines 325
   a. Learn to read grade stakes and cut trench to grades so indicated
   b. Learn to operate the various types and sizes of machines and their maintenance and repair
7. Bulldozer and electric-propelled dozers 500
   a. Learn the different types of work assigned the dozer from pioneer and rough excavation to finish work.
   b. Learn to read grade stakes.
   c. Learn to make minor adjustments and repairs and work with mechanic on major repairs.
   d. Learn the operation, service, and adjustment of auxiliary equipment, such as tractor crane, side boom, pipeline equipment, etc.
8. Scraper, towed 375
   a. Learn to operate properly
   b. Learn to service, adjust, and change cables on cable-controlled machines

c. Learn to read grade stakes for cuts and fills

9. General equipment 550
   a. Learn to operate, service, and adjust all types of pumps
   b. Learn operation and maintenance of pumping machines, such as pump crete machine, concrete pump, gunite machine, etc.
   c. Learn the installation, operation, and maintenance of well point systems
   d. Learn to operate, service, and adjust all types of mechanical heaters
   e. Learn to operate, service, and adjust all types of electrical generating plants
   f. Learn to operate, service, and adjust all types of air compressors and use and operation of auxiliary equipment
   g. Safety

10. Concrete, stone, and asphalt spreaders, screed and finishing machines 475

    Learn to service, make minor repairs, adjust, and be able to operate the machines

11. Concrete mixer-paver 425
    a. Learn to operate and also become familiar with control of mixing time apparatus
    b. Learn to make adjustments and repairs and to service machine

12. Specialty paving equipment 450

    Learn to operate, service, and adjust gutter pavers, curb pavers, vibrators, concrete saws, pavement breakers, and similar-type equipment

13. Maintenance, cutting and burning, grease and oils 450
    a. Learn use of various welders and welding equipment
    b. Learn minor repairs and adjustments
    c. Learn minor welding repair and cutting
    d. Learn the types of greases and oils and their use

14. Instruction and training in signals used under all conditions 725
15. Miscellaneous and Review 825

TOTAL HOURS **8000**

O.11 - OPERATING ENGINEER (ASPHALT PAVING EQUIPMENT OPERATOR) RELATED CLASSROOM INSTRUCTION

Note: Due to regional and local code differences and climate conditions, duration of instructional competencies/modules is suggested estimates only.

Modules	**Hours**
Module Level 1	150
Orientation to the trade	
Heavy Equipment Safety	
Identification of Heavy Equipment	
Basic Operational Techniques	
Tractors	
Grades, Part One	
Module Level 2	167.5

Introduction to Earthmoving
Dump Trucks
Rollers
Scrapers
Loaders
Forklifts
Excavation math
Grades, Part Two
Civil Blueprint Reading

Module Level 3 203.5

Introductory Skills for the Crew Leader
Dozers
Backhoes
Excavators
Motor Graders
Advanced Operational Techniques
Finishing and Grading
Soils

Field Safety 47.5

Introduction to Safety
Hazard Communications
Personal Protective Equipment
Work-Zone Safety
Electrical and High Voltage Hazards
Fire Protection and Prevention
Hand and Power Tool Safety
Welding Safety
Fall Protection
Steel Erection
Walking and Working Surfaces
Ladders and Scaffolding
Horizontal Directional Drilling Hazards
Heavy Equipment, Crane and Rigging Safety
Trenching Safety
Forklift Safety
Lockout/Tag out
Confined Spaces
Concrete and Masonry

Project Supervision 85

Orientation to the Job
Human Relations and Problem Solving
Safety
Quality control
Contract and Construction Documents
Document Control and Estimating
Planning and Scheduling
Resource Control and Cost Awareness

TOTAL HOURS

DOL apprenticeship program standards recommend 144 hours related technical instruction per level and/or year.