COURSE REGISTRATION POLICY

To register for an Education and Training course, please follow the instructions below:

1. Fill out the registration form in the middle of the book, or in person at any of our training centres and bring in to any of our training centres in person, or;

2. Register online http://lu353.com/Spring2020.html, or;

3. Use the QR Code to take you to the online registration form, or;

4. Fill out the registration form and use the self-addressed stamped envelope to mail to:

   IBEW Local 353  
   Spring 2020 Course Registration  
   Toronto Training Centre  
   1377 Lawrence Ave. East  
   Toronto, ON M3A 3P8

***Please note that registrations that are received PRIOR to January 6th are drawn lottery-style at the end of the day***

PHONE REGISTRATIONS ARE NOT ACCEPTED.

Registration opens Monday January 6, 2020 at 7:30am and is processed on a first-received-first-served basis.

Applications for second courses will ONLY be processed if space is available after January 17, 2020.

CANCELLATION POLICY

If you are unable to attend a course, or if you are going to be absent, please be courteous and contact the Education and Training department prior to the start date. This opens up space for other members to attend our programs. If you don’t notify the office prior to the start of the course, an administrative fee of $75.00 will be levied.

For cancellations or missed classes, please notify the Education and Training department.

416.510.5265 or 5259
learning@ibew353.org

416.510.5285
http://lu353.com/CancelAbsence.html
**COURSE ELIGIBILITY**

Courses are open to Journeypersons and Senior Apprentices who have successfully completed Advanced Trade School unless otherwise noted in the prerequisite of the course description.

Courses marked with an asterisk (*) are open to all members.

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**TEXTBOOKS AVAILABLE**

The Education Committee has the following textbooks available for purchase at the Local Union office:

- Electricians Guide to AC Motor Control
- Electricians Guide to Conduit Bending
- Ugly’s Electrical Reference Guide
- Occupational Health & Safety Act Regulations
- Canadian Electrical Safety Code
- The Illustrated Code Series Electrical

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**COURSE REIMBURSEMENT**

Members who enroll in trade related courses other than those offered by the Local may be eligible to have the course fee reimbursed under the following guidelines:

a) The application form must be completed in FULL.

b) Include a course outline, proof of payment and proof of successful completion and/or attendance.

c) The course must be trade related as determined by the Education Committee.

d) The applicant will be reimbursed when the following requirements are met:
   
a. Attending 80% of the course program
   b. Successful completion
   c. Any pre exam course applicant must write and pass that specific exam (and provide proof such as a copy of your license).

There is a ceiling of $250.00 per calendar year. Reimbursement applications are available at the Local Union Office reception or through the education department. It takes approximately 4 – 8 weeks to process requests. They are approved on a monthly basis by the Education Committee.

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**REGISTRATION IS ON A FIRST-RECEIVED-FIRST-SERVED BASIS.**

If you are interested in taking two (2) or more courses for the Spring 2020 session, please call the information line at (416) 510-5284 or the education and training office after January 17th for available courses.

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**EDUCATION & TRAINING INFORMATION LINE (416) 510-5284**

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<thead>
<tr>
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<tr>
<td>1</td>
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**EDUCATION FUND TRUSTEES**

- Steven Martin  Business Manager/ Financial Secretary
- Robert White  President

---

**LOCAL 353 EDUCATION & TRAINING CENTRES**

- Susan Boorman  Director of Education and Training
- Brent Morgan  Education Coordinator

---

**EDUCATION COMMITTEE**

- Susan Boorman  Chair
- Aaron Zboch-Alves  Co Chair
- A.C. Calvo  Recording Secretary
- Michael Arruda  Mike Belperio
- Fuad Mude  Ian Reece
- Eric Silva  Mark Steane
- Robert White  

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**COURSE AMENDMENTS**

Any requests for amendments to the final marks and standing shall be made no later than the end of the next semester.
<table>
<thead>
<tr>
<th>Course Name</th>
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From the Director’s Desk

Welcome from Susan Boorman, Director of Education and Training

For those members who might be opening this course catalogue for the first time, WELCOME to IBEW Local 353’s education and training programs.

Our department strives to keep current with ever changing and evolving technologies directly and indirectly related to our industry. Perhaps you are rusty, perhaps you’re interested in new technology – either way, we are pleased to offer a lineup of courses to brush up on those skills or for you to take the opportunity to challenge yourself in taking a course in a new field.

As members, education and training belongs to you. I look forward to seeing many more of you taking advantage of what we have to offer across our four training centres.

Susan Boorman
Director of Education and Training
IBEW Local 353
National Advanced Lighting Controls

*Prerequisite – Journeyperson Electrician plus successful completion of 10 hours of preparatory online work prior to in-class training.*

In the North American construction and building maintenance sector, there is increasing demand for detailed knowledge of advanced lighting controls. This NALCTP Program trains and certifies Red Seal Electricians in the proper programming, testing, installation, commissioning and maintenance of advanced lighting control systems in commercial and industrial facilities. With proper installation, advanced lighting controls improve energy efficiency in commercial facilities and save significant dollars.

The highest certification in this field is available through the National Advanced Lighting Control Training Program (NALCTP). Successful completion of this course will secure an internationally recognized certification.

Students should be aware that this is an intensive course and will require additional homework some evenings. The NALCTP exam will be given on the last night of class.

**NOTE! There is also approximately 10 hours of preparatory online work that must be completed before the start of in-class training.** Details and login information will be provided to course registrants upon confirmation of enrolment.

For more information on NALCTP, visit www.nalctp.org

► Please note! Full attendance is required to write the certification exam.

**Please note there is a maximum of ten (10) participants in this program**

Course A: ............ALC 1/20
Start Date:............Monday January 20, 2020
"please note there will be an additional class on Wednesday February 19
Time: ..................6:30pm - 9:30pm
Sessions:.............17
Location:.............Toronto Training Centre

Course B:............ACMC 2/20
Start Date:............Tuesday February 18, 2020
Time: ..................6:30pm - 9:30pm
Sessions:.............11
Location:.............Oshawa Training Centre

A.C. Motor Control – Level I

*Prerequisite – Fourth term Apprentice.*

This course is designed to introduce the students to the development of A.C. Motor Controls and give them an understanding of their function and uses. The course content includes an in-depth study of reading basic control circuits and sequences of operation, and designing a schematic control circuit including proper layout and wiring methods.

Hands-on wiring projects include start/stop/jog, hand/off/auto, interlocking and forward/reverse applications. The students will have the opportunity to draw control circuits used in conjunction with their assignments. These computerized circuits can then be put in a run mode and tested prior to wiring.

The course objectives are to strengthen the students logical thinking in reading and deciphering the information in control circuits.

Course A: ............ACMC 1/20
Start Date:............Tuesday February 18, 2020
Time: ..................6:30pm - 9:30pm
Sessions:.............11
Location:.............Mississauga Training Centre

Course B:............ACMC 2/20
Start Date:............Tuesday February 18, 2020
Time: ..................6:30pm - 9:30pm
Sessions:.............11
Location:.............Mississauga Training Centre

*Electronics – Level I*

Can you read a discrete component electronic schematic? Could you design a feedback regulated linear power supply? If not, then come out and take part in this exciting new course. This hands-on, experiment-oriented course begins with the basics and progresses to advanced topics with minimal math emphasis. This course is geared to enable individuals to continue building enhanced electronic circuits and develop their design know-how while working at a casual pace.

Students will learn about active filters, multistage power amplifiers, voltage controlled oscillators, Schmitt triggers, thyristors and more by constructing discrete device and op-amp circuits from scratch. Throughout the creation of these projects, students will develop troubleshooting skills by working with test and measurement equipment such as bench lab power supplies, function generators, analog and digital oscilloscopes.

In addition to prototyping working circuits on breadboards, students will develop hardware assembly expertise by soldering, testing and troubleshooting a simple functional digital test instrument.

Course No:............ELEC 1/20
Start Date:............Tuesday February 18, 2020
Time: ..................6:30pm - 9:30pm
Sessions:.............12
Location:.............Toronto Training Centre
MicroLogix RSL500 Family of PLCs

Prerequisite – Fourth term Apprentice or Journeyperson Electrician and working knowledge of Windows Word and Excel. Some knowledge of Ladder Logic Programming is useful but not required.

In this course students will be introduced to the MicroLogix Family of PLCs, the programming vehicle for all MicroLogix family of PLCs including the 1000, 1100, 1200. The focus will be on the SLC500 PLCs which are found in industry, commercial, home, environment and personal use. The structure and function of the PLC will be presented with an opportunity to wire a PLC.

A major component of this course is to learn the systematic procedures used to troubleshoot common problems encountered in an industrial PLC-driven environment. Topics for discussion and lab exercises consist of: input, output and CPU functions and how a PLC works; number systems, decimal, binary, octal and hexadecimal; digital and analog data; introduction to logic, AND, OR, NOT; processor data organization; PC to PLC communication protocols; series/parallel and start/stop/jog programming; latch unlatch functions; time delay ON/OFF functions; traffic light and flashing light function. Students will program in RSL500 Ladder Logic in this course.

Each student will be assigned to an individual station with a dedicated computer and MicroLogix PLC to learn and explore the above functions. Students will have access to a free RSL500 software package which can be run on any windows based laptop or desktop computer with adequate memory which includes a simulation program.

Students will be able to create an original project to simulate a typical industrial production line upon completion of this course.

Variable Frequency Drives – Level I

Prerequisite – Fourth term Apprentice with successful completion of intermediate trade school.

This course introduces the student to variable frequency drives (VFDs), with an emphasis on the basic theory of VFDs and an understanding of their uses. Discussions will include simulated voltages, insulation class of motors, slip range, wiring methods, line and load reactors, and harmonics. We will also review trouble shooting, what effect ground faults have on VFDs, human interface modules (HIMs), auxiliary motor fans and why they are used.

Students will learn proper installation and control methods and then have the opportunity to wire and program a VFD to perform commands such as controlled acceleration and deceleration of a motor.

Programming Siemens PLC & HMI

This course will take you for a guided tour of Programmable Logic Controllers (PLC), Human Machine Interfaces (HMI) as well as Sensors. The course is divided into four (4) broad categories;

- Trouble shooting automation systems
- Connecting sensors to a PLC
- Building HMI control screens.
- Programming Siemens S7 1200 PLCs

The learner in this course will be provided with a full work station and all the necessary items to create their own PLC circuits and programs. This hands-on style course is designed for individuals who are comfortable reading and interpreting hardware and software manuals and have the initiative to work through difficult exercises in programming logic.

Traffic Signals

This program is designed to give the participant a general overview of the components that make up a signalized intersection, and how those components are put together to form a fully functional traffic signal installation. Safety while working in close proximity to vehicular traffic, conductors, signals, hardware and the traffic controller are just some of the topics that will be discussed. In-class instruction and demonstrations as well as practical lab assignments will give the participant a greater understanding of this unique area of our electrical industry.

Registering for Working at Heights and Working at Heights Refresher – A Few Reminders

Just as a recap for the membership, the new Working at Heights (WAH) program has a three (3) year expiration date from certification as opposed to the two (2) years under the old Fall Arrest program. Members are required to complete a Working at Heights Refresher (WAHR) course prior to the expiration of their certification.

The initial and refresher training is available to all classifications on the out of work/NAT list including Low Rise Journeymen.

Members who are out of work and require either WAH or the WAHR course must register with the education and training administration staff.
Members successfully completing the Fire Alarm & Protection Systems four-level program will receive a certification card. This card is recognized by the Fire Marshall's office for performing annual tests, inspections, repairs and alterations to existing Fire Alarm Systems as outlined in the Ontario Fire Code Reg. 213/07.

**Fire Alarm – Level I**

*Installation of Fire Alarm Control Panels and Input & Output Devices*

**Prerequisite – Third term Apprentice with successful completion of intermediate trade school.**

This course is designed to develop your fire alarm knowledge and practice with basic fire alarm components and their function in conventional electro/mechanical systems. You will design complete systems with layout, schematic and riser diagrams from basic systems for a commercial complex – complete with related hydro, ULC and building codes that are based on CAN/ULC-S524 “Standard for Installation of Fire Alarm Systems.” This program is an introduction to the fire alarm industry, classes of wiring, codes, and installation of conventional fire alarm panels and devices.

**Course A:**
- **FAI 1/20**
- **Start Date:** Monday February 3, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 12
- **Location:** Mississauga Training Centre

**Course B:**
- **FAI 2/20**
- **Start Date:** Monday February 3, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 12
- **Location:** Mississauga Training Centre

**Course C:**
- **FAI 3/20**
- **Start Date:** Wednesday February 19, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 12
- **Location:** Toronto Training Centre

**Fire Alarm – Level II**

*Integrated Fire Alarm Controls EVAC Systems & Fire Alarm Extinguishing Control Panels*

**Prerequisite – Successful completion of Fire Alarm – Level I.**

This course is designed to give students a complete and accurate look at the installation of a modern fire alarm system. Upon completion of this course the journeyperson electrician should be capable of installing a complete fire alarm system and all aspects related to such systems. The course references the CAN/ULC-S537 “Standard for the Verification of Fire Alarm Systems.” Level II continues from the first course with the installation of EVAC panels, extinguishing systems, and fire pumps.

**Course A:**
- **FAII 1/20**
- **Start Date:** Monday February 3, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 14
- **Location:** Mississauga Training Centre

**Course B:**
- **FAII 2/20**
- **Start Date:** Wednesday February 5, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 14
- **Location:** Barrie Training Centre

**Fire Alarm – Level III**

*Troubleshooting Complete Fire Alarm Systems*

**Prerequisites – Journeyperson electrician and successful completion of Fire Alarm – Level II.**

Previous fire alarm courses have dealt with external wiring methods. Fire Alarm Level III will take the Journeyperson step-by-step into the internal workings of the fire alarm panels. This course is concerned primarily with troubleshooting techniques applied in a logical sequence and the student will be taught to identify and diagnose faults occurring on a variety of systems. Upon completion, the student will have had the opportunity to develop proven troubleshooting and repair methods of fire alarm systems. The course references CAN/ULC-S536 “Standards for the Inspection and Testing of Fire Alarm Systems.” This level deals with the operation of the fire alarm panel and focuses on system troubleshooting.

**Course A:**
- **FAIII 1/20**
- **Start Date:** Tuesday February 11, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 14
- **Location:** Oshawa Training Centre

**Course B:**
- **FAIII 2/20**
- **Start Date:** Wednesday February 19, 2020
- **Time:** 6:30pm - 9:30pm
- **Sessions:** 14
- **Location:** Toronto Training Centre

*Training is everything. The peach was once a bitter almond; cauliflower is nothing but cabbage with a college education.*

— Mark Twain
Fire Alarm – Level IV

Advanced Fire Alarm Control Panels:
Addressable Digital Analog Devices

Prerequisite – Successful completion of Fire Alarm - Level III.

This course takes the student into the world of the microprocessor-based fire alarm systems. Along with this advanced technology comes the need to change the way we think of a fire alarm as well as the way we wire, install and maintain these life safety systems. Even the classifications of field wiring have had to change.

Topics covered include:
- Binary and hexadecimal counting
- Programming of smart detection devices
- How data is transmitted
- Use of fibre optics in computerized fire alarm systems
- How to install and set up these systems

Combining all this with the hands-on learning and shop work on these new systems, the student should be able to compliantly install these state-of-the-art pieces of equipment. The course references CAN/ULC-S527 “Standards for Control Units for Fire Alarm Systems”.

Course No: ............FAIV 1/20
Start Date: ............Tuesday February 4, 2020
Time: .................6:30pm - 9:30pm
Sessions: ............14
Location: ............Toronto Training Centre

Fire Alarm Certificate Renewal

Prerequisite – Successful completion of Fire Alarm Level 4 or Certificate Renewal, and current CERTI-FIRE license holder.

Under the agreement with the Ontario Fire Marshall’s Office, Fire Alarm Certificates must be renewed every five years. This program reviews the requirements of the ULC standards, the Ontario Building Codes, OHESC and the Ontario Fire Code – with emphasis on changes to the codes and installation methods and technology. Students will receive updated code information and upon successful completion have their certification renewed for five years.

Course A: ............FA REN 1/20
Start Date: ............Monday February 3, 2020
Time: .................6:30pm - 9:30pm
Sessions: ............12
Location: ............Mississauga Training Centre

Course B: ............FA REN 2/20
Start Date: ............Tuesday February 4, 2020
Time: .................6:30pm - 9:30pm
Sessions: ............12
Location: ............Toronto Training Centre

Telecommunications

Under the new memorandum of agreement signed between IBEW LU 353 and GTECA in the Communication Sector, communication designated Journeyman Communication Technicians Level 3 will be required to maintain skills upgrading at a minimum of 40 hours per year of update training courses in order to keep their designation.

Journeyman Communication Technicians Level 2 must also have successfully completed a minimum of 40 hours of communication or vendor specific training as defined and approved by the IBEW and GTECA. (Eligible programs are marked with an ✫).

These courses are open to all members (or members that meet the prerequisites), but preference will be given to members in the Communications sector.

Network Cabling – Part I ✫

Basic Level Voice & Data Communication Cabling Systems

Prerequisite – Minimum first term Apprentice or Journeyperson Electrician and members working under the communication section of the collective agreement. Good colour distinction skill is crucial.

This course is the first step of three in becoming certified as an IBEW Communication Electrician (when promoted by an employer). Students successfully completing this course will have a good grasp of fundamental voice and data cable installation procedures and can advance to the Level II course.

This course has a significant hands-on component where students construct an industry standard structured cabling system and also have the opportunity to test every aspect of their installation. Learn all the critical details of installing category 5e cable and the correct termination procedures of high performance connectors. Each student will be assembling their own structured cabling system consisting of Belden, CommScope (Systimax) products and other vendors’ products popular in the marketplace. The student will gain an understanding of all aspects of cable testing procedures by using state-of-the-art testing equipment.

Questions addressed in this course:
- Are T568B terminations better than T568A?
- What is a binder group?
- What is the difference between split pairs and crossed pairs?
- What is the maximum pull tension of a 4-pair cable?

Course No: ............NCI 1/20
Start Date: ............Thursday February 13, 2020
Time: .................6:30pm - 9:30pm
Sessions: ............12
Location: ............Oshawa Training Centre

Education's purpose is to replace an empty mind with an open one.

— Malcolm Forbes
Network Cabling Specialist (NCS) – Pre-Exam

Recommended prerequisite – Successful completion of Network Cabling Specialist course or equivalent.

This course covers the ANSI/TIA-568, as well as the 569, 606 and 607 standards in preparation for writing the Network Cabling Specialist Certificate of Qualification exam. Portions of the Ontario Building Code and the Canadian Electrical Code pertaining to telecommunication installations are also reviewed. This course is highly recommended for anyone wishing to challenge the C of Q exam.

The Ontario College of Trades specifies a minimum of 4,000 hours of experience in telecommunication cabling installations to write the NCS C of Q exam. To be successful, expect to allocate at least two hours weekly to review course material.

For the first class, the current Electrical Safety Code book (Ontario or Canadian edition) and a basic calculator are required. Codebooks are mandatory for this program and the Canadian edition (with Ontario amendments) is available for purchase.

Course No:........NCS 1/20
Start Date:.........Tuesday February 18, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........12
Location: ..........Oshawa Training Centre

*Fibre Optics - Level I

In this updated program, students will learn about the world of Fibre Optics including:

- The basics of light transmission
- Safe handling procedures
- How to install connectors
- The basics of testing fibre cables

Students will also be preparing and terminating a variety of fibre connectors from top tier manufacturers. Connector styles include ST, SC, and LC used in current installations.

LSER Optimized fibre and its unique performance properties is also covered in this program. Also discussed is the important how’s and why’s of preparing a light budget.

When completed, the students will be able to actually apply their newly learned skills on the job.

Course A: ...........FOI 1/20
Start Date:.........Monday February 3, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........12
Location: ..........Oshawa Training Centre

Course B: ...........FOI 2/20
Start Date:.........Tuesday February 18, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........12
Location: ..........Mississauga Training Centre

*Fibre Optics - Level II

Prerequisite – Fibre Optics – Level I

Students will learn all aspects of fiber optic cable installation in a local area network environment. Both multimode and single-mode fiber types are covered. Cable placement, fusion and mechanical splicing, cable termination (connector installation and pigtail splicing) and acceptance testing are taught with extensive hands-on practice. Students will build, test and troubleshoot complete single-mode and multimode systems in this class. Also covered is the use of equipment, hardware and procedures pertaining to building distribution and campus applications.

This course includes a complete and authorized instruction of the Corning Fiber Installation (CFI) Course. Upon successful completion of the course, students will receive an additional certificate for completion of the Corning Fiber Installation (CFI) class and will be eligible for all the credits associated with the course.

Course No:........FOI 1/20
Start Date:.........Monday February 3, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........12
Location: ..........Mississauga Training Centre

*CSTT Installer Program

This course will cover cut, strip, terminate and test structured wiring cables with a focus on correct preparation, termination and installation guidelines of audio/video, telecom/voice, and network/data cables. Everything you need to know for basic testing and troubleshooting of coax and twisted pair cables is covered in the test portion of the program.

Course A: ...........CSTT 1/20
Start Date:.........Thursday March 19, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........2
Location: ..........Toronto Training Centre

Course B: ...........CSTT 2/20
Start Date:.........Thursday March 19, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........2
Location: ..........Toronto Training Centre

Course C: ...........CSTT 3/20
Start Date:.........Thursday April 16, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........2
Location: ..........Toronto Training Centre

Course D: ...........CSTT 4/20
Start Date:.........Monday May 4, 2020
Time: ............6:30pm - 9:30pm
Sessions: ..........2
Location: ..........Barrie Training Centre

Get over the idea that only children should spend their time in study. Be a student so long as you still have something to learn, and this will mean all your life.

— Henry L. Doherty
Computer Studies

*Computer Operations – Level I

Students will learn the fundamentals of computer use through classroom lectures and practical exercises using computers. Specific subject matter will include:

- Understanding startup and login
- Keyboard, mouse, monitor, printers and their ports
- The graphic user interface including icons, shortcuts and the desktop
- Introduction to the file system, including drivers and devices
- Understanding startup and login
- How to keep your computer safe and running smoothly

This course is recommended for members that may not be as proficient with computers as they would like to be. It is also a great place to start for those who are interested in other computer courses that are offered such as AutoCAD, Practical Computer Use and Computerized Electrical Estimating.

Networking Fundamentals

Prerequisite – Proficiency with Windows 7 and/or 10 computer use.

Networking is no longer used just to connect computers to the internet, but is a central part of countless systems including building automation, security and audio visual systems. As a result, there is an even greater need for fundamental networking knowledge and skills on the job.

This course lays the foundation needed by members in all of these areas and many other tasks across our sectors. Upon successful completion of this course, students will be able to describe, verify and configure the basic requirement of Ethernet and both IPv4 and IPv6 for routing, address subnetting and effectively use a variety of both graphic and command line troubleshooting tools.

The course is a prerequisite for Configuring and Troubleshooting Networks for Business Systems and a critical skill for communication technicians and ICI electricians working with modern infrastructure and systems.

Introduction to the Raspberry Pi

Originally developed as an affordable single board computer to promote teaching in the U.K., the Raspberry Pi has become the third best-selling computer brand in the world. Outside of schools it quickly grew into the preferred platform by hobbyists and professionals alike for multiple uses – software development, prototyping, DIY Home Automation, Internet of Things and more.

Each student in this class will work hands-on with the Raspberry Pi and the lab electronics to learn the fundamentals of working with the Raspberry Pi and build projects for themselves with:

- RGB LEDs
- Addressable LEDs
- OLED and LCD displays
- PIR motion sensor
- Graphic Interfaces
- Websites
- Email Alerts
- Barometric pressure sensors
- Temperature
- Humidity

Weather station with:

- PIR motion sensor
- RGB LEDs
- OLED and LCD displays
- PIR motion sensor
- Graphic Interfaces
- Websites
- Email Alerts
- Barometric pressure sensors
- Temperature
- Humidity

And there is much more!

This class is a great addition for those who have taken the Inventing with Programmable Microchips course but it is not a prerequisite.

*Google Suite

Prerequisite – Basic knowledge and familiarity with using a computer.

In this new course, students will learn to use the applications included in G Suite and improve their personal and office productivity.

This course teaches the basics of the applications found in G Suite to include Gmail, Google Drive, Google Docs, Google Slides, Google Sheets, Google Forms, Google Calendar and Google Keep. This is truly an all-in-one G Suite course.

The lessons in this course cover:

- Creating a Gmail account and using it to its full potential
- Using Google Drive and storing and sharing documents in the cloud
- Using Google Docs to insert and format text and media and collaborate with multiple users
- Creating engaging presentations with Google Slides
- Creating Google Sheets to manage financial data
- Using Google Forms to solicit information or make survey and quizzes.
- Creating Google Sites to share ideas and information on the web
- Using Google Calendar to manage your schedules and engagements
- Using Google Keep to create reminders/notes and share information online.

The highest result of education is tolerance.

— Helen Keller
**AutoCAD Essentials for Electricians – Level I**

The AutoCAD Essentials course is designed for the beginner AutoCAD user. It covers just about all of the 2D AutoCAD commands. Even students with no previous CAD experience can progress quickly in this course that is arranged in a natural sequence that is easy to understand. Students immediately apply what they have learned from brief theory presentations in hands-on exercises.

This comprehensive course designed for the electrical trade covers: viewing and creating accurate drawings, editing, managing object properties, creating and inserting blocks, applying dimensions, annotations and hatch patterns, as well as plotting techniques. The emphasis is on the specifics of the tools in the software along with the necessary concepts and techniques used by electricians that allow users to be productive regardless of their drafting discipline.

**Course No:** CAD 1/20  
**Start Date:** Monday February 24, 2020  
**Time:** 6:30pm – 9:30pm  
**Sessions:** 11  
**Location:** Mississauga Training Centre

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**AutoCAD Essentials for Electricians – Level II**

**Prerequisite – AutoCAD Level I**

The AutoCAD Essentials – Level 2 course is designed for the AutoCAD user who has completed a Level 1 ACAD course. There will be a brief review of the commands and concepts learned in Level 1 in order to continue increasing your knowledge of this powerful program. This course, designed for the electrical trade, will take you beyond the basics so you can apply your understanding to the work you’re doing in the field.

Building on the material learned in AutoCAD Level 1, this course will strengthen the skills gained in the introductory class. Advanced topics include layer control, printing, creating and editing viewports, block attributes, drawing references, navigating the AutoCAD tool palettes, and customizing the interface. In addition to weekly exercises, a final project will be assigned at the end of this course that will incorporate all materials learned in class and will be an example of drawings encountered in the industry.

**Course No:** CAD2 1/20  
**Start Date:** Tuesday February 25, 2020  
**Time:** 6:30pm – 9:30pm  
**Sessions:** 11  
**Location:** Mississauga Training Centre

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**Licensing & Classification**

**Masters License – Pre-Exam**

**Prerequisite – Must have a 309A with a minimum of three (3) years experience as an Ontario Journeyman Electrician.**

This review course will cover the latest Ontario Electrical Safety Code. Related topics include: Occupational Health & Safety Act (O.H.S.A.), Lien Act, Workers Health & Safety Act and Local Union By-laws as they apply to the Master Electrician.

**NOTE: A COPY OF YOUR CURRENT 309A LICENSE MUST BE INCLUDED WITH YOUR REGISTRATION OR IT WILL NOT BE PROCESSED. YOU MUST HAVE YOUR 309A FOR A MINIMUM OF THREE (3) YEARS.**

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**Session** | **Course A:** PEM 1/20  
**Start Date:** Monday January 20, 2020  
**Time:** Saturdays 9:00am – 4:00pm  
**Sessions:** 17  
**Location:** Mississauga Training Centre

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**Session** | **Course B:** PEM 2/20  
**Start Date:** Monday April 13, 2020  
**Time:** Weekdays 6:30pm – 9:30pm  
**Sessions:** 17  
**Location:** Mississauga Training Centre

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Your education and training team is here for you, the membership.

In our Toronto Training Centre, we house:  
- Susan Boorman, Director of Education and Training  
- Mike Rogge, Project Manager  
- Paul van Fraassen, IT Education Support  
- Ralph Heath, Education Support Staff  
- Katherine Hoy, Administrative Support Staff  
- Cindy Olders, Administrative Support Staff

In our Oshawa Training Centre, we house:  
- Brent Morgan, Education Coordinator  
- Leslie Acorn-Zilinska, Administrative Support Staff

In our Mississauga Training Centre, we house:  
- Sharon Watt, Education Support Staff  
- Peter Darnbrough, Education Support Staff

This is your IBEW Local 353 education and training staff members, and feel free reach out to any of us – we’re happy to help.
**309A Pre-Exam Course**

Prerequisite – Must be a 5th term Apprentice, completed all three (3) levels of trade school, and cleared to write by the Joint Apprenticeship Council.

This Pre Exam course is designed on a proven successful model of learning how to write the C of Q and masters exam, or for that matter, any electrical trade exam. Throughout the course the apprentice will learn the “tricks of the trade” of exam writing combined with the refresher of the actual material topics such as, but not limited to, common occupational skills, installation of services, motors and controls, distribution equipment and communication systems.

After successful completion of the course, the apprentice will have demonstrated their strengths to be able to understand and communicate effectively on the “how to write an electrical exam,” with the ability for understanding, interpreting and solving the question to find the best answer.

The overall plan is to attend class with the workbook homework completely prepared. The class will then spend time analyzing the structure and details of the question and answer choices. At the end of the course there will be a simulated comprehensive four-hour exam with detailed take-up. The apprentice will have a maximum of nine days to continue studying from the additional practice exam questions and no later than the tenth day of completing the course the apprentice will be writing a previously scheduled exam.

*Please note: Apprentices will be required to purchase the on-line C & M Practice Exam Questions through Orderline. Apprentices will be eligible for reimbursement of this cost upon successful completion of the C of Q exam through the Education and Training fund."

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**Conduit Bending & Fabrication**

**Conduit Fabrication Level I**

Prerequisite – Minimum first term Apprentice.

This introductory course was designed to provide members with an overview of EMT conduit bending procedures. It is intended for members who have minimal or no conduit bending skills. The focus of this course is to provide members with a hands-on opportunity to practice conduit bending using hand benders.

**NOTE: Safety shoes or work boots must be worn during class.**

<table>
<thead>
<tr>
<th>Course A</th>
<th>Start Date</th>
<th>Time</th>
<th>Sessions</th>
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<tbody>
<tr>
<td>CF1 1/20</td>
<td>Tuesday February 18, 2020</td>
<td>6:30pm – 9:30pm</td>
<td>10</td>
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<tr>
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<tbody>
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<td>CFQ 2/20</td>
<td>Tuesday April 7, 2020</td>
<td>6:30pm – 9:30pm</td>
<td>10</td>
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<th>Course C</th>
<th>Start Date</th>
<th>Time</th>
<th>Sessions</th>
<th>Location</th>
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<tbody>
<tr>
<td>CF1 3/20</td>
<td>Monday February 24, 2020</td>
<td>6:30pm – 9:30pm</td>
<td>10</td>
<td>Toronto Training Centre</td>
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**Conduit Fabrication – Level II**

Prerequisite – Successful completion of Conduit Fabrication Level I.

This course is designed to provide members the fundamentals of mechanical bending through shop lectures and hands-on exercises. Students will learn the methodology of ‘practice precision’ while working with EMT and rigid conduit ranging in size from 1” to 4”.

This course also offers mathematical formulas, application techniques and safety procedures, and allows the students to familiarize themselves with common bending equipment and correct set-up and operation for the job site.

**NOTE: Safety shoes or work boots must be worn during class.**

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<thead>
<tr>
<th>Course A</th>
<th>Start Date</th>
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<td>CFII 2/20</td>
<td>Monday February 24, 2020</td>
<td>6:30pm - 9:30pm</td>
<td>10</td>
<td>Mississauga Training Centre</td>
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*Trade Applications*

This review course is being sponsored by the Examining Board to assist members with reclassification and preparing for the exam.

Topics covered in this program include:

- Conduit bending and installation of EMT and rigid conduit, core line and PVC
- 3-phase power – including load balancing, 3-phase and neutrals
- Current safety and code regulations
- Grounding services and transformers
- Class of power
- Class of fuses
- Line hazards and tag and lock procedures

When complete, students will be better prepared to write the exam.

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<tr>
<th>Course No</th>
<th>Start Date</th>
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<td>TRADE 1/20</td>
<td>Thursday February 20, 2020</td>
<td>6:30pm – 9:30pm</td>
<td>11</td>
<td>Mississauga Training Centre</td>
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*Education isn't something you can finish.*

— Isaac Asimov
Conduit Fabrication – Rigid Bending and Threading

**Prerequisite – Successful completion of Conduit Fabrication Level I.**

Students will learn cutting and threading techniques for small and large rigid conduits through a variety of hands-on assignments and lectures. These techniques will include the use of hand, portable and industrial power tools. Students will also learn safety procedures as they apply to the various pieces of equipment.

Along with the cutting and threading of rigid conduit, students will learn how to bend rigid conduit using various styles of benders and some of the nuances between rigid conduit and EMT systems.

**NOTE:** Safety shoes or work boots must be worn during class.

Welding – The Fundamentals

**Prerequisite – Journeyperson Electrician.**

This course is designed as the first step for members interested in certified welding within the electrical trade. This fundamental course will allow the students to become familiar with the equipment and tools used to do Shielded Metal Arc Welding (SMAW) and oxy-acetylene cutting. Students will practice the SMAW stick process in the flat, horizontal, vertical up and overhead positions depending on the individual students ability. All practical exercises will be reinforced through general class sessions that will include welding theory, safety and symbology.

**NOTE:** PPE, safety shoes or work boots must be worn during class.

****THERE IS A $250.00 NON-REFUNDABLE FEE FOR A STUDENT KIT. IT MUST BE PAID PRIOR TO THE START OF THE FIRST CLASS**

Welding – Level I

**Prerequisite – Journeyperson Electrician and Welding – The Fundamentals or equivalent experience.**

This course is designed as the second step for members interested in certified welding within the electrical trade. This Level I course will allow the student to become more familiar with the equipment and the tools used to do Shielded Metal Arc Welding (SMAW). Students will practice the SMAW stick process, honing their skills in the flat and horizontal positions, to prepare for the Canadian Welding Bureau (CWB) test on these two positions. Practical exercises will be reinforced through general class sessions that will include a continuation of welding theory, safety and symbology.

A testing date will be established closer to the end of the course for students who are ready. A separate charge will apply for testing costs. Members taking this course are asked to bring their original manual from the “Welding Fundamentals” class as we will be adding material to it.

**NOTE:** PPE, safety shoes or work boots must be worn during class.

Welding – Level 2 (Certification)

**Prerequisite – Successful completion of Welding – Level I flat and horizontal or have documented current CWB flat and horizontal welding tickets.**

This training course will enable members to upgrade their welding skills in order to pass the Canadian Welding Bureau (CWB) test for the vertical and overhead positions.

This course includes an explanation of essential variables regarding welding certification including joint design, thickness range and positions qualified, base metals, electrodes qualified for avoiding weld defects, causes and remedies for undercut, overlap, porosity and spatter.

Practical topics included in this course are:

- Setting up welding parameters for vertical and overhead positions.
- Welding in the vertical up and overhead positions with 70189 on Tees and Lap joint.
- Overhead and vertical up welding on butt joints simulating CWB test.

At the end of the course, trainees will be given a practical CWB test for vertical up and overhead positions. There will also be a theory test based on the CWB testing.

A testing date will be established closer to the end of the course for students who are ready. A separate charge will apply for testing costs. Members taking this course are asked to bring their original manual from the “Welding Fundamentals” class as we will be adding material to it.

**NOTE:** PPE, safety shoes or work boots must be worn during class.

**Please note that the first class will start at 6:00pm to facilitate the distribution of PPE**
Electrical Estimating - Introduction

This course is ideal for electricians with a desire to learn the basics of producing electrical construction estimates. The course will take the students from an overview of electrical estimating to performing actual estimates. The focus is on practical information rather than a textbook. This course is designed for the service-small jobbing environment and will offer an approach to material take-off including appropriate order and types of forms available.

Topics such as where to start, material, pricing, recapping and quotations are also covered.

Solar Energy – Level I

Introduction to inverter-based electrical power generation, storage and grid-tie.

Prerequisite – 309A license holder or 309A Apprentice.

**NOTE: A COPY OF YOUR CURRENT 309A LICENSE OR OCOT MEMBERSHIP NUMBER MUST BE INCLUDED WITH YOUR REGISTRATION OR IT WILL NOT BE PROCESSED.

This course introduces the student to the production of usable power from Photo-Voltaic technology.

The student will learn the theoretical aspects of today’s solar PV technology and familiarize themselves with the terminology, calculations and what to consider for proper site location, sizing and designing these systems.

This course will demonstrate the construction of solar arrays, and the installation of inverters. Students will also review the electrical code requirements, and focus on the applicable concepts for grounding and bonding as well as the Ontario – Micro and Fit regulations and work through the requirements of this initiative.

Although this is not a hands-on course, it includes working through a system design from concept to final layout including financial analysis and all major considerations for Solar PV.

Solar Energy – Level I is recognized by the National Training Alliance (IBEW-NECA) and successful completion of this course entitles the student to the Ontario Electrical Industry Training Trust (OEITT) Solar Installer certification card.

Computerized Electrical Estimating – Part I

Prerequisite – Journeyperson Electrician with computer literacy and successful completion of Electrical Estimating – Introduction.

This program uses Accubid software and is designed to teach individuals sound principles and proven methodologies of hands-on professional estimating. This course focuses on estimating techniques that emphasize accuracy and detail during takeoff. In addition to being taught hands-on techniques for counting and measuring materials during takeoff phase, students are shown how to organize those takeoffs into logical and functional breakdowns.

Throughout this course, students will exercise these principles and techniques by performing an instructor-led real-world type estimate using the latest in state-of-the-art Accubid software tools and materials.

VuBiz Renewed

IBEW Local 353 has renewed their subscription for online courses through VuBiz for another three (3) years covering subjects from WHMIS 2015 for Workers, Microsoft Office 2010, Back Safety, Basic Finance to VuKidz courses and more. A number of these courses are authored in French. The courses will be available to you and your friends and families 24 hours a day, 7 days a week until May 1, 2022. This means that you have three (3) years to take and retake any of these courses. Be sure to take advantage of as many as possible. We hope that you and your friends and family members will find several courses that will address both your needs and interests.

To start your learning experience, go to: http://learn.vubiz.com/chaccess/IBEW2_LU353

Every time that you sign on, you will need to enter:

- The IBEW Password which is: IBEW2
Solar Energy – Level II

Prerequisite – Journeyperson Electrician and Solar Energy – Level I

In the second level of the solar energy training, the student will build on the theoretical knowledge of photovoltaics learned in Level 1. We will also introduce some practical assembly and operational demonstrations. After completion of the course the student will be prepared to write the Canadian Standards Association’s (CSA) examination for solar photovoltaic electrician qualification (NOC 7241). The CSA exam includes PV-related knowledge areas such as safety, fire prevention, fall arrest and movable work platforms.

2018 electrical code bulletins from the Electrical Safety Authority (ESA) and CSA guidelines will be reviewed in-depth. The course will cover site evaluation and preparation and will look at roof structures and types of roofing materials.

Energy storage technology and the different types of batteries will be presented. Introduction of standalone inverter systems and micro-inverter based systems will also be covered.

**NOTE: There is a maximum of 12 registrants in this class.**

Electric Vehicle Infrastructure Training Program

Prerequisite – Journeyperson Electrician

**NOTE: PLEASE INCLUDE A COPY OF YOUR CURRENT 309A LICENSE and/or OCOT CARD WITH YOUR REGISTRATION**

The Electric Vehicle Infrastructure Training Program (EVITP) – Phase 1 is the first level of training for the installation and maintenance of plug-in hybrid electric vehicle (PHEV) and electric vehicle (EV) infrastructure.

This course will cover the detailed concepts required for the proper installation and maintenance of the infrastructure including:
- Automobile manufacturer’s charging performance integrity specifications
- EV battery types, specifications, and charging characteristics
- Utility interconnect, notice, policies and requirements
- Charging station fundamentals including brand/model-specific installation for both Level 1 & Level 2 charging stations
- Service level assessments and upgrade implementation
- Canadian Electrical Code (CEC) standards and requirements, and
- First responder safety and fire hazard measures

At the end of the course there is an industry exam available. The student will be required to pay an additional fee in order to sit the exam. Upon successful completion of the course and passing the exam, students will receive a certificate from EVITP.

Students should bring a copy of the Canadian or Ontario Electrical Code to class.

Introduction to Thermography

Prerequisite – Journeyperson Electrician

Many aspects of our industry are governed by temperature. From the terminations of conductors to the conductivity of disconnect switches, ‘heat’ is a big factor in the reliability and failures of our electrical equipment and installations. But what if you could see ‘heat’? Thermal Infrared Imaging allows you to ‘see’ the anomalies before they become a dangerous risk of fire and personal injury.

This course introduces the student to hand-on Infrared Thermography (Thermal-Photography) and through the use of in-class thermal imaging cameras, they get to see how heat is measured and recorded without ever making contact with a component. Unique thermal applications are discussed and demonstrated to showcase the incredible capabilities of this fascinating visual instrument.

As an Electrical Thermographer, there are a number of certification levels that can open up our industry to thermographic competency. From finding ‘Hot Spots’, to qualifying predictive and preventative maintenance procedures, thermal scanning reveals what abnormalities the naked eye cannot see.

*Electrical Health & Safety – An Introduction

This program is designed for all Local 353 members interested in basic health and safety concepts. This program will highlight the important components of the Occupational Health and Safety Act and Regulations for construction.

Topics covered included: health and safety definitions, legislation, standards, tables, duties, certified members, work refusal, personal protective equipment, committees, construction and electrical hazards, working live, Bill C-45, union agreement and lock and tag procedures.

There will be sample exercises on the course material to ensure positive understanding of the material. This course will help you become an informed health and safety representative on the job.

Always remember that “The capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a choice.”

— Brian Herbert

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**First Aid and CPR**

This is a two (2) session standard course where the participants receive training, testing and certification in both First Aid and CPR and a manual to keep for your own use.

*In order to successfully meet the requirements of this program, you must be on time and attend 100% and complete both days.*

<table>
<thead>
<tr>
<th>Course A: FA&amp;CPR 1/20</th>
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<tbody>
<tr>
<td>Start Date: Saturday February 29 AND Sunday March 1, 2020</td>
</tr>
<tr>
<td>Time: 8:00am – 4:00pm</td>
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<tr>
<td>Location: Toronto Training Centre</td>
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<thead>
<tr>
<th>Course B: FA&amp;CPR 2/20</th>
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<tbody>
<tr>
<td>Start Date: Saturday March 7 AND Sunday March 8, 2020</td>
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<tr>
<td>Time: 8:00am – 4:00pm</td>
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<table>
<thead>
<tr>
<th>Course C: FA&amp;CPR 3/20</th>
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<tbody>
<tr>
<td>Start Date: Saturday March 28 AND Sunday March 29, 2020</td>
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<tr>
<td>Time: 8:00am – 4:00pm</td>
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<td>Location: Oshawa Training Centre</td>
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<tr>
<th>Course D: FA&amp;CPR 4/20</th>
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<tbody>
<tr>
<td>Start Date: Saturday April 25 AND Sunday April 26, 2020</td>
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<tr>
<td>Time: 8:00am – 4:00pm</td>
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<tr>
<td>Location: Barrie Training Centre</td>
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**Basic Certification – Part I**

*Prerequisite –* In order to meet Ministry of Labour, and WHSC regulations, 100% attendance is required to successfully complete this course.

This course will empower workers and health and safety representatives with a better understanding of the Occupational Health and Safety law. Members who take this program will be more effective health and safety representatives or joint committee members, or may train to become WHSC qualified health and safety instructors.

This program consists of sixteen core modules including an introduction to the Internal Responsibility System; employer responsibilities under occupational health and safety law; worker participation and their rights to participate in health and safety. The Ministry of Labour (MOL) inspector’s role in enforcing the Act as well as the Joint Health and Safety Committees duties, functions and powers are also outlined in detail.

This program will also review the duties and qualifications of the certified member and their role regarding inspections, investigations, work refusals and interacting with MOL inspectors. Another key area we review in this program is the Health and Safety Policy and workplace hazard identification.

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<tr>
<th>Course No: SAFE 1/20</th>
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<tr>
<td>Start Date: Tuesday February 25, 2020</td>
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<tr>
<td>Time: 6:30pm – 9:30pm</td>
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<tr>
<td>Sessions: 10</td>
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<tr>
<td>Location: Mississauga Training Centre</td>
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**Shop Steward Training**

*Prerequisite – Journeyperson Electrician.*

The IBEW Local 353 Steward’s course will present the member with valuable information covering many areas of concern on the job site. Members will review the roles and responsibilities of the Steward, including labour studies, WSIB processes and health and safety issues. Topics to be covered also include the union at the job site, resources at the job site, representation of members, disputes on constructions sites and dispute resolution alternatives.

We will also look at the grievance procedure, including documentation, filing procedures and the role of the Steward in a grievance. An introduction and overview of the collective agreement, the IBEW constitution and Local 353 by-laws is also included.

This course will fill up quickly, so sign up as soon as possible as current working and past Stewards will be given priority.

<table>
<thead>
<tr>
<th>Course No: SST 1/20</th>
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<tr>
<td>Start Date: Monday January 27, 2020</td>
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<td>Time: 6:30pm – 9:30pm</td>
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<td>Sessions: 14</td>
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<td>Location: Toronto Training Centre</td>
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*The mark of higher education isn’t the knowledge you accumulate in your head. It’s the skills you gain about how to learn.*

— Adam Grant

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For cancellations or missed classes, please notify the Education and Training department.

If you are unable to attend a course, or if you are going to be absent, please be courteous and contact the Education and Training department prior to the start date. This opens up space for other members to attend our programs.

If you don’t notify the office prior to the start of the course, an administrative fee of $75.00 will be levied.

☎ 416.510.5265 or 5259
✉ 416.510.5285
✉ learning@ibew353.org
🌐 http://lu353.com/CancelAbsence.html
Thank you to our training partners.
IBEW 353 EDUCATION AND TRAINING

LEARN MORE, BE MORE.

Locations In:
- Barrie
- Mississauga
- Oshawa
- Toronto

3185 Orlando Dr., Mississauga

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2 Saunders Rd., Barrie

1377 Lawrence Ave. E., Toronto

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