

**CIRRICULUM – STANDARDS 2016-17**

**Legislation**

Nuna Training Technologies Ltd. (NTT) believes every worker has the right to know and understand worker and employer obligations as it applies to powered mobile equipment. In addition to the worker's basic rights, NTT provides a study of the basic requirements to achieve competency in the operation of powered mobile equipment which is addressed by legislation across Canada in the Occupational Health and Safety Act and the Canadian Mines Act. The elements focus on the employee's safety and cover the right to:

- know;
- participate;
- refuse ;and
- be protected from discriminatory action.

**Elements of Competency (Safety)**

Nuna Training Technologies Ltd. reviews the employee rights, the interpretation of rights, and how the rights applies to the workplace. The following outlines the core content and minimum training requirements for a competent operator of Power Mobile Equipment (PME).

Occupational Health and Safety Regulations, Power Mobile Equipment (PME)

1. Duties of Employers and Operators
2. Protection of Workers, Risk Assessment and Visual Inspection

Operation of PME (Types of PME)

Terminology

1. Specific Design of PME to be Operated
2. Manufacturer Requirements, Recommendations and Specifications Regarding Ratings and Safety Factors

Site Evaluation

1. Check Route of Travel, Clearances and Ground Conditions; Including the Presence of Workers, Structures, Power Lines, Underground Services or Other Equipment that May Constitute a Hazard
2. Check Site of Operation; Including the Nature of Ground, Gradients and Potentially Dangerous Situations and the Appropriate Response

PME Controls

1. Identification and Use of Controls
2. Pre-Start Check/ Post-Operating Check
3. Start-Up
4. Perform Operating Adjustments
5. Shut-Down

Operation of PME

1. Movement to Location
2. Set-up of PME
3. Check for Safety of Other Persons Before Movement
4. Safety Precautions while PME is Unattended, In Storage or In Transit

Rigging Where Applicable

1. Inspection of Ropes and Rigging Equipment
2. Reeving: Sheaves; Spools; Drums; Wire Ropes
3. Rigging Loads: Hooks; Safety Catches; Shackles; End Fittings and Connections
4. Rigging Slings: Configurations; Angles; Safe Working Loads
5. Safety Factors for Loads and Workers, Wire Rope Inspection and Maintenance

Signaling Where Applicable

1. Designated Signaler: Position; Visibility; Number of
2. Methods of Signaling: Hand; Radio

Maintenance of PME Where Applicable

1. Maintenance Schedule; Planned Preventative Maintenance
2. Inspection and Repair Procedures
3. Blocking and the Safe Position of Parts During Maintenance and Servicing

Maintenance/Repair Records Where Applicable

Record Inspections, Repair, Maintenance, Calibrations and Work Activities

1. Hours of Service
2. Signed by the Authorized Person Performing Inspection, Maintenance and Calibration

## **CIRRICULUM**

### **Articulated Rock Truck Training Module Content**

Articulated Truck simulator training provides an excellent foundation for an operator training program. New operators can begin training before they operate actual machines, while experienced operators can refine skill sets. The Articulated Truck training module covers the following topics:

- **Machine Walk-Around** - Learn pre-operational machine inspection procedures to ensure proper operating and safety conditions.
- **Controls Familiarization** - Understand and master operator controls and proper sequences for machine operations.
- **Driving** - Learn basic movements of the machine using the steering wheel. The operator will drive through two different courses: one that requires articulated turning; and one that uses the oscillating hitch.
- **Hauling** - Learn basic hauling procedures and gain an understanding of the capabilities of the articulated truck in full load conditions.
- **Braking** - Focus on proper service braking and engine compression braking on three different terrain grades.
- **Loading; Through the Gate** - Learn basic operations and safety procedures to perform a drive by loading approach.
- **Loading; Over the Rail** - Learn basic operations and safety procedures for loading material using a perpendicular loading approach.
- **Unloading** - Learn basic unloading techniques. The exercise will cover proper procedures for approaching the unloading zone and unloading material within a construction site.

- **Full Production Cycle** - Learn how to operate the truck through a full production cycle. The exercise will combine all the tasks and skills learned in previous exercises: driving through rugged terrain, being loaded, hauling a load, unloading into a pit and braking.
- **Open Training** - Allows instructor to expand functionality of simulator to customize training for each student.

### **Small Wheel Loader Simulator**

#### **Training Module Content**

Small Wheel Loader simulator training provides an excellent foundation for an operator training program. New operators can begin training before they drive actual machines, while experienced operators can refine skill sets. The Small Wheel Loader training module covers the following topics:

- **Machine Walk Around** - Learn pre-operation machine inspection procedures to ensure proper operating condition.
- **Controls Familiarization** - Learn and understand operator controls, including joystick use.
- **Bucket Placement** - Learn to use the lift arm and bucket controls to position the bucket.
- **Corridor Driving Wide** - Learn to drive the Wheel Loader forward on flat ground with empty bucket, while avoiding contact with the barriers that define an 11 m (36') wide corridor.
- **Corridor Driving Narrow** - Learn to drive the Wheel Loader forward on flat ground with empty bucket, while avoiding contact with barriers that define a more challenging 9 m (29') wide corridor.
- **Load & Carry** - Learn to excavate with the loader by digging and stockpiling material using digging and dumping zones separated by a larger distance.
- **Truck Loading** - Learn to fully load a truck positioned for loading near digging zone.
- **Truck Spotting** - Expands truck loading lesson by adding truck spotting.
- **Backfilling** - Learn to use the loader to backfill a slot ditch with spoil material and level to existing grade.
- **Move Objects with the Clamshell** - Learn to maneuver the clamshell using the controls mounted on the simulator.
- **Open Training** - Student and instructor can work on specific curriculum and training.

### **CIRRICULUM – COMPUTER BASED TRAINING (OEM)**

Simulator based training per each machine group.

- OEM machine manual review required for each machine group;
- OEM computer based lessons, instructor led;
- simulator based training time required ranges from 10 to 14 hours per machine group (dependent on the individual's reading skill and comprehension); and
- General operator safety (lecture based).

## **COMPLETE SIMULATOR FLEET**

Nuna Training Technologies Ltd. owns a fleet of up-to-date mobile mid-sized simulators comprising:



- John Deere conventional steer motor grader;
- Volvo articulated truck;
- Cat articulated truck;
- Cat wheel loader;
- Volvo wheel loader;
- Cat stick steer grader;
- Cat dozer;
- Cat excavator; and
- Cat rigid frame rock truck.

The mid-size simulator is designed to train and orient new operators on machine operation, skills and application knowledge. The system uses controls representative of actual machines in order to provide a more realistic learning opportunity. Training exercises are designed to address each of the component skills associated with operating actual machines. In addition, the flexibility of the simulated environment allows operators to gain skills and master proper techniques, allow multiple students to train at one time, anytime day or night without regard to the weather; and with one instructor supervising several students at once.

The mid-sized simulator is designed to be located in a classroom setting. Contained within our custom built trailer, the compact design is very portable to accommodate the training site.

In addition to the mid-size simulators; NTT has available the Immersive Series II advance simulators complete with 4 conversions kits: Cat dozer; Cat wheel loader; Cat rock truck; and Cat excavator. These advance units mobile and are capable of delivering detailed training scenarios for the mining and construction sectors.

The Immersive Series II advanced simulator is capable of delivering detailed training scenarios for the mining sector.

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