

<b>Release of Updated Schedule of Training</b>	
<b>Trade Name and Code</b>	<b>2075 Light Rail Overhead Contact Systems Linesperson</b>
<b>Implementation Date</b>	January 27 <sup>th</sup> , 2017, released as version 300
<b>Implementation Plan</b>	<ul style="list-style-type: none"> <li>Apprentices who began their apprenticeship on the former 2009 Schedule of Training can complete their program using that standard.</li> <li>All apprentices with initial training agreements registered on or after January 27<sup>th</sup>, 2017 must be trained to this new Schedule of Training.</li> </ul>
<b>Impact on Curriculum Standard or Related Trades</b>	<ul style="list-style-type: none"> <li>As this is a Schedule of Training, revisions and updates have been made to both the on-the-job performance objectives/Skill Sets/Skills and the in-school learning outcomes.</li> <li>The in school learning outcomes continue to be part of the sponsor's obligation.</li> </ul>
<b>Schedule of Training Access</b>	<p>As of January 27<sup>th</sup>, 2017</p> <ul style="list-style-type: none"> <li>The new Schedule of Training will be available on the Ontario College of Trades (the 'College') website.</li> </ul>
<b>Skill(s) &amp;/or Skill Set(s) Removed/ Merged</b>	<ul style="list-style-type: none"> <li>Existing Skills related to "Connecting and disconnecting puller-tensioners to work vehicles" and "driving vehicles with puller-tensioners" were removed from the schedule of training.</li> </ul> <p>Rationale: The working group indicated that this information is generally covered in the in school learning outcomes as well as separately under Ministry of Transportation (MTO) training requirements or training.</p> <ul style="list-style-type: none"> <li>The existing Skill related to "placing hazardous materials in sealed plastic bags" in the Skill Set "Protect the Environment" was removed as it was redundant with the existing Skill on "containing hazardous spills".</li> </ul> <p>Rationale: Redundant</p>
<b>Optional Skills Become Mandatory</b>	N/A
<b>Change: Mandatory to Optional</b>	N/A
<b>Skill Sets/Skills Moved</b>	Some Skills within various Skill Sets were reordered to better reflect the on-the-job learning experience. For example, in the contact conductor systems Skill Set, some Skills related to "install" were re-ordered to precede some Skills related to "connect" as this is the order they are performed in the workplace.
<b>Skill(s) or Skill Set(s) Added</b>	<p>Within Skill Set <b>U6601 Apply Safe Workplace Practices</b>, the following new Skills were added:</p> <ul style="list-style-type: none"> <li><b>U6601.6 Handle workplace hazardous materials</b></li> <li><b>U6601.7 Install Protective Barriers</b></li> </ul>

- **U6601.8 Conduct job risk/hazard analysis in an emergency situation**

Rationale: Competencies related to job risk assessment and hazard analysis are a critical part of workplace safety practices but are different than standard competencies in this Skill Set. As a result, a separate Skill was created to reflect these competencies in a specific situation (emergency). Competencies related to handling hazardous materials were previously not clearly identified. Containment and Storage were identified in the Skill Set but working group felt that the handling should be covered in the Protection Self and Others Skill Set. Install Protective devices as a Skill.

Within Skill Set **U6602 Maintain tools and Equipment**, the following new Skills were added:

- **U6602.4 Select live line tools and metering equipment**
- **U6602.5 Operate live line tools and metering equipment**
- **U6602.6 Operate aerial lift equipment**
- **U6602.7 Maintain aerial lift equipment**
- **U6602.8 Select ropes and rigging equipment**
- **U6602.9 Use ropes and rigging equipment**
- **U6602.10 Maintain ropes and rigging equipment**

Rationale: The previous competencies were unclear and inefficiently merged these diverse pieces of equipment and tools into broad Skills. The new Skills related to “tools and equipment” now more clearly refer to power tools, hand tools, hydraulic tools and pneumatic tools.

Within Skill Set **U6603 Communicate and Access Information in the Workplace**, the following new Skills were added:

- **U6603.7 Communicate With Controlling Authority**
- **U6603.8 Create A Job Plan In An Emergency Situation**
- **U6603.9 Follow And Adjust Job Plan For Maintenance And Construction Situation**

Rationale: The first two new Skills are specific to emergency situations. Because of the inherent dangers of this work/trade, Skills related to the creation of an emergency job plan are critical to the success and safety of the apprentice. The last Skill Follow and Adjust Job Plan was a missing yet critical Skill. This was added because it is important to recognize that when a job plan is created in an emergency situation, the parameters and requirements are different. After the emergency is over, the apprentice must then have the Skills to adjust the job plan for the purpose of maintenance and construction.

Within the Skill Set **U6604 Build and Maintain Aerial Feeder Systems**, the following new Skills were added:

- **U6604.16 Reposition And Repair A Dislodged Feeder (Negative Or Positive) In An Emergency Situation**
- **U6604.17 Raise And Repair A Downed Positive Feeder Cable Or Negative Cable In An Emergency Situation**

Rationale: Skills related to both repositioning and repairing dislodged feeders and raising and repairing downed feeders in emergency situations are a critical part of Aerial feeder systems work but are different than related

competencies in non-emergency situations. As a result, separate Skills were created to reflect these competencies in a specific situation (emergency).

Within the former Skill Set **U6605 Build and Maintain Contact Conductor Systems** which is now called **Build and Maintain Overhead Contact Systems** the following enhancements and/or changes were made:

The existing Skills that jointly grouped steel guy wires, synthetic ropes, struts and troughing were unclear. Specifically, the working group confirmed that the Skills related to installing and/or removing these items varied depending on what was being referenced. As a result, the Skills in this Skill Set were separated and grouped in the following new manner:

- **U6605.1 Install trolley wires**
- **U6605.2 Install tangent spans cross feeds and equalizers**
- **U6605.3 Install struts**
- **U6605.4 Install troughing**
- **U6605.5 Install contact conductors to support clamps and brackets**
- **U6605.7 Remove contact conductors/trolley wires**
- **U6605.10 Remove tangent spans, cross feeds and equalizers**
- **U6605.11 Remove struts**
- **U6605.12 Remove troughing**

Rationale: Original grouping did not make sense. Skills related to struts, troughing, tangent spans, cross feeds and equalizers differed from each other considerably. Separate Skills that distinguished “install” from “remove” were also added to the new groupings.

Within the Skill Set **U6605 Build and Maintain Contact Conduct Systems**, the following new Skill was added:

- **U6605.17 Raise and repair a downed trolley wire in an emergency situation**

Rationale: Skills related to raising and repairing down trolley wire are a critical part of Contact Conductor systems work but are different than related Skills in non-emergency situations. As a result, separate Skills were created to reflect these competencies in a specific situation (emergency).

Within the Skill Set **U6606 Build and Maintain Electrical Track Switch Systems**, the following new Skill was added:

- **U6606.8 Conduct an emergency switch inspection**

Rationale: Emergency situation specific related Skill that is not covered by existing competencies/Skills.

Within the Skill Set **U6607 Maintain Lighting Systems**, the reference to “emergency situations” was added to the Skill related to terminating wires for loop lighting, yard lighting and safety island lighting.

Rationale: More accurately reflects the tasks to be performed.

**Content and Hours Changes – Learning Outcomes**

The 2017 update to the learning outcomes in this Schedule of Training reflect curriculum enhancements that have been delivered by the training authority prior to this revision. The recommended in-school learning outcome hours in this revised Schedule of Training is 300 hours as opposed to the original 120 hours. The 300 hours does not cover additional certifications that may be integrated in the program by the sponsor.

Key enhancements to the learning outcomes which reflect the outcomes delivered prior to these enhancements include:

- **S1202** - Addition of new learning outcome **Protecting Self and Others**. This new outcome more accurately reflects learning objectives related to procedural requirements for handling job site safety hazards, working in different weather conditions, following biohazard precautions, conducting overhead safety assessment and conducting hazard incident risk assessment
- **S1203** - Addition of new learning outcome **Maps, Charts, Tables and Prints**. This outcome reflects learning objectives including reading and applying feeder maps, power maps and section insulator maps as well as reading and interpreting map samples, labels, charts and tables.
- **S1204** - Addition of new learning outcome **Access Equipment, Work Platforms and Aerial Lift Equipment**. This outcome reflects learning objectives including fundamentals of set up, use and inspection for these pieces of equipment.
- **S1205** - Addition of new learning outcome **Electrical Theory**. These concepts and outcomes were being covered previously but were not clearly identified in the old learning outcomes. These are important foundational concepts that should be referenced and taught in a separate learning unit. The unit is meant to cover understanding of basic theoretical concepts, defining voltage, current and resistance, principles of EMF, analyzing circuits, applying Ohm’s Law and describing the different forms of induced voltage.
- **S1213** – Addition of new learning outcome **Hand and Power Tools, Measuring and Testing Devices**. The use, maintenance and storage of both common and specialty tools is critical for this trade especially in live line and high voltage scenarios.
- Former learning outcome S1209 – Maintenance and Troubleshooting has been removed as a separate learning outcome. Learning outcomes and objectives related to maintenance and troubleshooting have been integrated into the learning outcomes related to the specific system (i.e. S1211 Track Switch Systems, S1210 Overhead Contact Systems, S1209 Power Distribution Systems)

The Curriculum chart for this trade has been slightly reformatted to show the general learning outcomes and objectives along with recommended hours for each of the levels to ensure new Sponsors establish the highest standard. The following recommendations are now included at the curriculum level stages:

Total recommended hours per level:

	<ul style="list-style-type: none"> <li>• Level 1: 100 hours</li> <li>• Level 2: 66 hours</li> <li>• Level 3: 61 hours</li> <li>• Level 4: 73 hours</li> </ul> <p>Note: These hours are recommendations and adjustment may occur from Sponsor to Sponsor. The recommended hours for each learning unit have been amended to reflect the new outcomes as well as the actual practice to date.</p>
<p><b>Designation of Emergency Skills and Sign-off Requirements for Emergency Skills</b></p>	<p>Some of the existing Skills as well as some newly added Skills within this standard have been designated as emergency Skills. Learning development in relation to these specific Skills occurs during emergency situations. In these circumstances, the apprentice’s direct supervisor may be someone different, specifically the emergency crew leader. As a result, for the purpose of this standard, the minimum sign-off requirement for designated emergency Skills is the emergency crew leader. An emergency crew leader may be the apprentices regulator trainer/supervisor but does not have to be. A sponsor may require additional sign-offs depending on company protocols/policies.</p> <p>The following Skills have been designated as emergency Skills for this revised training standard:</p> <ul style="list-style-type: none"> <li>• <b>U6601.8 – Conduct a job hazard analysis in emergency situations</b></li> <li>• <b>U6602.5 – Operate live line tools and metering equipment in emergency situations</b></li> <li>• <b>U6603.7 – Communicate with controlling authority and the public in an emergency situation</b></li> <li>• <b>U6603.8 – Create a job plan in an emergency situation</b></li> <li>• <b>U6604.16 – Reposition and repair dislodged feeders in an emergency situation</b></li> <li>• <b>U6604.17 – Raise and repair downed positive feeder cables or negative cables in an emergency situation</b></li> <li>• <b>U6605.17 – Raise and repair downed trolley wires in an emergency situation (temporarily)</b></li> <li>• <b>U6606.8 – Conduct an emergency switch inspection in emergency situations</b></li> <li>• <b>U6607.3 – Terminate wires for loop lighting, yard lighting and safety island lighting in an emergency situation</b></li> </ul>
<p><b>Sign-off requirements for non-emergency Skills</b></p>	<p>All Skills not designated as emergency Skills in this schedule of training are considered non-emergency Skills. Minimum sign-off requirements for a non-emergency Skill is one trainer. For these Skills, a trainer may be a supervisor or the competent employee designated by the Apprentice’s sponsor.</p> <p>However, because of the nature of this trade/sector, a sponsor may require additional sign-offs depending on company policy/protocols. As a result, additional optional signing options for trainer #2 and #3 have been added to the sign-off boxes.</p>

<p><b>General Notes &amp; Rationale</b></p>	<p><b>Clarification of Learning Outcomes:</b> The document reflects updates and expansion to in-school learning outcomes (content and hours guidelines) that were not adequately reflected in the 2009 document. The increase in recommended in-school hours reflects the actual time required to cover all learning outcomes.</p> <p><b>Addition of an acronyms and glossary of trade specific terms section:</b> As this trade was originally developed as a workplace specific trade, these lists will help to link terminology between one workplace and another. Acronyms on the list include; CVIR, HIRA, OHSA, MAESD, OSAP, PPE. Glossaries of trade specific terms now include; de-energize handcoil, physical demand analysis, surface traction power map, and switch incident report.</p> <p><b>Definition of Trainer for Emergency Skills:</b> Addition of a more detailed definition of who qualifies as a “trainer” including a specialized recommendation as to who should be able to sign-off on the emergency Skills (“emergency crew leader or equivalent”). This distinction was critical as the trainer/mentor in emergency situations may be different and has different competencies than standard situations.</p> <p><b>Addition of some trade and sector specific references</b> such as:</p> <ul style="list-style-type: none"> <li>i) trade specific resource references such as IEEE, MTO, ESA</li> <li>ii) employer responsibilities</li> <li>iii) Workplace Health and Safety Requirements such as Ontario Traffic Manual Book 7, and</li> <li>iv) addition of recommended additional certifications such as DZ license, aerial lift platform training, Safe limits of approach etc...</li> </ul> <p><b>Contact Conductor Systems:</b> All references to contact conductor systems in the Skill Sets and learning outcomes have been changed to Overhead Contact Systems as this is the IEEE terminology.</p> <p><b>Other recommended certifications:</b> A non-inclusive list of other recommended certifications is now included in the document in the section on “other certifications”. This lists reflects recommendations for training in key areas above and beyond the curriculum outcomes i.e. Ontario Traffic Manual Book 7, safe limits of approach, bucket rescue and practical operation.</p>
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