STATE OF NEW YORK
DEPARTMENT OF LABOR

APPENDIX A

OPERATING ENGINEER (HEAVY EQUIPMENT)
D.O.T. CODE 859.683-010
O*NET CODE 47-2073.02

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

WORK PROCESSES

		Approximate Hours
A.	Welding and Cutting (optional)	400

1. Safety
2. Don protective clothing and equipment
3. Basic operation and care of various types of welding equipment
4. Basic operation and care of various types of cutting equipment

B.	Crawler and Wheel-Type Cranes, Derricks, Piledrivers, Bridge and Gantry Cranes	770

1. Identify names and uses of various cranes and derricks
2. Read plans and instructions; read grade stakes
3. Operate using the controls, their importance in proper operation, and movement of the machine for the safety of other employees, work proper distance from overhead power lines, and other equipment working near the machine
4. Calculate the proper loads that the machine and cables will safely handle
5. Acquire experience in regular operations
6. Give and receive proper hand signals
7. Assist in the programming of LMI's and computer aided accessories for safe and proper set-up and crane operation
8. Identify names and uses of piledriving equipment

C. Motor Crane Driving 80

1. Drive a truck crane and place it for most convenient operation of the crane.

D. Rollers and Other Types of Compacting Machines 650

1. Check, read, and set grade stakes and read plans for cuts and fills (if applicable)
2. Learn uses of various types of rollers (flat wheel, sheep foot, pneumatic) and other compacting equipment (self-propelled and towed rollers)
3. Follow procedures for compacting various types of materials
4. Safe operation and care of various types of rollers

E. Graders 750

1. Check, read and set grade stakes (if applicable); read plans
2. Learn functions of various types of graders
3. Safe operation of graders (including such applications as fine grading, back sloping, mixing and laying oil); safe operation of elevating graders; assist in installing and using different types of laser guidance systems and/or global positioning attachments

F. Bulldozer 750

1. Check, read and set grade stakes (if applicable); read plans
2. Learn functions of dozers
3. Safe operation of dozers, from pioneer and rough excavation to finish work

G. Tractors, Loaders, Hi Lifts, Trenching Machines 650

1. Safe operation of wheel-type tractors

G. Tractors, Loaders, Hi Lifts, Trenching Machines – continued

(including fork lifts, lumber carriers, etc.)
2. Safe operation of tractor-type front end loaders, skip loaders and hi lifts
3. Read grade stakes for trenching operations
4. Safe operation of various types and sizes of trenching machines

H. Shovel and Backhoe 750

1. Learn names and uses of various types of shovels, backhoes and attachments
2. Read grade stakes; read prints and instructions
3. Care and preventive maintenance for shovels and backhoes; proper oils and greases; minor adjustments. Assist in changing teeth
4. Safe operation of shovels and backhoes; learn controls, their importance in safe and proper operation, and movement of machine for safety of other employees, dig underground utilities, work the proper distance from overhead power lines, and other equipment working near machine

I. Miscellaneous Equipment 900

Choose at least three from below:
1. Safe operation of all types of pumps; adjust and service
2. Safe operation and maintenance of all pumping machines (such as pump crete machine, concrete pump, gunite machine)
3. Safe installation, operation and maintenance of well point systems
4. Well drilling*:
   a. safe set-up, operation and maintenance of all well drilling machines during operation
   b. safe installation, operation and maintenance of well casings (cement or steel)
   c. safe operation of all types of pumps; safe and appropriate use/operation of all auxiliary equipment
   d. safe and proper handling of samples and treatment, when necessary

e. safe dismantling of equipment and casing removal

5. Safe operation, adjusting and servicing of all types of mechanical heaters
6. Safe operation of all types of electrical generating plants
7. Safe operation of all types of air compressors; safe and appropriate use/operation of all auxiliary equipment
8. Safe operation of gutter pavers, curb pavers, vibrators, concrete saws, pavement breakers and similar types of equipment
9. Safe operation and also familiarization with control of mixing time apparatus
10. Safe operation of concrete/stone/asphalt spreaders, screed, and finishing machines; adjust, service and make minor repairs

J.	Handling Hazardous Materials (optional)	300
	Total Hours	6,000

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to http://www.labor.state.ny.us/workerprotection/publicwork/PDFs/Article8FAQS.pdf

*The business, signatory, employer or other entity who owns and operates the well drilling equipment must be registered annually with the New York State Department of Environmental Conservation. In addition, the supervisor, who would be supervising apprentices, must be present on-site during well drilling construction or repair and must be exam certified through the National Groundwater Association.

APPENDIX B

OPERATING ENGINEER (HEAVY EQUIPMENT)

RELATED INSTRUCTION

Safety

- OSHA 10-hour construction course
- OSHA rules, regulations, standards applicable to the trade
- Drug and alcohol awareness
- Hearing awareness and loss prevention
- Awareness of, and safety in working around, hazardous materials likely to be encountered in the trade
- First aid/CPR – minimum 6.5 hours every 3 years
- Handling hazardous materials *(required if Work Process "J" on Appendix A is selected)*
  - 40-hour Hazmat certification course
  - Annual re-certification (8-hour refresher course and safety review)
- Asbestos Safety:
  - If apprentice will do any handling of asbestos:
    - Successfully complete a course approved by the New York State Department of Health for "Asbestos Handler" and obtain, and keep current, an "Asbestos Handler (Worker)" certificate from the New York State Department of Labor
  - If apprentice will do no handling of asbestos:
    - Asbestos Awareness – minimum 4 hours (see attachment)

Trade Theory and Science

- Use of grade instruments and plans (if applicable)
  - Transit and hand level
  - Theodolite
  - Leveling rods
  - Measurement instruments
  - Stakes
- Commercial Driver's License preparation
  - Testing requirements
  - Inspection stipulations
  - Driving course
- Rigging
  - Chart reading
  - Crane set-up
  - Cable specs
- Soil compaction
- Fuels and lubricants
  - Fuels, oils, grease and equipment
  - Grease truck and tools

Operating Engineer (Heavy Equipment) Related Instruction – continued

Trade Theory and Science – continued

- Basic and advanced equipment skills (technical training and seat time)
  - Forklift
  - Bulldozer
  - Loader
  - Compactor
  - Crane
  - Backhoe
  - Grader
  - Forklift certification (machine-specific)
  - Well drilling machines *(required if Work Process "I-4" on Appendix A is selected)*
- Hydraulics
  - Theory
  - System changes
  - Maintenance
- Mechanical system
  - Basic hydraulics
  - Basic electrical
  - Power trains
- Welding *(required if Work Process "A" on Appendix A is selected)*
  - Oxygen and acetylene welding
  - Electrical welding
  - Cutting

Interpersonal Workplace Skills

- Industrial and labor relations
  - History and background (6 hours, 1st year)
  - Current laws and practices (14 hours, 2nd year)
- Sexual harassment prevention training – minimum 3 hours
- Diversity

Other Related Courses as Necessary

A minimum of 144 hours of Related Instruction is required for each apprentice for each year.

ATTACHMENT TO APPENDIX B

Asbestos Awareness

This course must be delivered by one of the following:

1. A provider currently approved by the New York State Department of Health to deliver asbestos safety training.
2. A person holding a current Asbestos Handler certificate from the New York State Department of Labor in the title of: Inspector, Supervisor, Project Monitor, Management Planner, or Project Designer.
3. Anyone otherwise approved by the New York State Education Department.

Minimum course contents must include the following:

1. Definition of asbestos
2. Types and physical characteristics
3. Uses and applications
4. Health effects:
   - Asbestos-related diseases
   - Risks to families
   - Cigarette smoking
   - Lack of safe exposure level
5. Employer-specific procedures to follow in case of potential exposure, including making a supervisor or building owner immediately aware of any suspected incidental asbestos disturbance so that proper containment and abatement procedures can be initiated promptly.

Notwithstanding the above course requirement, employers are advised that they must also be in compliance with New York State Department of Labor Industrial Code Rule 56 at all times.

Employers are further advised, and must advise all apprentices, that completion of the above course requirement does not authorize any person to remove, encapsulate, enclose, repair, disturb, or abate in any manner, any friable or non-friable asbestos, asbestos containing material, presumed asbestos containing material, or suspect miscellaneous asbestos containing material.