



Content  
Community  
Connection

United States  
One Franklin Square, Suite 302  
Geneva, NY 14456  
Tel: 315-7889-8323  
Fax: 315-789-8940

Canada  
1885 Clements Rd, Unit 218  
Pickering, ON L1Z 1X5  
905-686-1040  
Tel: Fax 905-686-1078  
Toll Free: 1-855-824-6131

## Edmonton Electrical Grounding Training Week

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://www.electricityforum.com/onsite-training-rfq>

This 5-Day Electrical Grounding Course encompasses three of our leading grounding and bonding courses:

[Grounding and Bonding Training](#)

[High Voltage Electrical Grounding](#)

[Electrical Grounding for Oil and Gas Applications](#)

Our 2-Day basic industrial Grounding and Bonding course is founded on the Electrical Code and is designed to give students the correct information they need to design, install and maintain effective electrical grounding systems in industrial, commercial and institutional power systems.

Our 1-Day High Voltage Grounding course will provide the basic principles of grounding a power supply network to ensure safety of personnel and equipment. Understanding these

principles will provide the correct tools to design a grounding system applicable to utility networks and industrial plant distribution. This course covers the basic procedures in working safely on medium and high voltage systems.

The Oil & Gas sector relies on the efficient transportation, handling and processing of many hazardous and highly flammable chemical products. These operations generate hazardous levels of static electricity. The first line of defence for catastrophic ignition and explosions is proper grounding & static control measures. This 2-Day Electrical Grounding for Oil and Gas Applications course covers proper grounding techniques for not only medium- and high-voltage systems but also low-voltage Instrument and Control Systems (IACS) that have been proven safe and reliable when employed in process control facilities.

Electrical grounding training subject matter can include:

- Advantages/disadvantages of various grounding electrodes
- How to properly connect these electrodes into the grounding system
- Types of bonds that are acceptable and where to use them
- Resistance-to-Ground testing
- Soil Resistivity testing
- Basics of grounding system design
- How grounding can resolve human safety issues in high-voltage environments
- The impact of lightning strikes on grounding systems
- The basic principles of grounding of medium and high voltage electrical systems
- Protective or Safety grounding systems
- Safe and unsafe working conditions
- Design considerations of a grounding grid for medium and high voltage
- Measurement of ground resistance, resistivity in substations
- Protection of substations from lightning strikes

### **WHO SHOULD ATTEND**

These specialized electrical grounding training courses are designed for:

- Utility and Industrial Electrical Engineers and Engineering Technicians
- Project Engineers

- Design Engineers
- Field Technicians
- Electrical Technicians
- Electricians
- Plant Operators
- Plant Engineers
- Electrical Supervisors

### **STUDENTS RECEIVE**

- 100-Page Digital Electrical Grounding Handbook - Value \$20 (details below)
- 1.4 Continuing Education Unit (CEU) Credits
- A **FREE** Magazine Subscription (Value \$25)
- **\$100** Coupon toward any future Electricity Forum event (restrictions apply)
- Course Materials in Paper Format

### **COURSE OUTLINE**

#### **Edmonton Electrical Grounding Week Program Outline**

#### **Course Instructor**

*Pablo Diaz, Electricity Forum Lightning Protection and Electrical Grounding Consultant*

#### **DAY ONE**

#### **Course #1: Industrial Electrical Grounding and Bonding Training Program**

SESSION 1: ELECTRICAL GROUNDING – OVERVIEW

SESSION 2: ELECTRICAL GROUNDING METHODS

SESSION 3: GROUNDING CONNECTIONS FOR SYSTEMS AND CIRCUITS

SESSION 4: GROUNDING OF GENERATOR TO SUPPLY EMERGENCY POWER

SESSION 5: GROUNDING CONNECTIONS FOR TWO OR MORE BUILDINGS OR STRUCTURES SUPPLIED FROM A SINGLE SERVICE

SESSION 6: CONDUCTOR TO BE GROUNDED FOR AC WIRING SYSTEMS

SESSION 7: CONDUCTOR ENCLOSURE BONDING

## **DAY TWO**

SESSION 8: BONDING METHODS

SESSION 9: ELECTRICAL GROUNDING ELECTRODE SYSTEM

SESSION 10: GROUNDING AND BONDING CONDUCTORS

SESSION 11: GROUNDING AND BONDING CONDUCTOR CONNECTIONS

SESSION 12: GROUNDING AN ELECTRICAL DISTRIBUTION SYSTEM

SESSION 13: INDUSTRIAL PROCESSES CONTROL SYSTEMS GROUNDING

SESSION 14: ELECTRICAL GROUNDING IN HEALTH CARE FACILITIES

SESSION 15:

**FOUR CASE HISTORIES INCLUDED:**

THERE ARE FOUR CASE STUDIES THAT WILL BE PRESENTED: PETROCHEMICAL, TELECOMMUNICATION, COMPUTER FACILITY, AND A MANUFACTURING PLANT. SECOND DAY ALSO INCLUDES A LABORATORY SECTION WHERE A THE PARTICIPANTS ARE TAUGHT HOW TO PERFORM A GROUNDING AND POWER QUALITY SITE SURVEY. MEASUREMENT PERFORMED: GROUND RESISTANCE AND RESISTIVITY, POWER QUALITY PARAMETERS SUCH AS: VOLTAGE, CURRENT, LOAD BALANCE, POWER FACTOR, DISPLACEMENT POWER FACTOR, VOLTAGE AND CURRENT HARMONICS, EFFECTIVE POWER (KW), APPARENT POWER (KVA), REACTIVE POWER (KVAR), K FACTOR FOR TRANSFORMERS, ETC, TO DIAGNOSE AND SOLVE MOST COMMON PROBLEMS.

### **DAY THREE**

#### **Course #2: High Voltage Electrical Grounding and Bonding For Utility and Industrial Applications**

SUBSTATION GROUNDING DESIGN

SESSION 1: DEFINITIONS AND INTERPRETATIONS

SESSION 2: GROUNDING OPTIONS

SESSION 3: GROUND GRID DESIGN FOR SUBSTATIONS

SESSION 4: SWITCHYARD AND SUBSTATION PROTECTIVE GROUNDING

SESSION 5: POWER LINE PROTECTIVE GROUNDING

SESSION 6: TECHNICAL CONSIDERATIONS IN PROTECTIVE GROUNDING IN SUBSTATIONS AND SWITCHYARDS

INTERNATIONAL AND LOCAL REGULATIONS

**DAY FOUR**

**Course #3: Oil & Gas Applications - Electrical Grounding Techniques**

SESSION 1: ELECTRICAL GROUNDING – SCOPE

SESSION 2: CLASSIFICATION OF VARIOUS GROUNDING STANDARDS. CODES AND RULES

SESSION 3: ELECTRICAL GROUNDING ELECTRODE SYSTEM

SESSION 4: CIRCUIT GROUNDING

SESSION 5: EQUIPMENT BONDING & GROUNDING

SESSION 6: EMERGENCY POWER SYSTEMS

**DAY FIVE**

SESSION 7: STATIC HAZARDS

SESSION 8: LIGHTNING PROTECTION FOR OIL INSTALLATIONS

SESSION 9: ELECTRONIC EQUIPMENT GROUNDING

SESSION 10: TELECOMMUNICATIONS GROUNDING IN PETROCHEMICAL PLANTS

SESSION 11: EMI ON ELECTRONIC CIRCUITS

SESSION 12: TWO CASE HISTORIES:

**Review of expectations  
Questions and Answers**

### **COURSE TIMETABLE**

**All days:**

Start: 8:00 a.m.

Coffee Break: 10:00 a.m.

Lunch: 12:00 noon (included with course)

Restart: 1:15 p.m.

Finish: 4:30 p.m.

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