Powerline Technician - Upgrading
A Guide to Course Content

Powerline Technicians construct and maintain overhead and underground power lines and related equipment.

Training Requirements: All candidates applying for upgrading training must be eligible to challenge the Interprovincial journeyperson examination.

The information contained in this pamphlet serves as a guide for employers and apprentices. The pamphlet briefly summarizes the training provided in the upgrading program. This program is delivered through a combination of on-line independent learning and instructor-led technical training delivered by the SaskPower Training Center in Weyburn.

In order to prepare Powerline Technicians for journeyperson certification, the Powerline Technician Trade Board has approved a combination of on-line learning (TRACCESS) and instructor-led training (Levels 2-4). The content of this program is outlined in the pamphlet.

The tradesperson attending upgrading training must pass each level prior to proceeding to the next step in the upgrading curriculum. The curriculum includes:
- TRACCESS level 1
- TRACCESS level 2
- Level 2 course (2 weeks)
- TRACCESS level 3
- Level 3 course (2 weeks)
- TRACCESS level 4
- Level 4 course (2 weeks including practical exam)

Upgraders will be given access to the web client version of the TRACCESS software through a personal computer and high speed access to the internet. TRACCESS hardware requirements are IBM compatible personal computer with P100 processor and 128mb ram. Windows 95 with Internet Explorer version 4.0 or greater.

Participants will be given access to a Training Coordinator for technical or program content support during the on-line portion of the program.

The content of the technical training components is subject to change without notice.
Level Two

Alternating Current
- DC review
- introduction to AC fundamentals
- frequency and RMS values
- resistance and inductance in an AC circuit
- resistance and inductive reactance in an AC circuit
- power in an AC circuit
- capacitance/capacitive reactance in AC circuit
- resistance/capacitive reactance in AC circuit
- series circuits with R, Xc and XI
- parallel circuits with R, Xc and XI

Single Phase Transformation
- single phase transformer operating principles
- transformer ratios
- paralleling transformers
- single phase transformer load checks
- three-wire circuits

Street Lights
- introduction to street lights
- individual street light system
- multiple street light system
- street light planned maintenance

Three Phase Systems
- introduction to three phase systems
- wye connections; delta connections
- combination three phase systems

Introduction to Hotsticks
- insulated hand tools
- universal tool accessories I & II
- live line conductor supports
- live line tensioning tools

Class I Rubber Gloves
- class I rubber glove work rules
- the insulated jumper
- change 4kV deadend insulator
- change 4kV tangent insulator

Level Three

Three Phase Transformation
- DC review, AC review
- single phase transformation review
- three phase system review
- three phase voltage and transformer connections
- three phase transformer load checks
System Protection and Switches
- single trip overcurrent protection
- overvoltage protection
- oil circuit reclosure operating principals
- types and ratings of oil circuit reclosures
- overhead switching devices
- introduction to voltage regulation

Services and Single Phase Metering
- service installation
- single phase metering components
- single phase metering installation
- single phase instrument transformers

Underground Operating and Maintenance
- introduction to underground systems
- underground tools
- underground apparatus and identification
- single phase underground grounding procedures
- three phase underground operating

Hotstick Work Procedures
- hotstick work rules
- change 25KV rural x-arm insulator
- change 25KV rural x-arm
- change 72KV suspension insulator with hotsticks
- change 72KV D.E. insulators with hotsticks
- change 72KV spar with hotsticks

Level Four

25kV Rubber Glove
- 25kV rubber glove personal protective equipment
- conductor supports and hotsticks
- 25kV rubber glove work rules
- insulated aerial device
- weights and forces

Underground Operating
- locating theory
- cable locating applications
- fault locating applications
- introduction to underground switching
- underground switching safety precautions

Overhead Operating
- introduction to tree trimming
- tree trimming tools and equipment safety
- tree trimming techniques, tree felling
- line clearances, line patrols
- introduction to overhead troubleshooting

Advanced System Protection
- introduction to voltage regulation/regulator settings; OCR Banks and Interlocks; electronic reclosers; substations
- system protection apparatus
Powerline Technician Practical Assessment

- Lab portion covers areas such as voltage regulation; transformers and their connections; conductor tying and splicing; metering; underground switching; and rubber glove work up to 5 kv
- Field portion covers areas such as substation load tests; ground resistance testing; clearance measurements; transformer bank load checks and identification; and pole line work on 2.4 kv, 4.16 kv, 14.4 kv, and 25 kv

Saskatchewan Apprenticeship & Trade Certification Commission
2140 Hamilton St Regina SK S4P 2E3
Tel: (306) 787-2444
Fax: (306) 787-5105
Toll Free: 1-877-363-0536
web site: www.saskapprenticeship.ca

District Offices
Estevan (306) 637-4930
La Ronge (306) 425-4385
Mooseland (306) 694-3735
North Battleford (306) 446-7409
Prince Albert (306) 953-2632
Saskatoon (306) 933-8476
Swift Current (306) 778-8945
Yorkton (306) 786-1394